OR 140 Corridor Plan:

I-5 Exit 35 to Brownsboro-Eagle Point Road

REFERENCE MATERIAL

DAVID EVANS AND ASSOCIATES INC.

Prepared for:

Oregon Department of Transportation

March 2013

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I-5 Exit 35 to Brownsboro–Eagle Point Road

Prepared for

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

Prepared by

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March 2013

Overview

This companion document to the OR 140 Corridor Plan contains the technical memorandums and analysis that was prepared during the development of the Plan. It also documents the public involvement that was conducted throughout the planning process.

DAVID EVANS AND ASSOCIATES INC.

Reference Material

Technical Memorandum #1: Review of Adopted Plans, Rules, and Regulations

Technical Memorandum #2: Study Area Definition, Goals and Objectives

Technical Memorandum #3: Environmental and Land Use Reconnaissance

Technical Memorandum #4: Existing Transportation System Conditions

Technical Memorandum #5: Future Baseline Conditions

Technical Memorandum #6: Alternatives Development and Analysis

Technical Memorandum #7: Preferred Alternative

Technical Memorandum #8: Access Management Plan

Technical Memorandum #9: Public Involvement Summary

Note: When viewing an electronic version of this document, items in the Table of Contents are hyperlinks that will direct you to the specified material. References to figures, tables, and appendices are also hyperlinks that will direct you to the specified material.

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October 2012

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1. REVIEW OF ADOPTED PLANS, RULES, AND REGULATIONS

The purpose of the OR 140 Corridor Plan: I-5 to Brownsboro–Eagle Point Road (Corridor Plan) is to identify the deficiencies, and makes recommendations for short-, medium- and, long-term approaches to improving and preserving the safety and operations of this corridor. The study area is shown on Figure 1-1.

This memorandum analyzes relevant state, regional, and local existing plans, policies, standards, rules, regulations, and other applicable documents and assesses how they pertain to development of the OR 140 Corridor Plan. Furthermore, it provides a regulatory framework that helps identify goals and objectives for the Corridor Plan. Information developed in this memorandum is intended to guide decisions regarding selection of preferred alternatives and management measures for the Corridor Plan. This information will help ensure the plan is compatible with existing relevant regulations and policy objectives.

Resources reviewed in this memorandum are summarized followed by a brief description of their relevance to the Corridor Plan and how the planning process will be consistent with provisions in the plans, rules, and regulations.

1.1. Statewide Documents

The following statewide documents were reviewed:

- Statewide Planning Goals
- 2006 Oregon Transportation Plan
- 1999 Oregon Highway Plan (as amended)
- OAR Chapter 734, Division 51
- 2011 Oregon Freight Plan
- 2001 Oregon Rail Plan
- 1995 Oregon Bicycle and Pedestrian Plan (and draft 2011)
- 1997 Oregon Public Transportation Plan
- 2012-2015 Statewide Transportation Improvement Program (STIP)
- 2012 English Highway Design Manual (HDM)
- 2000 Interstate 5 State of the Interstate Report
- Interchange Area Management Plan (IAMP) for I-5 Exit 35

1.1.1. Statewide Planning Goals

Since 1973, Oregon has maintained a strong statewide program for land use planning. The foundation of that program is a set of 19 statewide planning goals. Most of the goals are accompanied by guidelines, which are suggestions about how a goal may be applied. The goals express the state's policies on land use and related topics, such as citizen involvement, housing, and natural resources. Oregon's statewide goals are achieved through local comprehensive planning. State law requires each city and county to adopt a comprehensive plan, of which transportation system plans are a part, and the zoning and land-division ordinances needed to

put the plan into effect. The local comprehensive plans must be consistent with the Statewide Planning Goals. When the state's Land Conservation and Development Commission (LCDC) officially approves a local government's plan, the plan is said to be acknowledged. It then becomes the controlling document for land use in the area covered by that plan. Oregon's planning laws strongly emphasize coordination—keeping plans and programs consistent with each other, with the goals, and with acknowledged local plans. The goals that are most pertinent to transportation system planning, and therefore the OR 42 EMP, are described below.

Statewide Planning Goal 1 (Citizen Involvement)

Goal 1, Citizen Involvement, ensures 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.

Project Relevance

Goal 1 requires federal, state, regional, and special districts agencies to coordinate their planning efforts with the White City Urban Unincorporated Community (UUC), Jackson County and make use of existing local established citizen involvement programs.

The key components of Goal 1 relevant to the project include:

- **To provide for widespread citizen involvement**. This means that the program shall involve a cross section of affected citizens in the White City UUC, and 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 White City UUC, and Jackson County.
- **To provide the opportunity for citizens to be involved in all phases of the planning process.** Opportunities for involvement and comment will be provided for citizens of the White City UUC, and Jackson County throughout all phases of the Corridor Plan planning process.
- **To assure technical information is available and provided in a user-friendly manner.** Policy decisions that affect citizens within White City UUC, 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 of the White City UUC, Jackson County 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)

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. Goal 2 plays a key role in transportation planning along with Goals 4 (Forest Lands), 5 (Natural Resources), 6 (Resources Quality), 7 (Natural Hazardous), 9 (Economic Development), 11 (Public Facilities and Services), 12 (Transportation) and 14 (Urbanization).

Project Relevance

A land use planning process and policy framework must be established as a basis for all decisions and actions relating to the use of land. All local governments and state agencies involved in the land use action must coordinate with each other. The TAC will consist of representatives from Jackson County, City of Central Point, Rogue Valley Metropolitan Planning Organization (MPO), Rogue Valley Transportation District (RVTD), Oregon Department of Transportation (ODOT), and Department of Land Conservation and Development (DLCD). This memorandum serves as a policy framework for the development of the Corridor Plan. The Jackson County development code has established planning processes for land use decisions.

Land use decisions and actions must be supported by an "adequate factual base." Evidence must be provided that a reasonable person would find sufficient to support a finding of fact that a land use action complies with the applicable review standards. The project will be thoroughly documented in technical memoranda that will contain an "adequate factual base". This is the first technical memorandum. The second technical memorandum defines the study area and the goals and objectives of the Corridor Plan. The third technical memorandum documents land use and environmental conditions. The fourth technical memorandum analyzes existing transportation conditions. The fifth technical memorandum analyzes future conditions. The sixth memorandum evaluates alternatives. The Corridor Plan will consolidate information from the memoranda. Findings of fact are included in the records for Jackson County.

City, county, state, and federal agency and special district plans and actions related to land use must be "consistent with the comprehensive plans of cities and counties and regional plans adopted under Oregon Revised Statutes (ORS) Chapter 268." This memorandum establishes the policy and regulatory framework to guide the corridor planning process. The Corridor Plan may require county and/or city comprehensive plan amendments in order to incorporate facility improvements into the TSPs or add or amend policies to implement the EMP.

Statewide Planning Goal 3 Agricultural Lands

Goal 3, Agricultural Lands, intent is to preserve and maintain agricultural lands. Agricultural lands shall be preserved and maintained for farm use, consistent with existing and future needs for agricultural products, forest and open space and with the state's agricultural land use policy expressed in ORS 215.243. Zoning applied to agricultural land shall limit uses which can have significant adverse effects on agricultural and forest land, farm and forest uses or accepted farming or forest practices.

Project Relevance

A sizeable portion of the study area is designated and zoned as agricultural lands. A major task of the Corridor Plan is to complete an existing conditions analysis that summarizes the Jackson County comprehensive plan and zoning designations, including any overlays, and the land uses allowed within each zoning district within the study area. Corridor Plan implementation measures will address consistency with designated agricultural lands and the allowed uses as described in ORS 215.243.

Statewide Planning Goal 4 (Forest Lands)

This goal defines forest lands and requires counties to inventory them and adopt policies and ordinances that will "conserve forest lands for forest uses."

Project Relevance

Areas zoned forest land by Jackson County are along the corridor as identified further in this document and in Technical Memorandum #3 Existing Conditions. Improvements proposed in the corridor must comply with city and county policies, programs, and permitting that implement this goal. In general, the Corridor Plan will be developed in respect of this goal.

Statewide Planning Goal 5 (Natural Resources)

The purpose of Goal 5, Natural Resources, Scenic and Historic Areas, and Open Spaces, is to "protect natural resources and conserve scenic and historic areas and open spaces." This goal requires local governments to inventory natural and cultural resources in their jurisdictions and to develop and adopt programs to conserve and protect them. Among the resources to be inventoried are: riparian corridors, wetlands, federal Wild and Scenic Rivers, state Scenic Waterways, groundwater resources, wildlife habitat, natural areas, wilderness areas, open spaces, scenic views and sites, mineral and aggregate resource areas, energy sources, and historic and cultural areas. If a resource or site is found to be significant, a local government has three policy choices: preserve the resource, allow proposed uses that conflict with it, or strike some sort of a balance between the resource and the uses that would conflict with it.

Project Relevance

Goal 5 resources on land in the study area are identified in Technical Memorandum #3 Existing Conditions. Improvements proposed in the corridor must comply with city and county policies, programs, and permitting that implement this goal. In general, the Corridor Plan will be developed in respect of this goal.

Statewide Planning Goal 6 (Resources Quality)

This goal requires local comprehensive plans and implementing measures to be consistent with state and federal regulations on matters such as groundwater pollution.

Project Relevance

The Corridor Plan will be developed consistently with this goal. Improvements proposed in the corridor must comply with federal, state, city and county policies, programs, and permitting that implement this goal.

Statewide Planning Goal 7 (Natural Hazardous)

Goal 7 deals with development in places subject to natural hazards such as floods or landslides. It requires that jurisdictions apply "appropriate safeguards" (floodplain zoning, for example) when planning for development there.

Project Relevance

The Corridor Plan will be developed consistently with this goal. Goal 7 resources on land in the study area are identified in Technical Memorandum #3 Existing Conditions. Improvements proposed in the corridor must comply with city and county policies, programs, and permitting that implement this goal.

Statewide Planning Goal 9 (Economic Development)

The intent of Goal 9, Economic Development, is to “provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon’s citizens.” Local comprehensive plans and policies must support this goal and include policies addressing economic development and development opportunities. Plans must also identify an adequate supply of land with characteristics suitable for a variety of employment and economic development. Development should be limited around identified industrial sites to that which is compatible with uses allowed on the sites.

Project Relevance

The Corridor Plan will be developed consistently with this goal.

Statewide Planning Goal 11 (Public Facilities & Services)

Goal 11 calls for efficient planning of public services such as sewers, water, law enforcement, and fire protection. The goal’s central concept is that local governments should plan public services in accordance with its community’s needs and capacities rather than being forced to respond to development as it occurs.

Cities and counties must 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.”

Project Relevance

The Corridor Plan will be developed consistently with this goal.

Statewide Planning Goal 12 (Transportation)

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 Transportation System Plans (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 purpose of the TPR is to "promote and encourage a safe, convenient and economic transportation system. 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 ensuring 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).

OAR 660-012-0065 identifies transportation improvements on rural lands which may be permitted on rural lands consistent with Goals 3, 4, 11 and 14 without requiring a goal exception. OAR 660-012-0070 exceptions for transportation improvements on rural lands apply if improvements do not meet OAR 660-012-0065 requirements.

The most recent amendments to the TPR were effective January 1, 2012. The amendments were in response to stakeholder concerns that transportation mobility took precedence over other critical community objectives such as increasing development intensities especially within urban centers. Below is a summary of the amendment provisions:

- If a proposed rezoning is consistent with the existing comprehensive plan map designation, and consistent with the acknowledged transportation system plan, then it can be approved without considering the effect on the transportation system. However, special provisions apply if the area was added to the urban growth boundary (UGB). If a proposed rezoning qualifies as economic development, then it can be approved without mitigating the full effect on traffic.

- When determining whether or not there is a "significant effect," transportation demand management – or any other enforceable, ongoing condition of approval that would reduce the amount of traffic generated – can be factored in to eliminate or diminish the significant effect.
- There are three new options for addressing a significant effect, including improvements to other modes, other facilities, and other locations. If the significant effect occurs on a state highway, then these options are only allowed with ODOT concurrence. If on a county road within a city, then county concurrence is required.

Project Relevance

The purpose of the Corridor Plan is to identify deficiencies and make recommendations for short-, medium- and, long-term approaches to improving and preserving the safety and operations of this corridor. Therefore, the intent of the project is to meet the TPR's purpose.

The Rogue Valley Metropolitan Planning Organization, White City and Jackson County have adopted TSPs that address transportation facilities located within or near the study area. These TSPs and their applicable elements associated with the OR 140 study corridor are also addressed in this document under Section 1.2 Regional/Local Documents.

The Corridor will be developed consistently with the TPR including recent amendments.

Statewide Planning Goal 14 (Urbanization)

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 urban 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 corridor and could affect future use and operation of the corridor.

Project Relevance

The location, type, and intensity of development within the study area will impact use of the corridor and could affect future use and operation. The Corridor Plan will be developed consistently with Goal 14.

1.1.2. 2006 Oregon Transportation Plan

The Oregon Transportation Plan (OTP) is the state's long-range multimodal transportation plan. The OTP is the overarching policy document among a series of plans that together form the

state transportation system plan. 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 year 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 OTP supersedes the 1992 OTP, which established a vision of a balanced, multimodal 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 corridor studies is integral to maintaining assets and optimizing system performance.

The Corridor Plan must be consistent with the applicable OTP goals and policies. The most pertinent OTP goals and policies for corridor planning are as follows:

Goal 1 – Mobility and Accessibility

- Policy 1.1 – Development of an Integrated Multimodal System: It is the policy of the State of Oregon to plan and develop a balanced, integrated transportation system with modal choices for the movement of people and goods.
- Policy 1.3 – Relationship of Interurban and Urban Mobility: It is the policy of the State of Oregon to provide intercity mobility through and near urban areas in a manner that minimizes adverse effects on urban land use and travel patterns and provides for efficient long distance travel.

Goal 2 – Management of the System

- Policy 2.1 - Capacity and Operational Efficiency: It is the policy of the State of Oregon to manage the transportation system to improve its capacity and operational efficiency for the long-term benefit of people and goods movement.
- Policy 2.2 - Management of Assets: It is the policy of the State of Oregon to manage transportation assets to extend their life and reduce maintenance costs.

Goal 3 – Economic Vitality

- Policy 3.1 – An Integrated and Efficient Freight System: It is the policy of the State of Oregon to promote an integrated, efficient, and reliable freight system involving air, barges, pipelines, rail, ships, and trucks to provide Oregon a competitive advantage by moving goods faster and more reliably to regional, national, and international markets.
- Policy 3.2 – Moving People to Support Economic Vitality: It is the policy of the State of Oregon to develop an integrated system of transportation facilities, services, and

information so that intrastate, interstate, and international travelers can travel easily for business and recreation.

Goal 4 – Sustainability

- Policy 4.1 – Environmentally Responsible Transportation System: It is the policy of the State of Oregon to provide a transportation system that is environmentally responsible and encourages conservation and protection of natural resources.
- Policy 4.3 – Creating Communities: It is the policy of the State of Oregon to increase access to goods and services and promote health by encouraging the development of compact communities and neighborhoods that integrate residential, commercial, and employment land uses to help make shorter trips, transit, walking, and bicycling feasible, and that integrate features that support the use of transportation choices.

Goal 5 – Safety and Security

- Policy 5.1 – Safety and Security: It is the policy of the State of Oregon to continually improve the safety and security of all modes and transportation facilities for system users including operators, passengers, pedestrians, recipients of goods and services, and property owners.
- Policy 5.2 – Security: It is the policy of the State of Oregon to provide transportation security consistent with the leadership of federal, state, and local homeland security entities.

Goal 7 – Coordination, Communication and Cooperation

- Policy 7.1 - A Coordinated Transportation System: It is the policy of the State of Oregon to work collaboratively with other jurisdictions and agencies with the objective of removing barriers so the transportation system can function as one system.
- Policy 7.3 – Public Involvement and Consultation: It is the policy of the State of Oregon to involve Oregonians to the fullest practical extent in transportation planning and implementation in order to deliver a transportation system that meets the diverse needs of the state.
- Policy 7.4 – Environmental Justice: It is the policy of the State of Oregon to provide all Oregonians, regardless of race, culture or income, equal access to transportation decision-making so all Oregonians may fairly share in benefits and burdens and enjoy the same degree of protection from disproportionate adverse impacts.

Project Relevance

The development of the OR 140 Corridor Plan is integral to maintaining the highway facility and optimizing system performance. Transportation improvements must be consistent with the OTP. Therefore, findings of compatibility with these OTP goals and policies will be part of the adoption package.

1.1.3. 1999 Oregon Highway Plan (as amended)

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 function of a highway is determined by regional mobility and access needs and by the state and local designations. OR 140 is a statewide highway that also serves as the Freight Route east of OR 62. It is also part of the National Highway System.

The OHP describes the designations as the following:

- Congress established the **National Highway System (NHS)** of statewide and interstate highways and intermodal connectors in the National Highway System Designation Act of 1995. The OHP has adopted the National Highway System as the primary classification --- all the Interstate and Statewide Highways and Access Oregon Highways except for Oregon Highway 82 are in the NHS.
- **Statewide Highways** typically provide inter-urban and inter-regional mobility and provide connections to larger urban areas, ports, and major recreation areas that are not directly served by Interstate Highways. A secondary function is to provide connections for intra-urban and intra-regional trips. The management objective is to provide safe and efficient, high-speed, continuous-flow operation. In constrained and urban areas, interruptions to flow should be minimal. Inside Special Transportation Areas (STAs), local access may also be a priority.
- The primary purpose of the **State Highway Freight System** is to facilitate efficient and reliable interstate, intrastate, and regional truck movement through a designated freight system. This freight system includes routes that carry significant tonnage of freight by truck and serve as the primary interstate and intrastate highway freight connection to ports, intermodal terminals, and urban areas.

The OHP policies applicable to the Corridor Plan are:

Goal 1 – System Definition

- <u>Policy 1A – State Highway Classification System</u>: Establishes that the management objective of Interstate Highways is to provide for safe and efficient, high-speed, continuous-flow operation in urban and rural areas; and for District Highways, to provide for safe and efficient, moderate to high-speed continuous-flow operation in rural areas and moderate to low-speed operation in urban and urbanizing areas.

- Policy 1B – Land Use and Transportation: Recognizes the need for coordination between state and local jurisdictions.
- Policy 1C – State Highway Freight System: States the need to balance the movement of goods and services with other uses of the highway system, and to recognize the importance of maintaining efficient through movement on major truck freight routes.
- Policy 1E – Lifeline Routes: Recognizes the need for a secure lifeline network of streets, highways, and bridges to facilitate emergency services response and to support rapid economic recovery after a disaster.
- Policy 1F – Highway Mobility Standards: Establishes state highway mobility targets to maintain a reliable and acceptable level of mobility on the highway system based on highway classification and location by providing the appropriate standards that would allow the corridor area and associated interchanges to function in a manner consistent with OHP mobility standards.
- Policy 1G – Major Improvements: Requires maintaining performance and improving safety by improving efficiency and management before adding capacity.

Goal 2 – System Management

- Policy 2A – Partnerships: Establishes cooperative partnerships to make more efficient and effective use of limited resources to develop, operate, and maintain the highway and road system.
- Policy 2B – Off-System Improvements: Helps local jurisdictions identify and evaluate off-system improvements that would be cost-effective in improving performance of the state highway.
- Policy 2D – Public Involvement: Ensures that citizens, businesses, regional and local governments, state agencies, and tribal governments have opportunities to have input into decisions that affect the state highway system.
- Policy 2E – Intelligent Transportation Systems: Considers services to improve system efficiency and safety through effective incident management, en-route driver information, and traffic control.
- Policy 2F – Traffic Safety: Improves the safety of the highway system.
- Policy 2G – Rail and Highway Compatibility: States the need to increase safety and transportation efficiency through the reduction and prevention of conflicts between railroad and highway users.

Goal 3 – Access Management

- Policy 3A: Classification and Spacing Standards: Manages the location, spacing and type of road and street intersections and approach roads on state highways to assure the safe and efficient operation.
- Policy 3C: Interchange Access Management Areas: Establishes plans for grade-separated interchange areas to protect the function of interchanges, provide safe

and efficient operations between connecting roadways, and minimize the need for major improvements of existing interchanges.

- *Goal 4 – Travel Alternatives*
  - Policy 4A – Efficiency of Freight Movement: Seeks to balance the needs of long distance and through freight movements with local transportation needs on highway facilities in both urban and rural areas.
  - Policy 4D – Transportation Demand Management: Supports the efficient use of the state transportation system through investment in efforts that reduce peak period congestion.

Goal 5 – Environmental and Scenic Resources

- Policy 5A: Environmental Resources: Seeks to maintain or improve the natural and built environment where affected by ODOT facilities.

In addition to policies, the OHP provides interchange spacing requirements, investment priorities, access management policy, and mobility targets. The OHP mobility standards for different highway categories use volume-to-capacity ratios (v/c) to measure performance and can be found in OHP Appendix A. Access spacing standards are listed OHP Appendix C.

On March 21, 2012, the Oregon Transportation Commission (OTC) adopted changes to the OHP to address Senate Bill 264. As part of the adopted changes, OHP Policy 1F is expanded to not only implement and balance other OHP policies, but to also better weigh the policy objectives in the multimodal Oregon Transportation Plan, as well as community objectives for economic development, community development and livability. The policy revisions change the term "mobility standards" to "mobility targets" as a way to improve implementation and flexibility of the mobility policy in consideration of other state, regional and local objectives.

Project Relevance

The performance and mobility targets in the OHP vary by location and adjacent land use type, establishing a higher level of service expectation in the more rural areas and a lower level of service in urbanized areas. The Corridor Plan shall abide by the appropriate standards identified for the classification and be consistent with the below goals.

1.1.4. OAR Chapter 734, Division 51

OAR 734-051 (Highway Approaches, Access Control, Spacing Standards and Medians) governs the permitting, management, and standards of approaches to state highways to ensure safe and efficient operation of the state highways. It guides the administration of the access management policies established in the Oregon Highway Plan.

The intent of OAR 734-051 is to "provide a highway access management system based on objective standards that balances the economic development objectives of properties abutting state highways with the transportation safety and access management objectives of state highways."

The Oregon Transportation Commission approved new administrative rules for access management on state highways that took effect on Jun 29, 2012. These rules implement Senate Bill 264 statutory requirements signed into law in June 2011. The bill reflects the work of a collaborative stakeholder committee in response to legislative direction to "codify, clarify, and bring consistency to issuance of access permits based on objective standards."

Project Relevance

The access management component of this project will compare access spacing with the access standards outlined in the recently amended OAR 734-051.

1.1.5. 2011 Oregon Freight Plan

The purpose of the Oregon Freight Plan is to improve freight connections to local, state, tribal, regional, national and international markets with the goal of increasing trade-related jobs and income for Oregon workers and businesses. The plan documents the economic importance of freight movement in Oregon, identifies transportation networks important to freight-dependent industries and recommends multimodal strategies to increase strategic freight system efficiency. The plan identifies fifteen freight issues and strategies with action steps to address the issues.

Some of the identified freight issues that are specifically relevant to OR 140 include:

Freight Issue #1**:** A clearly defined, multimodal "Strategic Freight System," is essential in order to focus freight system improvements, maintenance and protection on the freight corridors that play the most critical role in supporting the state's economy. Currently, this does not exist.

- Strategy 1.1: Establish a Strategic Freight System building on the system defined by the commodity flows of Oregon's major industries. This system should include those elements of the transportation infrastructure that best support the state's key industries. This system should be multimodal, when viable, and exist in both urban and rural areas as appropriate.
- Strategy 1.2**:** Strive to support freight access to the Strategic Freight System. This includes proactively protecting and preserving corridors designated as strategic.
- Strategy 1.3: Improve understanding of the economic benefits of freight improvement projects or programs to Oregon's residents and businesses. This means understanding both the direct benefits and secondary benefits such as induced job growth.

Freight Issue #6**:** Freight needs to be able to move throughout the state in a manner that is as safe as possible. Its movement may impact safety in Oregon communities and risk to the environment.

- Strategy 6.1: Partner with local, statewide, tribal and federal partners to monitor and manage the safety performance of the statewide freight system.

- Strategy 6.3: Build freight safety considerations into the system monitoring, project selection and prioritization processes.

Freight Issue #7**:** Industrial land supply for freight-dependent land uses may be insufficient to meet future demand. Lack of necessary land use protections may threaten the viability of freight transportation systems.

- Strategy 7.1: Work to better integrate freight into the land use planning process and to protect the existing supply of industrial (freight-dependent) land uses and freight terminals.

Table 4.4 identities OR 140 as a facility providing connectivity to move goods to and from market. The study area is in the Western Freight Corridor of the state. According to the Freight Plan, the Western Freight Corridor contains some of the major intermodal facilities in the state, which move both heavy and valuable goods to markets around the world. Transportation facilities area also identified as necessary to support resource based industries as those found in the study area and the area surrounding the study area. Additionally, the plan states that agriculture, forestry and fishing related shipments are expected to grow at a high rate of around 2.1 percent annually through 2035.

OR 140 is a Freight Route from OR 66 in Klamath County to OR 62 in Jackson County. The segment of OR 140 between I-5 and OR 62 is awaiting designation as a freight route by the OTC.

Project Relevance

Maintaining and enhancing freight system efficiency in accordance with the OR 140 Freight Route designation will be integrated into the Corridor Plan in establishing goals and objectives, identifying deficiencies, and developing recommended projects. The TAC includes members from ODOT Rail and ODOT Freight and the CAC includes members representing local freight needs.

1.1.6. 2001 Oregon Rail Plan

The Oregon Rail Plan is a modal element of the OTP. It is intended to implement the OTP's long-range vision of a viable freight and passenger rail system in Oregon. The Oregon Rail Plan is a comprehensive assessment of the state's rail planning, freight rail, and passenger rail systems. The Oregon Rail Plan identifies specific policies and planning processes concerning rail in the state, including minimum level of service standards for statewide freight and passenger rail systems. The freight element describes existing conditions in the different regions of the state and improvements that are needed. It also identifies issues that should be considered in rail planning during local land use planning like preparation of a TSP and comprehensive plan policies to support the TSP.

To meet the goals of the OTP, service standards for minimum levels of service are specified for each freight service. These minimum levels of service pertain to intermodal freight and ports, highway freight and rail freight. Specifically, they call for the following:

- Connections to deep draft ports should be available under open access terms to all major railroads and trucking lines in the nearby vicinity of maritime port terminals where feasible (e.g. Astoria, Portland, Coos Bay and Newport).
- To the extent possible, major intermodal rail/truck facilities should exist on rail main lines with a service area radius of 150 miles (e.g. Portland, Eugene, Klamath Falls, Umatilla/Boardman, and Ontario). Intermodal reload facilities are to be encouraged at other locations, as the market demands (e.g. Medford, Bend/Redmond, Salem, Baker City, and La Grande, and coastal ports)
- Ports and port systems handling substantial quantities of international and national freight (more than 3 million tons) should have multimodal connections, be able to operate in the international marketplace and have access to rail freight service (e.g. the lower Columbia River and Coos Bay).
- Highway freight accessing intermodal truck/rail terminals or moving within Oregon should experience level of service C or better on Oregon highways during off-peak periods (e.g. Portland, Eugene, Medford, Klamath Falls, and Umatilla/Boardman).
- Branch rail lines within Oregon should be maintained to allow a minimum speed of operation of 25 miles per hour whenever upgrading can be achieved with a favorable cost-benefit ratio.
- Rail main lines within Oregon should provide convenient ramp, terminal and reload facilities for transfers from truck to rail for long haul movement of freight. High quality highway access should be provided to these sites. Priority right-of-way should be preserved for potential public use or ownership when abandonment proceedings are initiated (e.g. corridors where there are future alternative uses, especially near expanding urban area).
- Reload facilities should be encouraged and, if warranted, supported where they provide the most cost efficient and environmentally effective response to branch line abandonment.

The primary railroad serving southwestern Oregon is the Central Oregon & Pacific Railroad (CORP), whose main line (Siskiyou Line) runs south from Eugene through Medford. The White City Terminal and Utility (WCTU) Railway Company, a short line that interchanges with CORP, operates in a large industrial park in White City, Oregon. OR 140 crosses these rail lines at two locations; both are at-grade crossings.

The following policies and actions are applicable to planning for the Corridor:

<u>Policy 1</u>: Increase economic opportunities for the State by having a viable and competitive rail system.

- <u>Action 2</u>: Promote intermodal centers where freight may be interchanged between rail and other modes by identifying suitable locations with adequate potential volumes and, if necessary, funding rail improvements and providing adequate highway access.

Policy 2: Strengthen the retention of local rail service where feasible.

- Action 1: Where necessary, seek alternative ownership and/or operation of rail facilities in order to preserve service.
- Action 2: Encourage increased use of rail service by promoting rail service opportunities, providing a wide range of intermodal facilities, and assisting localities and rail users to understand railroad economics, revenue needs of individual lines, and land use requirements.
- Action 3: Utilize federal or state funds for rail service continuation assistance where appropriate. Preference should be given to those lines that upon analysis have a positive benefit over cost ratio and will not require public assistance for ongoing operations.

Policy 4: Integrate rail freight considerations into the State's land use planning process.

- Action 1: Recognize the social, economic and environmental importance of rail freight service.
- Action 2: Encourage land use zoning and ordinances that enhance and protect existing rail freight service.
- Action 3: Work with communities to minimize conflicts between railroad operations and other urban activities.
- Action 4: Assist in removing constraints to improved railroad operating efficiency within urbanized areas. Work with communities to consolidate or close existing grade crossings and prevent the establishment of unjustifiable new grade crossings.
- Action 5: Encourage local jurisdictions to identify alternative uses for low-density branch line rights-of-way.

Project Relevance

The Corridor Plan will be consider the needs of the rail freight system in establishing goals and objectives, identifying deficiencies, and developing recommended projects. The TAC includes members from ODOT Rail and ODOT Freight and the CAC includes members representing local freight needs.

1.1.7. 1995 Oregon Bicycle and Pedestrian Plan (and draft 2011)

The Oregon Bicycle and Pedestrian Plan (OBPP) was originally prepared in 1995 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. The 1995 OBPP states that state highways and county roads provide good opportunities for long distance touring and shorter recreational rides.

In terms of improvement priorities, the 1995 OBPP states that sections of rural highways that link schools, parks, residential areas, and other trip generators to the nearest urban area will

receive high consideration. Strategy 1A is intended to provide bikeway and walkway systems that are integrated with other transportation systems. On rural highways, this policy requires integration of bicycle and pedestrian facility needs into all ODOT and local government planning, design, construction, and maintenance activities.

The OBPP is currently being updated and is expected to be adopted by the OTC in 2011. The draft document, currently available online[1], focuses on the importance of good design and understanding the context of facilities. The document includes chapters addressing on-road bikeways, restriping, bicycle parking, walkways, street crossings, intersections, shared-use paths. Both standards and minimums are recommended in the manual along with innovative designs that have been implemented successfully in Oregon or other parts of the county.

Project Relevance

The project will strive to meet all applicable design criteria for bicycle and pedestrian facilities for a statewide highway and freight route.

1.1.8. 1997 Oregon Public Transportation Plan

The Oregon Public Transportation Plan (OPTP) forms the transit modal plan of the Oregon Transportation Plan (OTP). The vision guiding the public transportation plan calls for the following:

- A comprehensive, interconnected and dependable public transportation system, with stable funding, that provides access and mobility in and between communities of Oregon in a convenient, reliable and safe manner that encourages people to ride.
- A public transportation system that provides appropriate service in each area of the state, including service in urban areas that is an attractive alternative to the single-occupant vehicle, and high-quality, dependable service in suburban, rural, and frontier (remote) areas.
- A system that enables those who do not drive to meet their daily needs.
- A public transportation system that plays a critical role in improving the livability and economic prosperity for Oregonians. The plan contains goals, policies, and strategies relating to the whole of the state's public transportation system. The plan is intended to provide guidance for ODOT and public transportation agencies regarding the development of public transportation systems. The OPTP also identifies minimum levels of service, by size of jurisdiction, for fulfilling its goals and policies.

The Public Transportation 2015 Section of the plan identifies minimum levels of service, by size of jurisdiction, for fulfilling its goals and policies. The OPTP also recognizes, however, that the achievements of these levels of service is dependent upon the availability of resources and therefore are not to be understood as performance mandates placed upon other jurisdictions.

[1] http://www.oregon.gov/ODOT/HWY/BIKEPED/planproc.shtml

Public transportation services in the project vicinity should:

- Provide daily peak hour commuter service to the core areas of the city.
- Provide a guaranteed ride home program to all users of the public transportation system and publicize it well.
- Provide park-and-ride facilities along transit route corridors to meet reasonable peak and off-peak demand for such facilities.

Project Relevance

The TAC includes a representative from the Rogue Valley Transportation District (RVTD). The project will incorporate improvements to support planned transit service provided by RVTD.

1.1.9. 2012-2015 Statewide Transportation Improvement Program (STIP)

The Statewide Transportation Improvement Program, known as the STIP, is Oregon's four year transportation improvement program. It identifies the funding for, and scheduling of, transportation projects and programs. It includes projects on the federal, state, city, and county transportation systems, multimodal projects (e.g. highway, passenger rail, freight, public transit, bicycle and pedestrian), and projects in the National Parks, National Forests, and Indian tribal lands.

The 2012-2015 approved STIP[2] lists two projects on OR 140 and three related projects along OR 62 that will influence future traffic demands within the OR 140 corridor:

- Kirtland Road/Avenue G (Key number 17253): The project applicant is Jackson County and the cost is estimated at $1,400,000. Jackson County is currently constructing this safety project which straightens the 90-degree curves in the roadway and builds to rural major collector standards. Construction is scheduled to begin in 2012.
- OR 62 & OR 140 Intersection (Key number 17471): This ODOT safety project has an estimated cost of $1,100,000. Planned improvements will relocate signal and modify lane configuration. Construction is scheduled to begin in 2014.
- OR 62: Corridor Solutions EIS (Key number 13226): The Environmental Impact Statement (EIS) is currently underway for this project. The cost is estimated at $7,419,000 with funding from a variety of sources including the Jobs and Transportation Act (JTA), and Oregon Transportation Investment Act (OTIA) III. Related projects include key numbers 13994 and 17188.
- OR 62: Corridor Solutions Unit 2 (Key number 13994): The project applicant is ODOT and the cost is estimated at $67,545,000. This modernization project is intended to relieve congestion in the OR 62 corridor and includes JTA and OTIA III funding. Design is underway and construction is scheduled to begin in 2013.

[2] Final 2012-2015 STIP, Federal Approval June 27, 2012, Amended as of September 25, 2012, http://www.oregon.gov/ODOT/HWY/STIP/docs/2012-2015_STIP/12-15Amended_STIP.pdf

- OR 62: Corridor Solutions Unit 2 Phase 2 (Key number 17188): This project is associated with Key number 13994 with a cost estimated at $51,205,000.

Project Relevance

The EMP will assume the projects listed in the 2012-2015 STIP are constructed as part of the future baseline conditions.

1.1.10. 2012 English Highway Design Manual (HDM)

The HDM provides design standards for state highways and associated highway elements. These standards are dependent on the highway's functional classification and project type (e.g., Modernization, Preservation, Safety, Operations, or Maintenance). The purpose of the HDM is to establish mobility standards when evaluating potential design configurations.

Project Relevance

Application of these standards will be used in the development of the Alternatives and a Preferred Concept.

1.1.11. 2000 Interstate 5 State of the Interstate Report

ODOT completed the I-5 State of the Interstate Report in June 2000. The report provides an assessment of the existing and forecasted safety, geometric, and operating conditions along the entire length of I-5 from California to Washington. The document covers a wide range of issues, including:

- Overview of related plans, policies, and studies
- Trends in population, employment, land use, and transportation
- Existing and forecasted conditions for each I-5 interchange and mainline freeway segment
- Environmental conditions and potential development impact areas
- Opportunities for short-term improvements

The report states that, within ODOT's Region 3 (which encompasses southern Oregon, including Medford), travelers will experience significant congestion on I-5 by 2020. Many interchanges in this region are expected to have one or more components (e.g., ramp terminal intersection or ramp junction) operating at an unacceptable level of congestion, if no improvements are made. The problems associated with interchanges are expected to occur more often in the populated portions of the corridor.

The interstate report mentions that Interchange 35 was part of the project to create a connection between I-5 and OR 140 (Lake of the Woods Highway)/OR 62 (Crater Lake Highway). It also states that pedestrian movements are not handled adequately through the interchange area. The shoulder on the existing overcrossing is narrow and does not have any sidewalks. The report notes that there will be a greater need for sidewalks as the area becomes more urban.

The report identifies several geometric deficiencies for Interchange 35; however, the freeway overcrossing and interchange were redesigned to address both structural and functional deficiencies. Construction was recently completed. An IAMP is being prepared to address the future management of the interchange. Recommendations from the IAMP will need to be integrated into the Corridor Plan.

Project Relevance

The Corridor Plan will integrate the improvements completed at the interchange and it will be coordinated with the IAMP to meet all applicable standards and goals as well as address existing facility deficiencies and the future anticipated facility needs.

1.1.12. Interchange Area Management Plan (IAMP) for I-5 Exit 35

As outlined in OAR 734-051-0155(7), an Interchange Area Management Plan (IAMP) is "required for new interchanges and should be developed for significant modifications to existing interchanges." Construction at Interchange 35 was recently completed to improve the safety and function of both the overpass and the connections with Oregon Highway (OR) 99 and Blackwell Road. In addition to building a new Blackwell Road overpass, the southbound off-ramp has been reconfigured as a loop ramp connecting to OR 99 from the east. The other ramps have also been constructed to meet highway design standards and improve spacing between ramps. With this investment in interchange improvements, the IAMP will assist the County, City of Central Point, and ODOT with the long-term transportation system management in the area around the interchange.

Project Relevance

The Corridor Plan and IAMP should be mutually reflective of any proposed changes related to the interchange and Corridor facilities. The Corridor Plan and IAMP should be coordinated to meet all applicable standards and goals as well as address existing facility deficiencies and the future anticipated facility needs.

1.2. Regional/Local Documents

The following regional and local documents were reviewed:

- RVMPO 2009-2034 Regional Transportation Plan
- RVMPO Metropolitan Transportation Improvement Program 2012-201
- 2006 RVMPO Freight Study
- RVTD Ten-Year Long Range Plan 2007-2017
- Bear Creek Greenway Management Plan
- Greater Bear Creek Valley Regional Plan
- Jackson County Comprehensive Plan
- Jackson County Transportation System Plan
- Jackson County Land Development Ordinance
- White City Transportation System Plan
- White City Urban Unincorporated Community Plan

1.2.1. RVMPO 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 RTP serves as the regional transportation system plan required under the TPR (660-012-0015).

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, each of which has several associated policies and objectives, 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:

The RTP contains a financially-constrained list of projects that can be built within the RTP's timeframe. This is known as the financially-constrained or "Tier 1" list and is divided into short (2009-2013), medium (2014 to 2019) and long range (2020 to 2034) timeframes. The following Tier 1 Jackson County projects listed in the RTP are in or near the Corridor Plan study area:

- Project Number 805: Avenue G/Kirtland Road: Pacific Ave to Table Rock Rd - New 2-lane urban industrial collector, short-term, $2,250,000 (funded in 2010-2013 STIP)
- Project Number 815: Bear Creek Greenway: Upton to Seven Oaks - Multi-use trail short-term, $950,000
- Project Number 852: Hale Way: Avenue A - Falcon Street - Overlay short-term, $325,000
- Project Number 809: Foothill Road: Corey Road to Atlantic Street - New two lane rural major collector and signal, medium-term, $1,800,000

The following Tier 1 ODOT projects listed in the RTP are in or near the Corridor Plan study area:

- Project Number 905: OR 140: White City to MP 8 - Chip seal, short-term, $600,000 (completed)
- Project Number 904: OR 140 Freight Extension - Lane and shoulder widening for freight movements short-term, $2,389,000
- Project Number 903: OR 62 Corridor Solutions Phase 2 – Right of Way Acquisition, short-term, $23,000,000 (funded in 2010-2013 STIP)
- Project Number 937: OR 62 Corridor Solutions Phase 3 – Right of Way Acquisition, medium-term, $12,500,000
- Project Number 939: OR 62 Corridor Solutions Phase 4 – Right of Way Acquisition, short-term, $67,500,000

Projects which have been identified but for which there is no available funding in the period through 2034 are shown unfunded or "Tier 2," and are listed in Chapter 7.4 of the RTP. These projects include:

- Project Number 941: I-5 Interchange 35 Unit 2 – Add additional ramp, local street network, access control, $15,000,000
- Project Number 942: OR 140 Freight Extension Unit 2 – Lane and shoulder widening for freight movements, $30,000,000

Project Relevance

Both the Tier 1 and Tier 2 project lists in the RTP will be reflected, as appropriate, in any recommendations for the Corridor. After OTC adoption of the Corridor Plan, subsequent revisions to the RTP will need to be compatible with the Corridor Plan.

1.2.2. RVMPO Metropolitan Transportation Improvement Program 2012-2015

The Metropolitan Transportation Improvement Program (MTIP) identifies transportation projects in the RVMPO that are expected to be implemented between federal fiscal years 2012-2015 (2012 year begins October 1, 2012). Projects included in the MTIP are drawn from the RVMPO 2009-2034 RTP.

The only projects identified in the OR 140 corridor are those that have already been listed in Section 1.1.9 2012-2015 Statewide Transportation Improvement Program (STIP) of this memorandum.

Project Relevance

The short-term projects listed in the MTIP for the Study Area are consistent with those reflected above on the RTP.

1.2.3. 2006 RVMPO Freight Study

The study by the RVMPO into freight movement in the region included all modes of freight travel, their relationship to the industry and to one another and recommendations for improvement which are defined and evaluated. The report profiles the freight industry in the RVMPO area, closely examines the goods that move through the region through all modes of transport, examines the facilities used by the industry, and identifies improvements that might be made.

The RVMPO freight study noted the local rail companies in the study area; the Central Oregon and Pacific Railroad (CORP) and the White City Terminal and Utilities (WCTU). The WCTU serves several manufacturers, especially the timber industry and plants in the White City industrial area.

The study also noted that:

- Rail: Considering that one railroad car holds the same volume as some 2 ½ truckloads, rail provides important relief to the road system. According to one CORP official, 30 outbound railroad cars per day carry approximately 6,000,000 pounds of freight through our region and 15 inbound cars carry 3,000,000 pounds of freight. Rail use has grown over the past 8 years; the number of cars has grown from 35,000 carloads per year to 50,000 per year. CORP is a feeder line to Union Pacific. OR 140 is crucial for the eastward movement of goods. There are two main issues with OR 140, namely, the need for a direct connection with I-5 and the restrictions on length of trailer east of Klamath Falls.
- Barriers: Barriers to freight movement were identified through surveys. Shippers and carriers were asked to describe any barriers to free movement of freight that they encounter. The majority of businesses that voiced this concern were located in White City. Points of concern include:
- Out-of-direction travel:The freight study found evidence that out-of-direction travel has become the norm for many shippers and carriers. Manufacturers are taking circuitous routes to reach their warehouses. Shippers are using alternative routes to OR 99, OR 62, and particularly the northbound OR 62/Interstate 5 interchange. This is placing significant burdens on the Central Point Interchange, Hamrick Road, Table Rock Road, Vilas Road, and Kirtland Road. These routes are de facto freight routes in our area.

- Alternate Routes: Due to congestion, many carriers use alternate routes to avoid the North Medford Interchange and OR 62. Heading to I-5 from White City and/or OR 62, they use Vilas Road and Table Rock Road. Those heading north often connect with I-5 at the Seven Oaks Interchange via Kirtland Road. Leaving I-5, they use the Central Point I-5 exit to Hamrick Road and Table Rock Road or Kirtland Road. Interviewees identified several concerns about these alternate routes.

Direct comments from respondents regarding the freight movement in and near the study area include:

- "Kirtland Road is narrow and curvy. It should be made wider and straighter."
- "We have a rock pit off 140 and make deliveries to White City and Eagle Point from there. From the haul road, it can be very hard to pull out onto 140 during summer and vacation times when people are driving their recreational vehicles to camping and fishing areas."
- "Another problem area is Leigh Way. Our trucks are coming off 140 and crossing straight ahead onto Leigh Way because it connects to Agate Road. Cars coming out of the Big R often cut in front of them."
- "140 should be punched through to I-5 to facilitate movement of trucks from 140. All the loads from the east come in on 140. Those are the national lines, as well as Gordon Trucking."
- "We want direct connection to I-5 from 140. This would solve the problem of heading west on Vilas to I-5. It could be a simple 2-lane road. You could take Leigh Way through Denman Preserve. Driving to Central Point for a connection to I-5 costs my business $50K to $100K per year."

The freight routes and, to a lesser extent, the crash statistics reflect underlying zoning and land use patterns in the region. Areas with significant commercial and manufacturing enterprises generally are found near the freeway interchanges, along the OR 99 and OR 62 corridors, and White City, which has the greatest concentration of industrial zoning in the study area. This land use pattern leads to a triangle of heaviest truck freight hauling. The legs of the triangle are: 1) the parallel I-5 and OR 99 corridors, 2) the OR 62 corridor, and 3) a northerly connection from OR 62 to Interstate 5, using Antelope Road, Kirtland Road, and Blackwell Road. OR 140, Table Rock Road, Biddle Road, and Vilas Road also experience high volumes of freight traffic.

The following projects within the study area are listed in the freight study:

- #4 – Smooth Avenue G and Kirtland Road intersection
- #14 – Rehabilitate Avenue G
- #19 – Widen Kirtland Road- from High Banks to Blackwell Road

Project Relevance

Some of the issues and concerns identified in the freight study have been addressed; others are still pertinent. The Corridor Plan will consider these factors in identifying projects. The TAC

includes members from ODOT Rail and ODOT Freight and the CAC includes members representing local freight needs.

1.2.4. RVTD Ten-Year Long Range Plan 2007-2017

The RVTD Ten-Year Plan is a multi-modal document focused on revenue forecasting, fixed-route and paratransit services, departmental needs assessment and establishment of creative programs that have been successfully implemented at other transit agencies. It is designed to meet the community's public transportation needs as determined by the future revenue potential. RVTD provides service to thousands of County residents with five intercity routes. Whenever the bus is outside of the city limits it begins to serve county populations.

For the study area, the following existing conditions and priorities and needs are identified in the plan:

- Transit service provides mobility to residents of the unincorporated town of White City who do not have access to automobiles, and provides an alternative to driving for those who do. White City has a larger population than the City of Phoenix and is considered to have a large blue-collar population.
- OR 62 serves White City from Medford; this route has the second highest ridership on average in the district. Frequencies were increased from one hour to 30 minutes several years ago and this played a major part in the ridership demand seen today.

Priorities and Immediate Needs

- Establish an express route to serve the White City area.
- Provide service to the intersection of Table Rock Road and Antelope Road for employees of Amy's Kitchen, Kodak, Jackson County and Rogue Community College (RCC).
- Provide service for earlier morning and swing shift for White City commuters.

Future Needs

- Establish a route that uses Foothills Road, which will be widened in the next few years as development is growing rapidly in this area.
- Increase service to the Airport and the surrounding industrial area.

Project Relevance

The TAC includes a representative from the Rogue Valley Transportation District (RVTD). The project will incorporate improvements to support planned transit service provided by RVTD.

1.2.5. Bear Creek Greenway Management Plan

Effective, consistent management of the Greenway requires the coordinated participation, operation, and/or financial support of the following jurisdictions: Jackson County, Ashland, Talent, Phoenix, Medford, and Central Point. Current maintenance on the Greenway is coordinated by Jackson County, with Medford and Ashland managing the sections that run

through their cities. Effective management of the greenway also requires adequate allocation of resources. A comprehensive Greenway Management Plan will identify coordination strategies, resource needs, and means of implementation. Preliminary options for implementation are included in this document, but final details are yet to be determined. This plan details the preferred options were chosen through a community involvement process. The management needs were grouped into categories of similar activities. These are: Public Safety, Emergency Services, Litter and Vandalism Control, Surface Management Vegetation Management, Natural Resource Protection, and Future Capital Facilities Plan Implementation.

Project Relevance

A section of the Bear Creek Greenway is proposed just south of the I-5 Exit 35 interchange in the western end of the study area. The recommendations for the Greenway should be considered during development of suggestions for the Corridor.

1.2.6. Greater Bear Creek Valley Regional Plan

The State of Oregon, Jackson County, and the cities of Ashland, Central Point, Eagle Point, Jacksonville, Medford, Phoenix, and Talent began a collaborative effort in April 2000 to launch the Greater Bear Creek Valley Regional Problem Solving (RPS) project. Under the authority of Oregon's Regional Problem Solving (RPS) Statute (Oregon Revised Statute (ORS) 197.652-658), multiple jurisdictions working in a collaborative effort may depart from state administrative rules where needed to implement creative solutions to mutually agreed-upon regional land use problems. The process must offer an opportunity to participate with appropriate state agencies and all local governments within the region affected by the problems that are the subject of the problem-solving process.

The RPS process has created a coordinated expansion plan for Jackson County and the cities of Ashland, Central Point, Eagle Point, Medford, Phoenix, and Talent known as the *Greater Bear Creek Valley Regional Plan* (GBCVRP). The GBCVRP establishes coordinated urban reserves between the six participating cities and Jackson County to prepare for a future doubling of the regional population. Jackson County adopted the plan on November 23, 2011 through ordinance 2011-14.

The jurisdictions involved in the project have agreed upon and adopted a set of goals and policies to guide the development of the Regional Plan:

Goal 1 – Manage Future Regional Growth for the Greater Public Good

Goal 1 includes policies calling for the use of intergovernmental agreements and amendments to comprehensive plans to implement the Regional Plan, increased residential densities across the region, identification of major infrastructure corridors, a more efficient network of public streets, and a balance of jobs and housing on the local and regional levels.

Goal 2 – Conserve Resource and Open Space Lands for their Important Economic, Cultural, and Livability Benefits

Goal 2 includes policies calling for a shared vision of maintaining a commercially viable agricultural land base, uniform standards of agricultural buffering, and the long-term preservation of regionally significant open space.

Goal 3 – Recognize and Emphasize the Individual Identity, Unique Features, and Relative Competitive Advantages and Disadvantages of Each Community within the Region

Goal 3 includes policies calling for mechanisms to enhance individual community identity, increase flexibility in the event of future boundary expansions, and permit an unequal distribution of certain land uses among jurisdictions, and the development of individual definitions of each community based on its unique identity and vision of future urban form.

The GBCVRP identifies two community buffer areas designated to preserve the separate identity of communities by maintaining existing uses, typically agricultural, for the White City area, one between White City and Eagle Point to the north and one between White City and Medford to the south.

The GBCVRP also noted that the RVMPO, in coordination with the ODOT's Transportation Planning Analysis Unit (TPAU) identified that the region will need an improved regional transportation network to avoid State transportation facilities serving a more disproportionate local arterial connectivity function. Two roadways would potentially intersect OR 140 in the study area:

- Foothill/North Phoenix Road – Phoenix to Eagle Point
- McLaughlin Drive – Medford to White City

Central Point currently lacks attractive and suitable sites for new industrial development. In the GBCVRP, the Tolo area, located north of Interstate 5 and west of its junction with OR 99 and identified as area CP-1B, was generally found to be suitable for inclusion/protection as Urban Reserve. This area overlaps the western portion of OR 140 near I-5 and Interchange 35.

The Tolo area's industrially-zoned sites could accommodate new industries and the expansion of existing industrial uses, which include Cross Creek Trucking Company, the Hilton Fuel and Supply Company, the North Valley Industrial Park, and Erickson Air Crane. The draft GBCVRP also notes that a "county approved truck-train freight transfer site already exists near the interchange for the Cross Creek Trucking Company."

The GBCVRP includes a condition that before Central Point can expand its UGB into the CP-1B area, an Interchange Area Management Plan (IAMP) must be prepared for I-5 Exit 35 (Seven Oaks Interchange) and adopted by ODOT, Jackson County, and Central Point.

Project Relevance

The Corridor Plan will be coordinated with the I-5 Exit 35 IAMP to ensure consistency between the two plans. The IAMP will address the long-range needs of development in the CP-1B urban reserve and recommended improvements and management tools that respond to those needs. The section of OR 140 between I-5 and the Blackwell/Kirtland Road intersection overlaps the study area in the IAMP and the Corridor Plan will incorporate the recommendations from the IAMP.

1.2.7. Jackson County Comprehensive Plan

The Jackson County Comprehensive Plan, adopted in 2004 with subsequent amendments through 2008, 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.

Goals applicable to the OR 140 Corridor Plan include:

- Agricultural Goal: To Preserve and Maintain Agricultural Land.
- Citizen Involvement Goal: To provide opportunities for Citizens to be involved in all phases of the Jackson County Planning Process.
- Economy Goal**:** To improve and diversify the economic base of Jackson County in balance with Air, Water, Land and Human Resources.
- Energy Goal: To affect the optimum conservation of energy and use of local renewable resources.
- Environmental Quality Goal: To ensure and improve the quality of Jackson County's natural environment and resources in a responsible manner which will maintain and enhance the life sustaining environment.
- Forest Uses Goal: To conserve forest lands for forest uses and to ensure a continued yield of forest products.
- Natural and Historic Goal: To preserve and conserve open space lands; protect and maintain existing and establish new, historic and scenic and wildlife areas and ensure the wise utilization of natural resources.
- Natural Hazards Goal: To protect life and property from natural disasters and hazards.
- Urban Lands Goal: To provide for an orderly, efficient, and environmentally sound plan for urban land uses within urban growth boundaries.
    - Policy: Unincorporated Urban Containment Boundaries (UCB) shall be established and maintained around the two unincorporated urban areas (Gibbons/Forest Acres, and Highway 99 Corridor between Medford and Phoenix), and an urban

unincorporated community boundary around White City. The County shall allow both for the containment of existing development and allow in-fill development at urban densities where adequate urban level facilities exist. Once established, these boundaries shall not be expanded.

- Implementation Strategy: Establishment of urban containment boundaries around two unincorporated urban areas (Gibbons/Forest Acres, and the Highway 99 corridor between Phoenix and Medford), and an urban unincorporated community boundary around a third unincorporated urban area (White City). These boundaries should be based on the existing extent of urban development, as defined by criteria set forth in the definition of urban land. The densities and land uses within these boundaries should be proposed and evaluated within the framework of the areawide plans.

The Jackson County Comprehensive Plan map (see Figure 1-2) identifies most of the parcels immediately around I-5 Exit 35 interchange (at the western end of the study area) as Agricultural. Just north of the interchange, between I-5 and Blackwell Road, there is a small pocket of parcels designated Commercial. The Erickson Air Crane property is Industrial, as is the majority of land north of I-5 on both sides of the railroad line (and Gold Ray Road). North of the interchange, there is Urban Residential land west of Blackwell Road. Extending from Blackwell Road to Table Rock Road land use is designated Aggregate Resource, Agricultural and Forestry/Open Space to the north of the OR 140 study area. There are small areas of Aggregate Resource, Agricultural and Forestry/Open Space land uses closer to Blackwell Road and south of the study area, but the lands are primarily Industrial until reaching Table Rock Road. From Table Rock Road, the study area is mostly designated Industrial, Commercial near OR 62, and abuts Urban Residential Areas of White City. From White City, the eastern portion of the study area is primarily designated Agricultural and Forestry/Open Space.

The purpose of the Agricultural Land designation is to implement Statewide Planning Goal 3 by preserving agricultural lands for farm use and preventing uses and activities incompatible with farm-related activities. Commercial Land is established to provide markets in appropriate locations for the efficient and economic exchange of goods and services. The comprehensive plan recognizes that the traveling public also has commercial needs that are related to transportation facilities. The purpose of the Forestry/Open Space Land designation is to conserve forest lands for forest uses and ensure a continued yield of forest products. The designation restricts the type and intensity of development in order to preserve the economic base and reduce conflicts between rural development and forest resource management. It also is intended to protect and provide for compatible forest uses and natural resources. The plan establishes criteria for removing parcels from Agricultural or Forestry/Open Space designations.

The Industrial Land designation is intended to provide a supply of sites of suitable sizes, types, locations, and service levels to meet the economic objectives of the region. Urban Residential Lands are areas that have been allowed through the Statewide Goal exception process or are within urban growth, urban containment, or urban unincorporated community boundaries. Urban Residential Lands within White City are designated in the White City Urban

Unincorporated Community Plan. The Aggregate Resource Land designation is intended to protect such resources from incompatible uses, particularly residential uses.

Project Relevance

Long-range traffic forecasts for the OR 140 corridor will be based upon the Jackson County Comprehensive Plan designations and regional assumptions about development as prepared by the RVMPO. Upon completion, the County may need to adopt the Corridor Plan as a policy and implementation document before ODOT can present it to the OTC for adoption. Therefore, the Corridor Plan and Comprehensive Plan must be consistent or amended to be made consistent.

1.2.8. Jackson County Transportation System Plan

The Jackson County TSP, adopted in 2005, consists of all areas of Jackson County located outside the Urban Growth Boundaries (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 OR 140 Corridor Plan transportation improvements are required to be compatible with Jackson County TSP goals and policies.

The TSP has three primary goals: livability, modal components, and integration. The TSP includes associated policies that provide direction for accomplishment of the goals and that "have the force of law."

The goals and policies most applicable to the OR 140 Corridor Plan are described below.

- Goal 4.1 – Livability: To develop and maintain a safe 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.
    - Policy 4.1.2-A – Connectivity: Jackson County will promote a well-connected street and road system to minimize travel distances
    - Policy 4.1.4-A – Safety: Jackson County will provide a transportation system that supports access for emergency vehicles and provides for evaluation in the event of a wildfire hazard or other emergency.

- Goal 4.2 – Modal Components: 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.
    - Policy 4.2.1-A – Vehicular System: Jackson County will prioritize preservation and maintenance of the existing road system rather than increasing vehicular capacity.
    - Policy 4.2.1-G – Truck Freight: Balance the need for movement of goods with other uses of county arterials and state highways by maintaining efficient through movement on major truck routes.

- Policy 4.2.1-H – Truck Freight: Work with ODOT to identify roadway obstacles and barriers to efficient truck movements on state highways and coordinate highway projects with other freight movement projects and infrastructure.
- Policy 4.2.1-I – Truck Freight: Support employment of technology to improve freight mobility.
- Policy 4.2.1-J – Truck Freight: Jackson County is committed to maintaining and improving roadway facilities serving inter-modal freight facilities.
- Policy 4.2.1-P – Coordination: Jackson County will coordinate with ODOT to ensure that highway designations and management policies are appropriate and meet the Goals and Policies of the OHP and the Jackson County TSP. Jackson County will work with ODOT for effective management of highway capacity.
- Policy 4.2.1-S – MPO Area Traffic Engineering and Performance Standard: Jackson County is committed to maintaining a volume to capacity ratio of 0.95 for weekday peak hour vehicular traffic in the MPO area. (RTP 6-1)
- Policy 4.2.1-S – MPO Area Traffic Engineering and Performance Standard: Jackson County will engineer traffic flow to provide efficient transportation system management.
- Policy 4.2.6-A – Bulk Transport and Mass Freight System: Jackson County will continue to plan for rail service as a viable long-term transportation option for the Rogue Valley.
- Policy 4.2.6-A – Bulk Transport and Mass Freight System: Jackson County will encourage bulk transportation facilities to provide efficient transport of bulk goods.

- Goal 4.3 Integration**:** 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.
  - Policy 4.3.3-A – Area Specific Policies and Quasi-Judicial TSP Amendments: The County will work with the Oregon Department of Transportation and the MPO to plan a direct route between White City and Interstate 5 to improve freight truck mobility. Significant improvements to the Seven Oaks interchange should occur in a context that will eventually facilitate a direct route between White City and Interstate 5.

White City has the highest concentration of industrial activity in Jackson County. The TSP states that I-5 Exit 35 is underutilized by White City freight traffic because there is no direct connection between White City and I-5 Exit 35. Instead, much of the White City truck traffic uses the North Medford and Pine Street interchanges. The TSP concludes that a connection from I-5 Exit 35 to OR 140 would allow the White City freight traffic to use the interchange, as well as providing access from I-5 to east of the Cascades for other traffic. The connection also would reduce congestion on OR 62 due to the truck delay. The interchange improvements do not preclude connection to a potential new alignment and extension of OR 140.

The TSP identifies the following projects in its project list:

Tier 1 Short and Medium Term (financially constrained through 2013):

- Avenue A, Atlantic to Kershaw, New 2-Lane Rural Minor Collector, Capacity
- Agate Road, HWY 62 to Ave G, New 3-lane Industrial Collector, Capacity
- Atlantic Avenue, Avenue A to Avenue G, New 3-lane urban major collector, Capacity
- Avenue G, Agate to Kirtland Road, New 3-lane urban industrial collector, Capacity
- Avenue G, HWY 62 to Atlantic, New 3-lane urban major collector, Capacity
- Foothill Road, Corey to Atlantic, New 2-lane rural major collector, Capacity
- Highway 62, Agate Road Realign intersection and signalize, Safety & Operations
- Highway 62, Highway 140, Widen intersection approaches, Capacity
- White City/I-5 Freight Plan Implementation, Highway 140 to I-5, Placeholder for Freight Mobility Improvement Projects from Planning Project Freight

Tier 1 Long Term (financially constrained 2014-2023):

- White City/I-5 Freight Plan Implementation, OR 140 to I-5, Placeholder for Freight Mobility Improvement Projects from Planning Project Freight
- Antelope Road, OR 62, Widen intersection approaches, Capacity
- West Antelope Road Kirtland Road, Realign intersection to make the south and west approaches the through movement, Operations/Freight

Project Relevance

Upon completion, the County may need to adopt the Corridor Plan before ODOT can present the plan to the OTC for adoption. After adoption of the Corridor Plan, subsequent amendments to the county's TSP will need to be compatible.

1.2.9. Jackson County Land Development Ordinance

The Jackson County Land Development Ordinance (LDO) was originally adopted in 2004 with subsequent amendments through 2012. It regulates uses, activities, and structures on lands within the unincorporated areas of the county. The LDO provides the standards for construction of improvements that are monitored through the land use approvals/permitting process.

The zoning designations within the study area generally correspond to the comprehensive plan designations. The Jackson County Comprehensive South Zoning map (see Figure 1-3) identifies most of the parcels immediately around I-5 Exit 35, the western end of the study area, as Agricultural. Just north of the interchange, between I-5 and Blackwell Road, there is a small pocket of parcels zoned Interchange Commercial (IC). There are clusters of parcels zoned Urban Residential (UR-1) west of Blackwell Road. Lands east of Blackwell Road are zoned Agricultural (EFU) and Aggregate Resource (AR). Parcels along Kirtland Road to the north until the White City Urban Unincorporated City are zoned EFU and AR with small pockets of Open Space

Reserve (OSR) and Limited Use zoning (LU). To the south of Kirtland Road in the same area, zoning is EFU, AR and General Industrial (GI) closer to White City. From White City to the eastern end of the study area, zoning designations are mostly EFU and OSR.

The purpose of each zoning designation is described below:

- EFU: The purpose of the Exclusive Farm Use (EFU) District (Section 4.2) is to conserve agricultural land and to implement the Oregon Agricultural Land Use Policy, ORS 215.243, Statewide Planning Goal 3 (Agricultural Lands), and OAR 660-033. Depending on the type of transportation improvement, a Type 1 to Type 4 permitting review is required.
- OSR: The Open Space Reserve (OSR) zoning is grouped with Forest Resource (FR) and Woodland Resource (WR) as Resource Districts (Section 4.3) to conserve forest lands. This Section implements Statewide Planning Goal 4 (Forest Lands) and OAR 660.006. Depending on the type of transportation improvement, a Type 1 to Type 4 permitting review is required.
- AR**:** The purpose of the Aggregate Removal (AR) District (Section 4.4) is to allow for the protection and utilization of aggregate and other mineral resources, and to ensure the reclamation of mined land. Transportation improvements typically require a Type I review.
- UR-1: The purpose of these Urban Residential districts (Section 5.4.1) is to encourage, provide, and protect suitable environments for single- and multiple-family residences within urbanized areas of the County where public services and facilities are available, and to provide planned residential areas with densities up to 10 dwellings per acre. Depending on the type of transportation improvement, the project may be permitted outright or require a Type 1 to Type 2 permitting review.

Within the White City UUC (Section 5.4.3), urban residential areas provide for urban levels of residential development with densities up to 10 dwellings per acre for single family dwellings and up to 30 dwellings per acre for multiple family dwellings where public services and facilities are available. Unless otherwise specified in Chapter 12, development in the White City Urban Residential districts is subject to all the requirements as the urban residential districts described in Section 5.4.1 and 5.4.2.

- GC: The purpose of the General Commercial (GC) district (Section 5.5.1) is to provide locations for larger retail service commercial centers along major highways and within existing urban areas where public services and facilities are available. Depending on the type of transportation improvement, the project may be permitted outright or require a Type 1 to Type 2 permitting review.
- IC: The purpose of the Interchange Commercial (IC) district (Section 5.5.2) is provide for commercial uses that serve the immediate needs of the traveling public, and are located at freeway interchanges with state highways or county roads. Depending on the type of transportation improvement, the project may be permitted outright or require a Type 1 to Type 2 permitting review.

- GI: The purpose of this district General Industrial (GI) (Section 5.6.1) is to provide for heavy industrial uses.
- LU: The purpose of the Limited Use (LU) (Section 5.7.1) district is to limit uses and activities to those justified in a Comprehensive Plan Amendment "Reasons" exception statement adopted by the County and acknowledged by the state pursuant to ORS 197.732(1)(c) as required by OAR 660-004-0018(4)(a), or to recognize existing lawfully established nonconformities as permitted uses.

Section 7.1 of the LDO addresses Environmental and Cultural Overlays include the following zoning sections which may apply to the OR 140 corridor:

- 7.1.1 Areas of Special Concern
    - ASC 82-2 Bear Creek Greenway
    - ASC 90-4 Historic Resources
    - ASC 90-6 Archaeological Sites
    - ASC 90-10 Ecologically or Scientifically Significant Natural Areas
    - ASC 2003-2 Sports Park Noise Overlay
- 7.1.2 Floodplain Overlay

Chapter 12 of the Jackson County LDO for the White City Urban Unincorporated Community includes regulations regarding special notations on the:

- White City Comprehensive Plan And Zoning Map
- Residential Density and Uses
- Relocated Housing
- Special Approval Requirements Related To The Jackson County Sports Park
- Special Uses in White City Industrial Zones
- Street Intersections, Design and Connectivity
- Public Facilities
- Land Use Buffering and Screening
- Fences, Walls and Hedges
- Street Frontage Landscaping
- Deferment of Improvements/Security to Ensure Compliance

Project Relevance

Upon completion, the County may need to adopt the Corridor Plan before ODOT can present the plan to the OTC for adoption. Amendments to the LDO may be necessary to implement the Corridor Plan. After adoption of the Corridor Plan, subsequent amendments to the county's ordinance will need to be compatible with the plan.

1.2.10. White City Transportation System Plan

The White City TSP, adopted in 2005, guides the management and development of appropriate transportation facilities within White City. It was developed to support White City's vision for transportation services and facilities, while remaining consistent with state, county, and regional plans. This plan provides White City with the necessary elements to be adopted as the transportation element of its Comprehensive Plan. This plan also provides ODOT, the Rogue Valley Council of Governments (RVCOG), and other agencies with recommendations that can be incorporated into their respective planning efforts.

The White City TSP has livability, modal components, economic, vehicular and integration goals, among other, with associated policies and strategies to implement each goal. In general, the goals, policies, and strategies emphasize creating an appealing, livable, multi-modal residential community east of OR 62. At the same time, the TSP recognizes the importance of freight mobility for the industrial employment base of the area. The following TSP strategies address freight mobility:

- 4.1.5-A Meet the transportation needs of the industrial area by balancing freight mobility against access to labor and services. (Livability Goal, Economic Policies)
- 4.2.1-D West of Highway 62, the need for movement of goods is the highest priority for street use. Other uses of County arterials and State Highways west of Highway 62 should be balanced against this priority. (Modal Components Goal, Vehicular Component Policies)
- 4.3.3-B Developing a long term freight mobility solution from White City to Interstate 5 is one of the highest long-range transportation planning project priorities for White City. (Integration Goal, Area Specific Policies)

Projects in the White City TSP are consistent with those in the Jackson County TSP. As in the RTP and County TSP, the White City plan includes a strategy to connect the area's bicycle paths to the Bear Creek Greenway. (4.2.4-A, Strategy a.)

The following is a planned project identified in the TSP:

- White City/I-5 Freight Mobility Study/Seven Oaks Interchange: This refinement plan would develop recommendations for improving truck circulation between I-5 and both the White City industrial area and OR 140. RVMPO conducted a freight study concurrently with the County's development of the TSP. This freight study identifies significant needs for freight mobility improvements from both the White City industrial area and from OR 140 to I-5. The freight needs have also been identified through several County planning processes. The desire for a good route from Klamath Falls to the Coast has been popular for several decades. Delays to trucks occur due to out-of-direction travel factors. The existing I-5 Exit 35 interchange is almost directly west of OR 140. However, the only roads that connect from White City to the Interchange are along the Blackwell-Kirtland route. For trips to I-5 northbound leaving the White City area and for I-5 southbound trips headed to White City, there is approximately 2 miles of out-of-

direction travel on this route for either trip. For trips to I-5 southbound from White City and from I-5 northbound to White City, the choice is either 4+ miles of out of direction travel or to take routes through Central Point or Medford that are often highly congested. See Policy 4.3.3-A (Strategy b) in Chapter 4.

The County and White City TSPs are applying short-term and long-term strategies to address these needs. The short-term strategy employs some small-scale site-specific construction projects to improve freight mobility on the existing Kirtland-Blackwell route. The short-term strategy addresses some of the intersection geometry problems and turning movement issues. The short-term strategy does not address the out-of-direction travel issues, however. The out-of-direction travel issue is especially apparent for connections to OR 140. This planning project would develop the long-term strategy to provide a solution to freight issues for travel from the I-5 Exit 35 interchange to OR 140 and for freight mobility to and from the White City industrial area. A direct road extension from OR 140 to the I-5 Exit 35 interchange would have to address potentially significant environmental constraints (vernal pools) and Statewide Planning Goals.

Project Relevance

Upon completion, the County may need to adopt the Corridor Plan before ODOT can present the plan to the OTC for adoption. After adoption of the Corridor Plan, subsequent amendments to the White City TSP will need to be compatible.

1.2.11. White City Urban Unincorporated Community Plan

The Jackson County Board of Commissioners adopted the White City Urban Unincorporated Community Plan (WCUUCP), Phase 2 on September 17, 2003 as Chapter 12 of the County LDO, which then took effect on November 17, 2003. The WCUUCP functions in conjunction with the Jackson County Comprehensive Plan and Jackson County LDO in guiding development in White City. As part of the adoption process, White City was recognized by the State as an urban area. This allows White City to develop at urban densities and with urban uses, as adequate levels of public services and facilities are made available.

The WCUUCP amended the Jackson County Comprehensive Plan and the Jackson County LDO. The plan includes a White City Comprehensive Plan Map and White City Zoning Map which increases the residential densities from suburban to urban levels, and a Transportation Connectivity Plan which depicts important street connections throughout the community and regional road corridors for future study. One land use change is to include a neighborhood commercial zoning designation in White City.

The zoning map that accompanies the WCUUCP designates most of the study area west of OR 62 as General Industrial (GI) except for a small swath of Open Space Reserve (OSR). There is an area of land zoned Light Industrial (LI) along Antelope Road. East of OR 62 in the study area are commercial land uses immediately adjacent to OR 62 and then land zoned Urban Residential (UR) to the eastern edge of the community boundary.

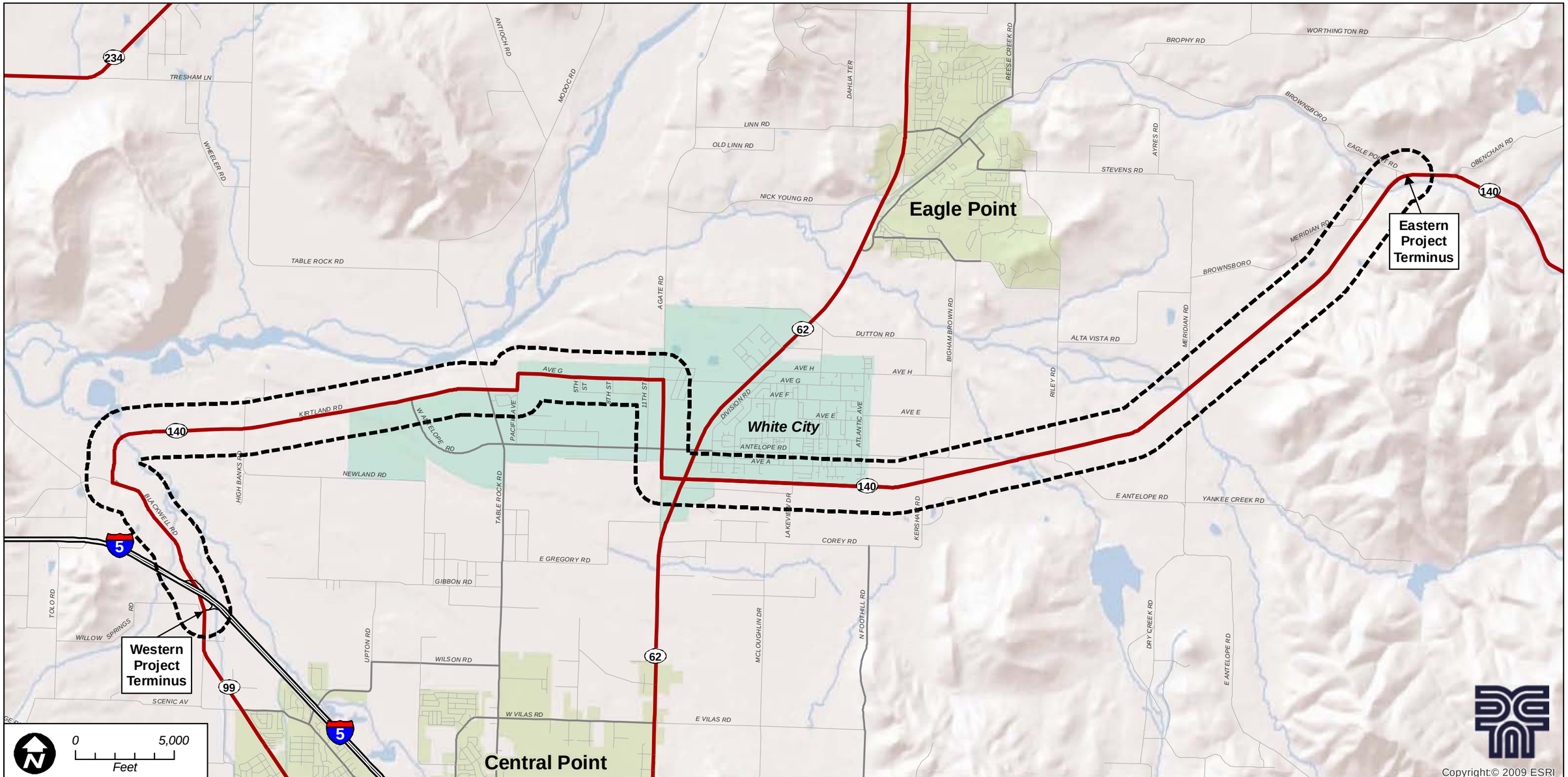
The White City Transportation Connectivity Plan Map does not identify the eastern section of the study area as a potential state highway or arterial, however, it does identify a section for OR 62 as "Potential New Right-of-Way for State Highway".

Project Relevance

Upon completion, the County may need to adopt the Corridor Plan before ODOT can present the plan to the OTC for adoption. After adoption of the Corridor Plan, subsequent amendments to the WCUUCP will need to be compatible.

Attachments:

Figure 1-1. Project Vicinity
Figure 1-2. Comprehensive Plan Designations
Figure 1-3. Zoning Map Designations



OR 140 Corridor Plan

Legend

- City Limits
- White City Urban Unincorporated Community Boundary
- Study Area
- Interstate
- Highway
- Ramps
- Major Roads
- Minor Roads

Figure 1-1
Study Area

Source Data: Jackson County, ESRI, Oregon GEO

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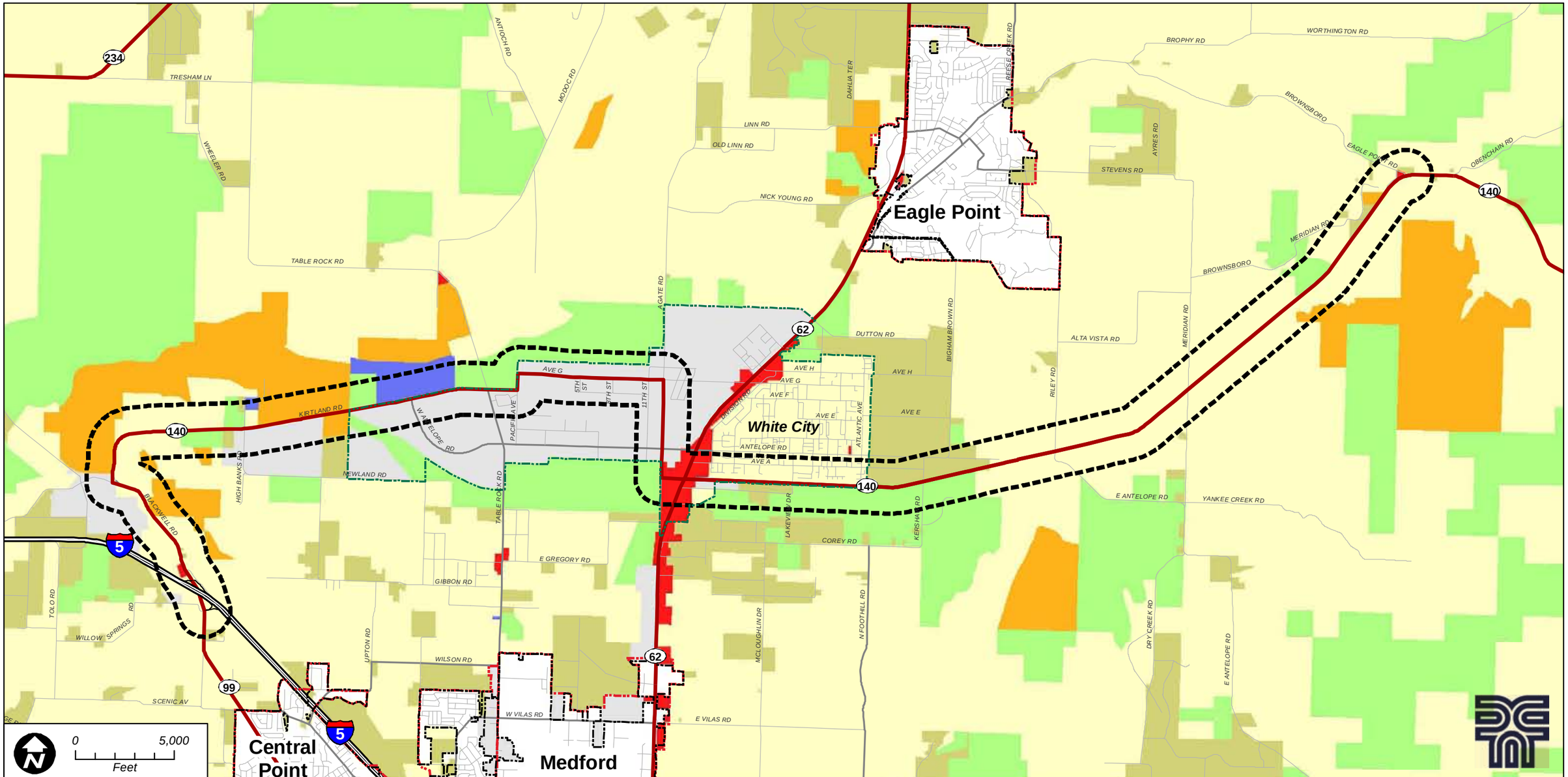

OR 140 Corridor Plan

Legend

- City Limits
- White City Urban Unincorporated Community Boundary
- UGB
- Study Area

Comprehensive Plan Designations

- Aggregate Removal Land
- Agricultural Land
- Commercial Land
- Forestry / Open Space Land
- Industrial Land
- Limited Use Land
- Rural Residential Land
- Urban Residential Land

Figure 1-2

Comprehensive Plan Designations

Source Data: Jackson County, ESRI, Oregon GEO

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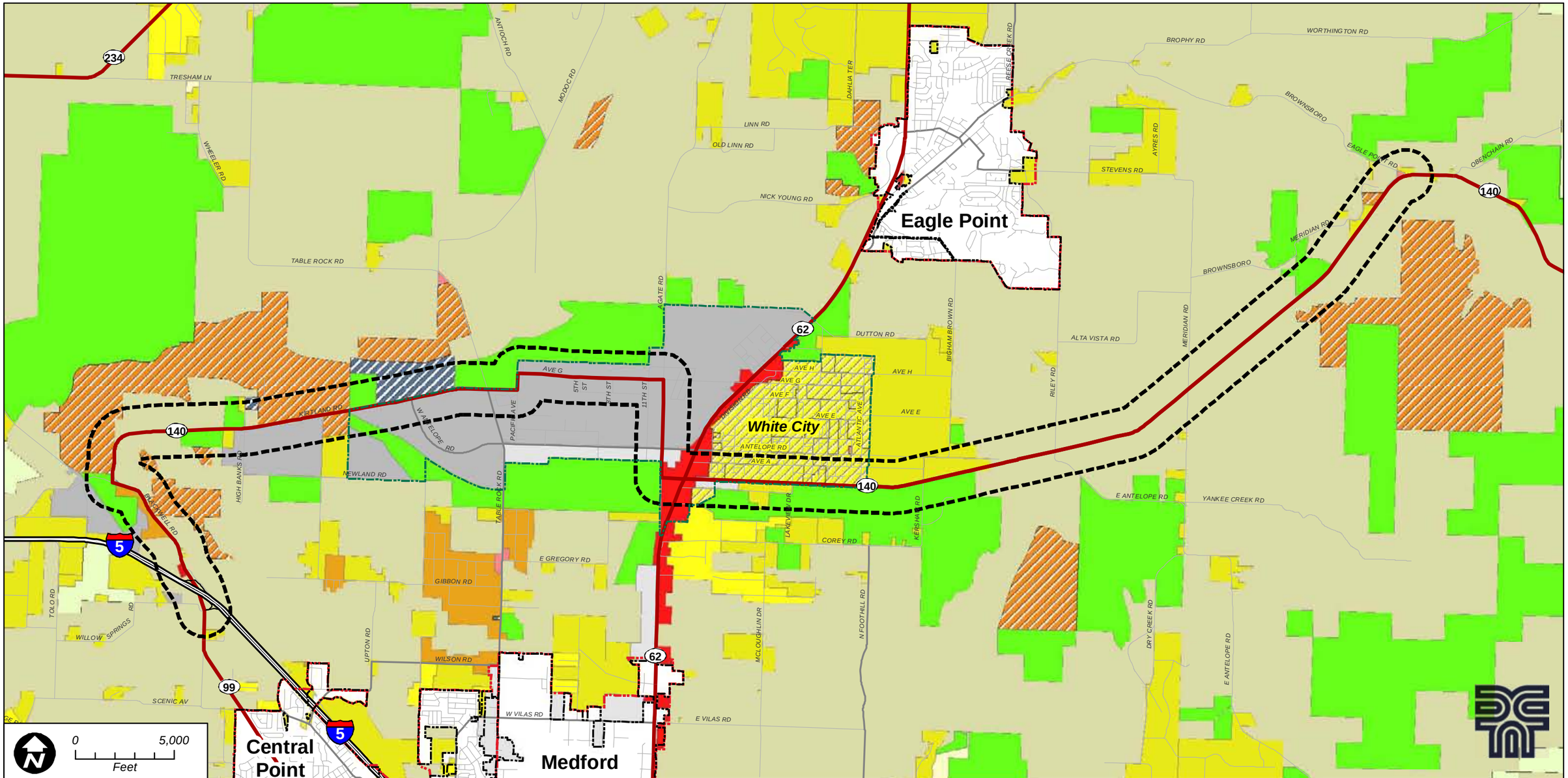

OR 140 Corridor Plan

Legend

- City Limits
- White City Urban Unincorporated Community Boundary
- UGB
- Study Area

Jackson County Zoning

- Aggregate Removal (AR)
- Exclusive Farm Use (EFU)
- Forest Resource (FR)
- General Commercial (GC)
- General Industrial (GI)
- Interchange Commercial (IC)
- Light Industrial (LI)
- Limited Use (LU)
- Neighborhood Commercial (NC)
- Open Space Reserve (OSR)
- Rural Residential - 00 (RR-00)
- Rural Residential - 2.5 (RR-2.5)
- Rural Residential - 5 (RR-5)
- Rural Service Commercial (RS)
- Urban Residential (UR-1)
- White City Urban Residential
- Woodland Resource (WR)

Figure 1-3

Zoning Map Designations

Source Data: Jackson County, ESRI, Oregon GEO

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OR 140 Corridor Plan:
I-5 Exit 35 to Brownsboro–Eagle Point Road

Technical Memorandum #2
Study Area Definition, Goals and Objectives

Prepared for

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March 2013

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2. STUDY AREA DEFINITION, GOALS AND OBJECTIVES

The purpose of the Corridor Plan is to determine how the highway functions now 20 years into the future. It will identify short-, medium-, and long-term strategies to preserve and improve the safety and operations within the corridor consistent with state and local policy. This technical memorandum (#2) defines the study area and establishes goals and objectives that focus on maximizing the safety and efficiency of the Expressway and identify consistency with existing and planned land uses.

2.1. Study Area

Oregon Highway 140 (OR 140), also known as "Lake of the Woods Highway", connects to Interstate 5 (I-5) at the Seven Oaks Interchange (Exit 35) and travels eastward to the Oregon/Nevada border. This *OR 140 Corridor Plan* (Corridor Plan) focuses on the section of OR 140 that extends from I-5, through unincorporated White City, to Brownsboro-Eagle Point Road, as shown in Figure 2-1.

The study area for the Corridor Plan extends over 16 miles through both rural and urbanized lands. The section of OR 140 extending eastward from OR 62, in White City, to Brownsboro-Eagle Point Road is classified as a statewide highway and freight route by ODOT. It is also part of the National Highway System (NHS) and is a federally-designated truck route. In 2009, OR 140 was extended as a statewide highway from OR 62 to I-5 Exit 35 through an amendment to the Oregon Highway Plan (OHP) and jurisdictional transfer of existing Jackson County roads including portions of Blackwell Road, Kirtland Road, Pacific Avenue, Avenue G, Agate Street, and Leigh Way.

2.2. Corridor Overview

OR 140 travels through primarily rural lands but also traverses the White City Urban Unincorporated Community (UUC)-with more dense urban development. A diverse range of land uses are served by the highway including industrial, aggregate removal, commercial, and residential as well as agricultural and forest uses. Traveling from west to east, the different characteristics of OR 140 and its environs are described below.

OR 140/Blackwell Road: OR 140 serves the Tolo Industrial Area along Blackwell Road between I-5 and Kirtland Road. This new section of OR 140, formerly under Jackson County jurisdiction, is a two-lane facility with a posted speed of 45 mph. Recent improvements at Exit 35 include a new I-5 overcrossing, reconstruction of the northbound on- and off-ramps, realignment of the southbound on-ramp, construction of a new southbound loop off-ramp to replace the old standard diamond off-ramp, and realignment of Willow Springs Road opposite the southbound ramps. The Blackwell Road/Kirtland Road intersection was also recently reconstructed to facilitate the OR 140 through movement between Blackwell Road south of the intersection and Kirtland Road north of the intersection. Adjacent land uses along this section currently include agriculture, residential, and aggregate removal with some commercial uses; however, much of this land has been identified as an Urban Reserve Area (CP-1B) in the draft 2009 *Greater Bear*

Creek Valley Regional Plan. Planned zoning for the 544 acres in CP-1B would be entirely employment lands. If this area were to develop to its full potential, OR 140 would assume a greater importance in supporting local industries and I-5 Exit 35 would likely become a strategic transportation hub (railroad, OR 99 and I-5 convergence) and potentially include a nearby truck-train freight transfer site.

OR 140/Kirtland Road: From Blackwell Road to Pacific Avenue, OR 140 is a two-lane facility with a posted speed of 55 mph. Just over 0.75 miles east of High Banks Road, OR 140 enters the White City UUC. Dominant land uses adjacent to OR 140 include industrial and aggregate removal with some agriculture, open space, residential, limited use zoning in the both the rural and urban sections. The roadway has been transferred from Jackson County jurisdiction to ODOT.

OR 140/Pacific Avenue: Jackson County has retained a short segment of roadway (Pacific Avenue) that currently connects between Kirtland Road and Avenue G. A funded project to provide a new connection with smoother curves is currently underway. When completed, Pacific Avenue will no longer be part of the OR 140 alignment.

OR 140/Avenue G: From Pacific Avenue to Agate Road, OR 140 is a two-lane facility with a posted speed of 55 mph. This section of roadway lies within the White City UUC. Existing land uses and zoning on both sides of the highway are industrial.

OR 140/Agate Road: This segment of OR 140 is a two-lane roadway but has been widened to include turn lanes at a number of intersections. The posted speed is 45 mph. Adjacent land uses and zoning include industrial, general commercial, and some open space. This section lies within the White City UUC.

OR 140/Leigh Way: This short segment of highway between Agate Road and OR 62 is currently a three-lane facility with no posted speed. The 2012-2015 Final STIP includes funding to modify the lane configuration and signal at the intersection of OR 140 and OR 62. This section of roadway lies within the White City UUC and zoning/adjacent land uses are commercial.

OR 140 East: East of OR 62, OR 140 runs along the southern boundary of the White City urban residential area and continues east, to the project terminus, through rural Jackson County. This segment includes some commercial land uses at OR 62, rural residential uses predominantly to the north, significant open space reserves to the south, and then agricultural resources for the remainder of the corridor. OR 140 is a two-lane facility for this segment augmented with turn lanes at some intersections and passing lanes in each direction with travel speeds of 55 mph for the entire length.

2.3. Corridor Goal and Objectives

The study will culminate in a long-term plan that preserves and improves the safety and efficiency of this corridor. The following goals and objectives provide guiding principles for planning, programming and managing the OR 140 corridor.

Goal 1: Mobility

Develop and implement management measures and physical improvements that maximize the efficiency of existing highway facilities through Year 2034.

Objectives:

- Maintain existing roadways and identify improvements to address existing operational deficiencies.
- Consider the transportation needs of both local and regional travelers.
- Provide for future growth through planning, programming, and managing the transportation corridor, and evaluate the need for capacity improvements based on the adopted comprehensive land use plans of Jackson County, the White City UUC, and the Rogue Valley Metropolitan Planning Organization (RVMPO).
- Develop an Access Management Plan that provides for safe and acceptable operations on the transportation network, and meets OHP requirements and the access spacing standards in Oregon Administrative Rule (OAR) 734-051.
- Consider the Greater Bear Creek Valley Regional Plan (GBCVRP) in the design and management systems for the corridor.

Goal 2: Freight Operations

Develop a plan that facilitates freight mobility in the corridor.

Objectives:

- Identify roadway segments and intersections where local freight movements will interact with traffic on OR 140.
- Consider the specific needs of freight in evaluating existing and future operational and safety deficiencies.
- Incorporate management measures and capacity improvements that address development of industrial lands along the corridor and facilitate both local and through freight movement.

Goal 3: Safety

Promote the safety of current and future travel modes for all users.

Objectives:

- Review crash patterns and implement improvements at locations identified as priority through the state rating system.
- Identify and improve intermodal conflict points, including rail crossings, pedestrian crossings, and bicycle crossings of major roadways.
- Coordinate between transportation service providers to identify and address existing safety concerns and prevent the creation of future conflict points.

- Maintain existing emergency routes and identify improvements to the transportation system that may enhance emergency vehicle access.

Goal 4: Economic Vitality

Develop integrated transportation facilities and services that can adequately support travel for business and recreation opportunities.

Objectives:

- Serve projected regional growth and expansion, particularly in the White City industrial areas.
- Identify highway improvements than can support development of the Tolo Industrial Area.
- Facilitate business and recreational travel through the corridor by providing directional signage and smooth transitions along the route.
- Coordinate with the RVMPO efforts to develop strategies that reduce vehicular congestion and support economic development.

Goal 5: Coordination

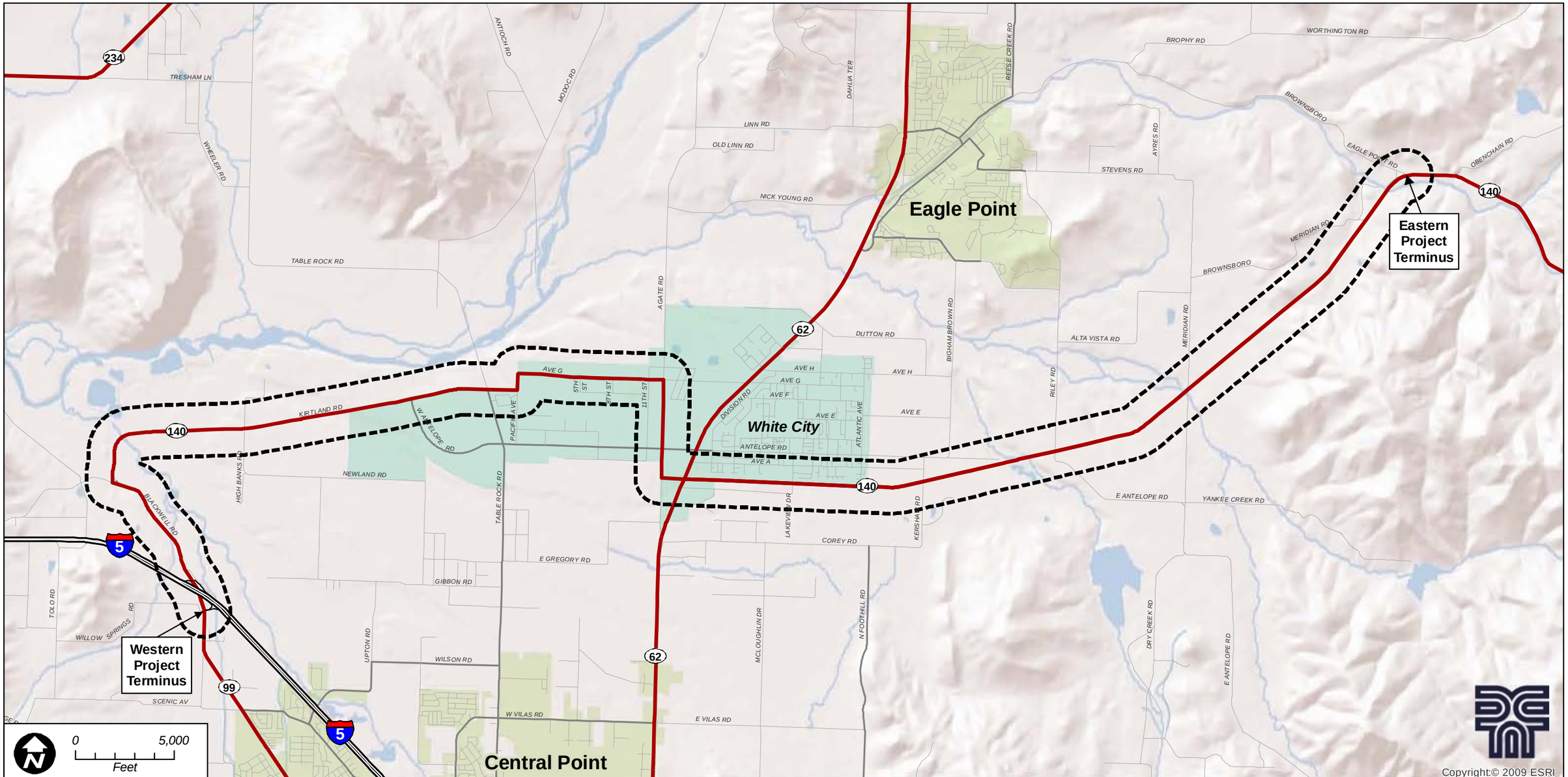
Coordinate planning efforts for OR 140 with other transportation plans and projects in the study area.

Objectives:

- Incorporate recommendations from the Interchange Area Management Plan (IAMP) for I-5 Interchange 35 (Seven Oaks).
- Coordinate with the OR 62 Corridor Environmental Impact Statement (EIS) to develop consistent plans and recommendations.
- Coordinate with the RVMPO planning documents, including the 2009-2034 Regional Transportation Plan (RTP) and the Freight Study.

Attachments:

Figure 2-1. Study Area



OR 140 Corridor Plan

Legend

- City Limits
- White City Urban Unincorporated Community Boundary
- Study Area
- Interstate
- Highway
- Ramps
- Major Roads
- Minor Roads

Figure 2-1
Study Area

Source Data: Jackson County, ESRI, Oregon GEO

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OR 140 Corridor Plan:
I-5 Exit 35 to Brownsboro–Eagle Point Road

DRAFT Technical Memorandum #3
Environmental and Land Use Reconnaissance

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March 2013

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3. ENVIRONMENTAL AND LAND USE RECONNAISSANCE

Research and mapping showing land use and environmental features in the OR 140 corridor is used to identify known issues and those that may pose potential challenges or barriers to transportation improvements. This memorandum begins with a review of environmental and historic resources, addresses socioeconomic and environmental justice considerations, and then examines existing land use conditions. It concludes with a summary of potential constraints to be considered in developing and selecting improvement concepts for the corridor

3.1. Environmental Reconnaissance

Below is a summary of research that includes the mapped known environmental resources. The information gathered was taken primarily from published documents and maps, GIS data, and conversations with appropriate professional contacts. The analysis is limited to "visual windshield validation." Further resources may exist in the study area that are not yet documented or are not visually apparent.

3.1.1. Goal 5 - Natural Resources

Statewide Planning Goal 5 requires local jurisdictions to inventory natural resources such as riparian corridors, wetlands, wildlife habitat, and recreation trails. These resources are shown on Figure 3-2 and described below.

Riparian Corridors

The study area is within the Upper and Middle Rogue River Watershed. The Rogue River and adjacent riparian corridor parallel the study area to the north at varying distances of 0.25 miles and 0.6 miles from Blackwell Road to 5th Avenue, at which point the Rogue River curves northward. Several creeks and their adjacent riparian corridors intersect the study area and flow into the Rogue River and are identified below. All but Dry Creek are designated Essential Salmon Habitat by the Department of State Lands. From east to west the main riparian corridors in the study area are:

- Little Butte Creek, which follows the Brownsboro-Eagle Creek Highway, supports Spring Chinook Salmon, Fall Chinook Salmon, Coho Salmon, Summer Steelhead, and Winter Steelhead habitat. Little Butte Creek does not meet Environmental Protection Agency 303(d) water quality standards.
- Antelope Creek flows into Little Butte Creek and supports Coho Salmon and Summer Steelhead. Antelope Creek also does not meet 303(d) water quality standards.
- Dry Creek which intersects OR 140 east of Kershaw Road is a smaller creek which flows into Antelope Creek. Dry Creek does not support Salmon and Steelhead Habitat.
- Whetstone Creek intersects Kirtland Road between W Antelope Road and High Banks Road. Whetstone Creek supports Summer and Winter Steelhead.
- Bear Creek is located at the western edge of the study area. Bear Creek runs parallel to Blackwell Road located to the east at varying distances; the closest being approximately

0.2 miles. Bear Creek then passes under Kirtland Road where it curves to run east to west and empties into the Rogue River. Bear Creek supports runs of Coho and Chinook salmon steelhead trout, and resident cutthroat trout. The U.S. lists Bear Creek as a "303(d)" stream because of flow modification, habitat modification, summer temperatures, and fecal coli form levels.

- Jackson Creek supports Summer Steelhead and 303(d) listed.
- Willow Creek (intersects Blackwell Road at I-5 Exit 35), supports Summer Steelhead.

Smaller riparian corridors follow creeks flowing south to north through the study area to connect with the Rogue River. Additionally, there are several other unnamed streams that are crossed by the OR 140 Corridor.

Wildlife Habitat

The Jackson County Goal 5 Resources Background Document (1991) identifies a Deer and Elk winter range habitat, the Lake Creek Unit east of the study area and the Grizzly Unit south of the study area, as shown on Figure 3-2. The document characterizes the importance as follows:

> The Lake Creek and Grizzly Units are highly important to both deer and elk because of the large populations they support. Much of the area has relatively little human impact and, an excellent variety of browse is available on warm, south-facing slopes. Animals are relatively free to migrate from the upper slopes of the Cascades …

The Rogue River, associated creeks and their tributaries also provide a network of linear wildlife habitat throughout the study area.

The Oregon Department of Fish and Wildlife (ODFW) follows a conservation strategy that focuses on habitat restoration and maintenance to address the needs of game and nongame species. The study area is in the Conservation Strategy for Oregon – Klamath Mountains (KM) Ecoregion. Conservation Opportunity Areas (COAs) are landscapes within an Ecoregion where broad fish and wildlife conservation goals would be best met. COAs were developed to guide voluntary, non-regulatory actions. The profiles include information on recommended conservation actions, special features, key species, key habitats, and if the area has been identified as a priority by other planning efforts.

The study area crosses ODFW Conservation Opportunity Areas KM-08 North Medford Area and KM-09 Antelope Creek Area.

> North Medford area (KM-08) – This unique area provides important low elevation habitat for and includes the Denman Wildlife Area, Upper and Lower Table Rocks, Agate Desert Preserve, and the Whetstone Savannah Preserve. Area contains many endemic, rare plants and is important for migrating and nesting waterfowl.

- Key habitats are: aquatic; grasslands and oak savanna; riparian; and wetlands.
- Key species are: horned lark; purple Martin; upland birds; waterfowl; Coho salmon; fall Chinook salmon; summer and winter steelhead; fairy shrimp;

- Identified in other planning efforts:
  - Oregon Biodiversity Project Conservation Opportunity Areas
  - Oregon's Important Bird Areas (Denman WA, Table Rocks, Whetstone Savanna)
  - The Nature Conservancy Ecoregional Assessment

Antelope Creek area (KM-09) – This area encompasses the foothills east of Medford. The low elevation site provides a diversity of habitats for both terrestrial and aquatic species.

- Key species are: fall Chinook salmon; winter steelhead; common king snake.
- Identified in other planning efforts:
  - American Fisheries Society Aquatic Diversity Areas
  - Oregon Biodiversity Project Conservation Opportunity Areas
  - The Nature Conservancy Ecoregional Assessment
  - The Oregon Plan Core Salmon Areas

The Ken Denman Wildlife Area (KDWA) was established on April 5, 1954 when 1,760 acres of the former Camp White Military Reservation were conveyed to the Oregon Game Commission. The KDWA consists of three tracts: 1) the Hall Tract, which is south of Antelope Road between Agate Road and Table Rock Road; 2) the Military Slough Tract, located adjacent to Rogue River just north of Avenue G and adjacent and east of Agate Road; and 3) the Bear Creek Tract, adjacent and south of Kirtland Road along Bear Creek. The KDWA is 1,858 acres in size and is bordered by the Rogue River and Table Rocks on the north, agricultural and urban development on three sides and is split by a large industrial park.

The wildlife area is currently managed by the Oregon Department of Fish and Wildlife to:

> …protect, enhance and restore all fish and wildlife species and their habitats located on the wildlife area, and to provide a wide variety of wildlife-oriented recreational and educational opportunities to the public. The wildlife area contains many different types of habitats supporting a great diversity of plant and animal species. Important habitats include vernal pools, prairie grasslands, oak woodlands, riparian habitat and wetlands. A major function of the wildlife area's management is to provide waterfowl, upland bird and deer hunting opportunities.

Wetlands

Substantial areas of high value wetlands are found in the study area and, in many areas, adjacent to OR 140, as displayed on Figure 3-2. Most of the study area is within the Agate Desert, a prairie of native grassland which has vernal pools, a type of wetland. Vernal Pools are rain-fed, seasonal wetlands found on hardpan soils. They typically fill and drain several times during the rainy season, then dry out completely in summer and fall. The impermeable hardpan layer allows the pools to retain water longer than their surroundings. In the Agate Desert, the pools vary in size from 3 to 100 feet across and are rarely deeper than one foot. The vernal pools contain a rare species of fairy shrimp and are the only known place where the

endangered big-flowered woolly meadowfoam grows (described below in Threatened and Endangered Species).

Due to the topography of the study area, a valley floor with the Rogue River flowing east to west to the north and numerous creeks and their tributaries flowing south to north into the Rogue River, additional wetland areas to those mapped are likely to be found in the study area

Recreation Trails

The Bear Creek Greenway, shown in Figure 3-3, extends from Central Point to Ashland and is a linear park that also provides valuable habitat for wildlife. The multi-use path, which follows the creek within the Bear Creek Greenway, was designated as a National Scenic Trail in 1975 and is part of the Oregon Recreational Trail system. The Bear Creek Greenway Trail (BCGT) through the Rogue Valley currently ends at the Seven Oaks Trailhead located on Dean Creek Road approximately one mile southwest of the Blackwell Road, new the western terminus of the OR 140 corridor.

The Rogue River Greenway Trail (RRGT) will connect westward from the Bear Creek Greenway Seven Oaks Trailhead to Grants Pass. The Trail crosses Kirtland Road near the intersection with Blackwell Road at a new undercrossing that was constructed as part of the improvements that realigned the intersection and gave priority to OR 140 travel. The trail has not been constructed in the vicinity of this undercrossing and riders must currently use Blackwell Road as the bike route connecting the BCGT to the constructed portions of the RRGT in Gold Hill.

The KDWA also has 22 miles of recreational trails.

3.1.2. Threatened and Endangered Species

The Oregon Natural Heritage Information Center (ONHIC) database documents the federally listed and state listed, threatened, or endangered species. The State of Oregon and the federal government maintain separate lists of Threatened and Endangered (T & E) species. These are species whose status is such that they are at some degree of risk of becoming extinct. The ONHIC information, based on reported historic sightings in the vicinity of the OR 140 corridor through the Rogue Valley, is summarized in Table 3-1. There are 4 species of Federally listed, threatened or endangered species, and 4 species of State listed threatened and endangered species. Some of the species such as the Agate Desert lomatium and Dwarf wooly meadow-foam are species particular to the area. ODOT has a Special Management Area (SMA) within the right of way on OR 140 for the protection of Agate Desert lomatium and Big-flowered woolly meadowfoam. An SMA is an “identified location along an ODOT right-of-way where sensitive natural or cultural resources are found. These resources are protected under state and/or federal law and require unique or modified maintenance actions to ensure continued viability of the resource”.

Under state law (ORS 496.171-496.192) the Fish and Wildlife Commission, through the Oregon Department of Fish and Wildlife (ODFW), maintains the list of native wildlife species in Oregon that have been determined to be either “threatened” or “endangered” according to criteria set

forth by rule (OAR 635-100-0105). Plant listings are handled through the Oregon Department of Agriculture, while most invertebrate listings are conducted through the Oregon Natural Heritage Program.

Under federal law, the U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) share responsibility for implementing the federal Endangered Species Act (ESA) of 1973 (Public Law 93-205, 16 United States Code (USC) § 1531), as amended. In general, USFWS has oversight for land and freshwater species and NOAA for marine and anadromous species. In addition to information about species already listed, the USFWS Oregon Field Office maintains a list of Species of Concern.

Table 3-1. ONHIC-Identified Listed Threatened or Endangered Species within the OR 140 Corridor Area

Common Name	Scientific Name	Status	
		Federal[1]	State[2]
Vertebrate Animal			
Northern Pacific pond turtle	Actinemys marmorata marmorata	SOC	SC
Tricolored blackbird	Agelaius tricolor	SOC	
Bald eagle	Haliaeetus leucocephalus		T
Western least bittern	Ixobrychus exilis hesperis	SOC	
Common kingsnake	Lampropeltis getula	SOC	SV
Lewis's woodpecker	Melanerpes lewis	SOC	SC
Coho salmon (Southern Oregon/Northern California Coasts ESU)	Oncorhynchus kisutch pop. 2	T	SV
Steelhead (Klamath Mountains Province ESU, summer run)	Oncorhynchus mykiss pop. 24		SV
Chinook salmon (Southern Oregon/ Northern California Coast ESU, spring run)	Oncorhynchus tshawytscha pop. 25		SV
Chinook salmon (Southern Oregon/ Northern California Coast ESU, fall run)	Oncorhynchus tshawytscha pop. 26		SV
Invertebrate Animal			
Franklin's bumblebee	Bombus franklini	SOC	
Vernal pool fairy shrimp	Branchinecta lynchi	T	
Vascular Plant			
Big-flowered wooly meadow-foam	Limnanthes floccosa ssp. grandiflora	E	E
Dwarf wooly meadow-foam	Limnanthes floccosa ssp. pumila	SOC	T
Agate Desert lomatium	Lomatium cookii	E	E
White meconella	Meconella oregana	SOC	C
Coral seeded allocarya	Plagiobothrys figuratus ssp. corallicarpus	SOC	C
Southern Oregon buttercup	Ranunculus austrooreganus		C

Notes:
1. Federal Acronyms: E (Listed Endangered); SOC (Species of Concern); T (Listed Threatened)
2. State Acronyms: C (Candidate for Listing as Threatened or Endangered); E (Listed Endangered); SC (Sensitive-Critical); SV (Sensitive-Vulnerable); T (Listed Threatened)

Source: Oregon Natural Heritage Information Center (ONHIC) database

Once it is listed as threatened or endangered, a species is afforded the full range of protections available under the ESA, including prohibitions on killing, harming or otherwise "taking" a species. In some instances, the listing of a species can be avoided by the development of Candidate Conservation Agreements that may remove threats facing the candidate species.

A species is listed as one of two categories, endangered or threatened, depending on its status and the degree of threat it faces. An "endangered species" is one that is in danger of extinction throughout all or a significant portion of its range. A "threatened species" is one that is likely to become endangered in the foreseeable future throughout all or a significant portion of its

range. "Species of Concern" is an informal term under the federal listing that is not specifically defined in the federal ESA. The term commonly refers to species that are declining or appear to be in need of conservation.

Under Oregon's Sensitive Species Rule (OAR 635-100-040), a "sensitive" species classification was created that focuses fish and wildlife management and research activities on species that need conservation attention. "Sensitive" refers to naturally reproducing fish and wildlife species, subspecies, or populations that are facing one or more threats to their populations and/or habitats. Implementation of appropriate conservation measures to address the threats may prevent them from declining to the point of qualifying for threatened or endangered status.

Sensitive species are assigned one of two subcategories. "Critical" sensitive species are imperiled with extirpation from a specific geographical area of the state because of small population sizes, habitat loss or degradation, and/or immediate threats. Critical sensitive species may decline to the point of qualifying for threatened or endangered status if conservation actions are not taken. "Vulnerable" sensitive species are facing one or more threats to their populations and/or habitats. Although not currently imperiled with extirpation from a specific geographical area of the state, vulnerable species could, however, become so with continued or increased threats to populations and/or habitats.

3.1.3. Wildlife Crossings

The Oregon Department of Fish and Wildlife, under the Oregon Wildlife Movement Strategy and in partnership with other government agencies, produces data for wildlife linkages, which are key movement areas for wildlife, specifically across roads. The data identified the area from White City to the eastern study area terminus as having a high wildlife movement threat value based off of road kill data for that area (see Figure 3-2). This area correlates with the frontage of the Grizzly and Lake Creek Wildlife areas and may represent wildlife crossing from those units to water resources on the valley floor.

3.1.4. Floodplains and Floodways

Acting through the local planning agencies, the Federal Emergency Management Agency (FEMA) regulates development within floodplains. FEMA-designated floodplains and floodways in the vicinity of the study area are displayed in Figure 3-2. The study area intersects two floodways: Bear Creek at the west end of the study area and Little Butte Creek at the east end of the study area. The study area intersects the 100-year floodplains of, from west to east: Bear Creek and the Rogue River, Whetstone Creek, Antelope Creek and Little Butte Creek.

3.2. Socioeconomic and Environmental Justice

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations of February 11, 1994, requires agencies undertaking federal projects to identify low-income and minority populations; assess whether high and adverse human health or environmental impacts would result from the alternatives; and ensure

participation of low-income and minority populations in the transportation decision making process. The Federal Highway Administration (FHWA) defines a disproportionately high and adverse impact on minority and low-income populations as one that:

- Is predominantly borne by a minority population and/or a low-income population; or
- Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

EO 12898 states that agencies must consider whether human health effects, in terms of risks and rates, are significant or above accepted norms.

Socioeconomic data for the study area was drawn primarily from the American Community Survey (ACS) 2009. The Census provides the smallest geographical unit of data available. However, all 2010 census data has yet to be released. Census tract data from the ACS provides an overview of the socioeconomic make up of the study area. The census tracts reviewed for this memorandum represent the following geographical areas:

- Census tract 1100 represents the western portion of the study area from the western terminus to Table Rock Road.
- Census tract 1301 represents the western end of White City.
- Census tract 1302 represents the eastern end of White City.
- Census tract 1400 represents the Eagle City area and the area north of OR 140 from White City of the eastern edge of the study area terminus.
- Census tract 2600 represents the eastern end of the study area south and east of OR 140.

Based on the data from the ACS, the study area, except for the White City area, is similarly diverse as Jackson County, but less so than the state (see Table 3-2). The White City area has the same percentage of persons identifying themselves as white (86-87%) as the state. Census tract 1301 has a 3% population of Black or African American compared with 0% for the other census tracts in the study area and Jackson County. However, the White City area has substantially more persons identifying themselves as Hispanic particularly in census tract 1302. The Hispanic population in census tract 1302 also reflects in the age of persons in census tract 1302 which is substantially lower than the County and surrounding census tracts (see Table 3-3).

In determining the poverty status of individuals, persons are in poverty status when income earned is less than the income threshold. The percent of population in poverty for the study area is shown in Table 3-4. As shown in the table, census tract 1301, which represents the western section of White City, has a substantially higher percentage of individuals living in poverty. Elsewhere in the study area, poverty rates are the same or lower than that for Jackson County.

Table 3-2. Race and Ethnicity (2005-2009 American Community Survey 5-Year Estimates)

Geography		Race								
		White	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races	Not Hispanic	Hispanic
Oregon		86%	2%	2%	3%	7%	3%	3%	89%	11%
Jackson County		93%	0%	1%	1%	21%	1%	3%	91%	9%
Census Tract	1100	95%	0%	1%	1%	0%	0%	3%	93%	7%
	1301	86%	3%	2%	1%	0%	2%	7%	85%	15%
	1302	87%	0%	1%	1%	0%	9%	1%	75%	25%
	1400	95%	0%	1%	1%	0%	0%	2%	96%	4%
	2600	93%	0%	1%	0%	0%	1%	5%	96%	4%

Source: ACS: B02001. Race - Universe: Total Population & B03002. Hispanic or Latino Origin by Race - Universe: Total Population

Table 3-3. Age of Census Tracts (2005-2009 American Community Survey 5-Year Estimates)

Geography		Median Age; Total (Estimate)	Under 17	18 and 39 years	40 to 64 years	65 and older
Oregon		37.7	22.39%	29.88%	33.76%	12.51%
Jackson County		41.5	21.52%	25.64%	35.33%	15.95%
Census Tract	1100	38.3	21.66%	28.35%	33.38%	14.11%
	1301	47.4	18.29%	18.78%	55.79%	8.52%
	1302	33.5	27.42%	29.94%	33.66%	7.65%
	1400	39.0	23.82%	25.28%	38.03%	9.98%
	2600	47.4	18.29%	18.11%	41.74%	18.33%

Source: ACS B01002_1_EST

Table 3-4. Percent of Individuals Below Poverty Level (2005-2009 American Community Survey 5-Year Estimates)

Geography		Percent Population for Whom Poverty Status is Determined
Oregon		14%
Jackson County		14%
Census Tract	1100	4%
	1301	27%
	1302	14%
	1400	14%
	2600	14%

Source: ACS B17001. Poverty Status in the Past 12 Months by Sex by Age - Universe: Population for Whom Poverty Status Is Determined

From the data reviewed, it can be inferred that the White City area, in the study area, has Environmental Justice populations. The White City area is also the only area in the study area where the OR 140 right-of-way abuts numerous residential lots. If right-of-way acquisition is needed in the White City area, there is potential for there to be adverse impacts to Environmental Justice populations.

Transportation-disadvantaged populations are documented in two census tracts in the study area: census tract 1301 (White City) because of the particularly high poverty rates and census tract 2600 (rural eastern edge of study area) which has a higher population of residents 65 or older than the County or other census tracts. It is likely that the residents in these tracts need to travel to and from the Medford area for services such as financial assistance and health services.

3.3. Land Use Summary (Summary of Built Environment)

This section summarizes existing land use conditions within the study area. The information in this section is taken primarily from published documents, maps, GIS data, city and county websites, and other Internet websites.

3.3.1. Existing Land Uses

A review of aerial photography indicates the following current land uses for the study area:

- Land surrounding Blackwell Road to where it connects with Kirtland Road is primarily undeveloped, with some rural and sand and gravel uses.
- Surrounding Kirtland Road, there are areas that are actively farmed, such as orchards, closer to Blackwell Road, with mostly undeveloped land uses until West Antelope Road, where there is a Medford City Water Reclamation facility on the north side of Kirtland and industrial uses to the south.
- East of West Antelope Road is also mostly undeveloped with some industrial uses and industrial uses becoming more prominent east through the corridor to OR 62.
- East of OR 62, there are residential areas primarily north of OR140 and vacant and recreational land south, with rural and agricultural uses stretching to the eastern project terminus.

3.3.2. Existing Land Use Designations and Zoning

The Jackson County Comprehensive Plan map (see Figure 3-4) allocates land uses to resource, residential, commercial and industrial categories while the Zoning map (see Figure 3-5) designates more specific uses and densities within those categories.

Within the study area, comprehensive plan designations include:

- Most of the parcels immediately around Interchange 35 (the western end of the study area) are identified as Agricultural.
- Just north of the interchange, between I-5 and Blackwell Road, there is a small pocket of parcels designated Commercial. The Erickson Air Crane property is Industrial, as is the

majority of land north of I-5 on both sides of the railroad line (and Gold Ray Road). North of the interchange, there is Urban Residential land west of Blackwell Road. Extending from Blackwell Road to Table Rock Road land use is designated Aggregate Resource, Agricultural and Forestry/Open Space to the north of the corridor.

- There are small areas of Aggregate Resource, Agricultural and Forestry/Open Space land uses closer to Blackwell Road and south of the study area, but the lands are primarily Industrial until reaching Table Rock Road. From Table Rock Road, the corridor is mostly designated Industrial and then Commercial along OR 62. Or 140 then abuts Urban Residential Areas of White City. From White City, to the eastern terminus of the study area is primarily designated Agricultural and Forestry/Open Space.

Within the study area, zoning designations include:

- The Jackson County zoning map identifies most of the parcels immediately around Interchange 35, the western end of the study area, as Agricultural.
- Just north of the interchange, between I-5 and Blackwell Road, there is a small pocket of parcels zoned Interchange Commercial (IC). There are clusters of parcels zoned Urban Residential (UR-1) west of Blackwell Road. Lands east of Blackwell Road are zoned Agricultural (EFU) and Aggregate Resource (AR).
- Parcels along Kirtland Road to the north until the White City Urban Unincorporated City are zoned EFU and AR with small pockets of Open Space Reserve (OSR) and Limited Use zoning (LU).
- To the south of Kirtland Road in the same area, zoning is EFU, AR but mostly and General Industrial (GI) closer to White City. There is a large area zoned General Industrial (GI) along Avenue G and Agate Road.
- Zoning along OR 62 is commercial and in White City is Urban Residential. Along avenue G and Agate Road, zoning is entirely industrial. From White City to the eastern end of the study area, zoning designations are mostly EFU and OSR.

3.3.3. Future Jackson County Land Use

The *Greater Bear Creek Valley Regional Plan* (GBCVRP) establishes coordinated urban reserves between the six participating cities (Ashland, Central Point, Eagle Point, Medford, Phoenix, and Talent) and Jackson County to prepare for a future doubling of the regional population. Jackson County adopted the plan on November 23, 2011 through ordinance 2011-14.

The GBCVRP identifies the Tolo area (CP-1B) as suitable for inclusion/protection as Urban Reserve to provide Central Point with attractive and suitable sites for new industrial development. This area overlaps the western portion of OR 140 near I-5 and Interchange 35 (see Figure 3-6).

Planned zoning for the 544 acres in CP-1B would be entirely employment lands. The Tolo area's industrially-zoned sites could accommodate new industries and the expansion of existing industrial uses, which include Cross Creek Trucking Company, the Hilton Fuel and Supply

Company, the North Valley Industrial Park, and Erickson Air Crane. The draft GBCVRP also notes that a "county approved truck-train freight transfer site already exists near the interchange for the Cross Creek Trucking Company."

The GBCVRP includes a condition that before Central Point can expand its UGB into CP-1B, an Interchange Area Management Plan (IAMP) must be prepared for I-5 Exit 35 (Seven Oaks Interchange) and adopted by ODOT, Jackson County, and Central Point.

3.3.4. Community Features

White City is in the center of the study area, with rural areas to the west and east. White City's primary residential area is directly east of OR 62 and north of OR 140. Commercial centers to support the residential area are mostly adjacent to OR 62 between Gramercy Drive and Antelope Road. Eagle Point is to the northeast, Central Point to the west and Medford to the southwest. Residents of White City most likely travel to Medford to receive some services such as health services and potentially employment opportunities.

Community features within or near the study area are listed below and shown on Figure 3-3:

- Rogue Community College - 7800 Pacific Avenue, White City, OR
- Jackson County Fire District #3 - 8333 Agate Road, White City, OR
- Cascade Community Pool - 7800 Division Road, White City, OR
- White City Elementary School - 2830 Maple Court, White City, OR
- Mountain View Elementary School - 7837 Hale Way, White City, OR
- White City Branch Library - 3143 Avenue C, White City, OR
- Rogue Family Center - 3131 Avenue C, White City, OR
- US Post Office - 7561 Oregon 62, White City, OR

Parks and Recreation Areas

Parks within the study area are shown on Figure 3-3 and listed below:

- Bear Creek Greenway (and Trail)
- Hoover Ponds County Park – adjacent and south of OR 140, west of Kershaw Road
- Stone Ridge Golf Club - adjacent and south of OR 140, west of Antelope Road
- Jackson County Sports Park - south of OR 140, east of Kershaw Road
- Ken Denman Wildlife Area – north of Avenue G and east of Agate Road

In addition to these parks, Rogue River Greenway Trail has a proposed alignment that will cross through the study area in the vicinity of the Blackwell Road/Kirtland Road intersection.

Historic and Archaeological Resources

Under Section 106 of the National Historic Preservation Act of 1966 (Public Law 89-665), 16 USC 470-470m, and under federal regulations governing the protection of historic and cultural resources (36 Code of Federal Regulations [CFR] 800), federal agencies, and the state and local agencies to which the federal agency has delegated responsibility, are directed to avoid undertakings that adversely affect properties that are included in or are eligible for inclusion in the National Register of Historic Places (NRHP). The NRHP identifies and documents (in partnership with state, federal, and tribal preservation programs) districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture. This section summarizes NRHP resources near the study area, as well as other historic, prehistoric, and cultural resources.

For the study area, the State Historic Preservation Office (SHPO) database shows historical resources listed on the NRHP and resources that are not listed on the register but that are identified as potentially eligible for inclusion on the register. None of the identified study area resources summarized in Table 3-5 have yet been listed on the National Register.

Table 3-5. Historical Resources

Historic Name	Location Description	Resource Type	Eligibility Evaluation	Primary Construction Date	Original Use
Oak Manor Motel	6355 Blackwell Rd, Central Point	Building	Eligible/ Contributing	1920	Hotel
Hanson-Elder, House	6389 Blackwell Rd, Central Point	Building	Eligible/ Contributing	1910	Farmstead
Love, Lewdelbert, House	7017 Blackwell Rd, Central Point	Building	Eligible/ Contributing	1895	Farmstead
Noyes, William, House	3660 Kirtland Rd	Building	Eligible/ Contributing	1915	Farmstead
-	Kirtland Rd & Blackwell Rds	Building	Eligible/ Contributing	1890	Single Dwelling
Little Butte Creek Bridge	Hwy 140	Structure	Undetermined	1912	Road Related (vehicular)

Source: State Historic Preservation Office

Jessica Bochart, ODOT's Rogue Valley Office Archaeologist, was contacted to identify recorded archaeological locations within the study area. Ms. Bochart concluded that the study area has a high probability for archaeological and historical resources. Ms Bochart provided the following basis for her conclusion for cultural resources and the potential for cultural resources in the study area:

> Archaeological sites are very common near water sources and there are several within this project area. Several surveys have taken place and numerous isolates and archaeological

> sites identified. [Numerous resources] have been recorded[1]. Much of 140 east of White City has not been surveyed, but given the numerous water sources I would venture to guess this area is high probability as well. Another factor that must be considered is Camp White. This facility would increase the likelihood that historic period resources (more than 50 years old) would be encountered. In speaking with a colleague who has written a report on Camp White he said the POW camp and hand grenade practice field were located on Ave. G between Pacific and Agate Road. In my opinion, the OR140 Corridor Plan exhibits a high potential for prehistoric and historic era cultural resources and would need to be budgeted for accordingly.

As mentioned above, it is likely that historical and archaeological resources are in the study area including resources that have not been identified, surveyed or structures that have not been reviewed and identified as eligible and entered into the SHPO database. Due to the high potential for resources in numerous areas within the study area, historical and cultural resources surveys by professionals should be conducted prior to the development of specific transportation improvement projects. The cultural surveys could potentially provide project design parameters if resources, their values and their locations and proximity to OR 140 have been identified.

Section 4(f) Resources

Section 4(f) refers to a part of federal law that protects public parks, recreation lands, wildlife and waterfowl refuges, and public or private historic sites. Section 4(f) applies only to Departments of Transportation (DOTs) and their agencies. Highway projects that use public parks must fulfill the requirements of Title 23, USC, Section 138, Section 4(f) of the Department of Transportation Act of 1966, as amended.

A “use” that is subject to the provisions of Section 4(f) occurs:

- When land is permanently incorporated into a transportation facility;
- When there is a temporary occupancy of land that is adverse in terms of the statute’s preservationist purpose; or
- When there is constructive use of the land.

DOTs must demonstrate that a proposed project will not “use” the publicly owned parks and recreation land, where “use” can mean both actual conversion of recreation lands into a transportation use, or a “constructive use,” where off-site impacts of the transportation project substantially impair the site’s vital functions. Findings of “no feasible and prudent alternatives” and “all possible planning to minimize harm” must be well-documented and supported. A feasible alternative is an alternative that is possible to engineer, design, and build. To find that

[1] Locations of archaeological sites are confidential and therefore cannot be described in this memorandum.

an alternative that avoids a Section 4(f) resource is not "prudent," one must find that there are unique problems or unusual factors involved with the use of such an alternative. This means that the cost, the social, economic, and environmental impacts, and/or community disruption resulting from such alternatives reach extraordinary magnitudes.

Section 4(f) resource lands within the study area consist of the parks described in the following subsection, the historic structures discussed previously in the section titled *Historic and Archaeological Resources*, and recreational areas including the Bear Creek Greenway and the Ken Denman Wildlife Area. In addition, structures eligible or potentially eligible for inclusion on the NRHP within the study area but not yet identified are potential candidates for Section 4(f) status. A Section 4(f) evaluation will require ODOT to assess all reasonable alternatives that adversely affect protected lands. If every potential alternative that can meet the purpose and need for the project would impact some Section 4(f) property, then the alternative with the least impact must be selected unless it is not feasible and prudent.

Section 6(f) Resources

The Land and Water Conservation Fund (LWCF) Act of 1965 established grants-in-aid funding to assist states in the planning, acquisition, and development of outdoor recreational land and water areas and facilities. Section 6(f) of the LWCF Act prohibits the conversion of property acquired or developed with the assistance of the fund to anything other than public outdoor recreation use without the approval of the Secretary of the U.S. Department of the Interior.

Section 6(f) of the LWCF Act concerns transportation projects that propose impacts to, or the permanent conversion of, outdoor recreation property that was acquired or developed with LWCF Act grant assistance. Section 6(f) requires that replacement lands of equal value, location, and usefulness are provided as conditions to approval of land conversions.

The LWCF website (http://waso-lwcf.ncrc.nps.gov/public/index.cfm) lists projects that have received LWCF grants. However, it does not provide mapped limits of parcels receiving funding for the projects which compromise the area protected under 6(f). Therefore, only potential Section 6(f) resources can be identified. Potential Section 6(f) projects within the study area include:

- Bear Creek Greenway 2
- Sports Park Drag Strip (Kershaw Road)
- Sports Park Development
- Sports Park Sewer Line

3.3.5. Canals

The Hopkins Canal intersects OR 140 east of White City and the East Canal is in close proximity to and potentially adjacent to the OR 140 roadway just east of Meridian Road. The canals are managed by the Rogue Valley Irrigation District.

3.3.6. Right of Way

Jurisdictional Transfer Agreement No. 781, which was fully executed on October 17, 2007, gave ODOT jurisdiction of several roads extending between the intersection of Highways 140 and 62, and the Interstate-5 Exit 35 (Seven Oaks Interchange). An amendment to the Oregon Highway Plan (OHP) newly designates OR 140 from I-5 Interchange 35 to Leigh Way, White City as a statewide highway. The eastern portion of OR 140 in the study area is already a designated statewide highway and a freight route. It is anticipated that the newly designated portion of OR 140 will eventually become an OHP designated freight route as well.

Figure 3-7 shows the tax lots and estimated right-of-way in the study area. Right of way generally ranges from 60 to 100 feet although there are a few isolated sections where right of way is even greater. Most of the tax lots lining the corridor are large lots except for where OR 140 passes through southern White City where the lots are close together and dense along the north side of OR 140.

3.4. Potential Design Constraints

Much of the content of this report has identified baseline information regarding resources in the study area from a "visual windshield validation" perspective. Further detailed studies of specific areas will probably discover additional study area features that could present design limitations. Because most of the surrounding land is rural and undeveloped, there is a substantial amount of natural resources and protected rural uses surrounding the corridor. From a regulatory perspective, any transportation improvements in the OR 140 corridor are likely to impact several types of natural and man-made phenomena, including high-value wetlands, archeological and historical properties, streams, floodplains, lands designated EFU, and Environmental Justice communities.

Table 3-6 summarizes resources that may present potential design constraints; these resources are also summarized in the figures presented in this memorandum.

Table 3-6. Environmental and Land Use Summary

Feature	Summary of Key Resources and Concept Guidance	Key Potential Conflict Location(s)	Potential Approval/Permit If Resource Impacted
Riparian Areas (Goal 5 Resource)	Bear Creek, Whetstone, Dry Creek, Antelope Creek and Little Butte Creek riparian corridor - *Disturbance to riparian corridors should be avoided where possible. Water quality impacts should also be avoided or mitigated through design.*	2 of the creeks are west of White City, 3 are east.	Local land use approvals
Wetlands (Goal 5 Resource)	High-value vernal pools adjacent to right-of-way - *Wetland delineations should be conducted once concept footprints are identified. Impacts to wetlands should be avoided; mitigation and permitting will be necessary if impacts cannot be avoided. BMPs incorporated into project design and construction can help minimize impacts.*	Throughout corridor	**RED FLAG – High quality wetlands may have to be avoided which could provide serious design fatal flaws for built projects due to their proximity to OR 140.** U.S. Army Corps of Engineers Oregon Department of State Lands Local land use approvals
Wildlife Habitat	Deer and Elk winter range habitat - *Disturbance to undeveloped areas especially should be avoided if possible.*	Eastern study area	Oregon Department of Fish and Wildlife

Table 3-6. Environmental and Land Use Summary

Feature	Summary of Key Resources and Concept Guidance	Key Potential Conflict Location(s)	Potential Approval/Permit If Resource Impacted
Fish Habitat	Bear Creek, Whetstone, Dry Creek, Antelope Creek , unnamed streams and Little Butte Creek	2 of the named creeks are west of White City, 3 are east.	U.S. Army Corps of Engineers Oregon Department of State Lands Local land use approvals
Recreation Trails	Bear Creek Greenway Trail and Rogue River Greenway Trail - *Interference with planned recreation functions should be avoided.*	Western project terminus	Local land use approvals FHWA – Section 4(f)
Wildlife Crossings	Wildlife associated with and Deer and Elk winter range habitat - *Wildlife crossings should be considered during concept design.*	Eastern study area	N/A
Threatened and Endangered Species	5 T&E Species are found in the study area - *Concepts should avoid disturbance of areas where the species are found and water quality impacts and physical impediments in T&E species contributing waterways.*	Throughout Corridor	Oregon Department of Fish and Wildlife National Marine Fisheries Service US Fish and Wildlife Service Oregon Department of Agriculture (State and Federal Endangered Species Act Consultation)
Floodplains and Floodways	Bear Creek and Little Butte Creek Floodways and 100-year floodplain - *Fill in floodways and floodplains should be avoided. No net rise will have to be demonstrated if improvements involve any sort of fill in floodways. Cut and fill requirements will need to be adhered to in floodplains.*	Western and eastern edges of study area.	FEMA regulations administered through local land use approvals
Socioeconomic and Environmental Justice Impacts	Businesses, affected communities, minorities and low income populations - *Displacements should be avoided or minimized.*	White City	The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act) Title VI Compliance
Land Use and Zoning	EFU, Historical Overlays, Floodplain Overlays, Riparian Corridor Overlays, Open Space Reserve - *Impacts to resource zones should be avoided. Impacts to EFU and Open Space zones may require goal exception.*	Throughout corridor	Local land use approvals
Community Features	Fire Stations, Police Stations, Schools - *Access to these facilities and their specific needs to provide their required level of service should be considered during concept development.*	White City	N/A
Parks and Recreation	Bear Creek Greenway, Jackson County Sports Park, Hoover Ponds, Stone Ridge Golf Club and Ken Denman Wildlife Area - *Impacts to parks and recreation resources should be minimized so that they can fulfill their intended purpose without loss of enjoyment by users and can realize goals of applicable Comprehensive Plans' elements.*	Western end of study area and White City area	Local land use approvals Oregon Parks and Recreation National Park Service – Section 6(f) FHWA – Section 4(f)
Historical and Archaeological Resources	Historical and cultural resources - *Further surveys will need to be completed, especially if improvements will include ground-disturbing activities and or right-of-way acquisition of lots with potential historical resources.*	Throughout corridor	**Red Flag – Potential for substantial archeological and historical resources throughout corridor.** Local land use approvals State Historic Preservation Office FHWA – Section 4(f)
Section 4(f) Resources	Parks and Historical/Cultural Resources - *Avoid resources if possible. Any "use" of Section 4(f) lands will need to demonstrate that it is either a "de minimis" impact or that there was no alternative for the impact.*	Throughout corridor	Federal Highway Administration Consultation and Approval
Section 6(f) Resources	Parks funded by Land and Conservation Funds - *Avoid resources if possible. Use of Section 6(f) land needs to be mitigated in kind.*	White City area	National Parks Service Consultation and Approval

Table 3-6. Environmental and Land Use Summary

Feature	Summary of Key Resources and Concept Guidance	Key Potential Conflict Location(s)	Potential Approval/Permit If Resource Impacted
Right-of-Way	Existing corridor area - *Acquisition and displacements should be avoided where practicable.*	Throughout corridor	The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act)
Canals and Culverts	Hopkins and Medford Canals - *Water quality impacts should be avoided.*	Eastern study area	Rogue River Irrigation District U.S. Bureau of Reclamation Oregon Department of Fish and Wildlife U.S. Army Corps of Engineers

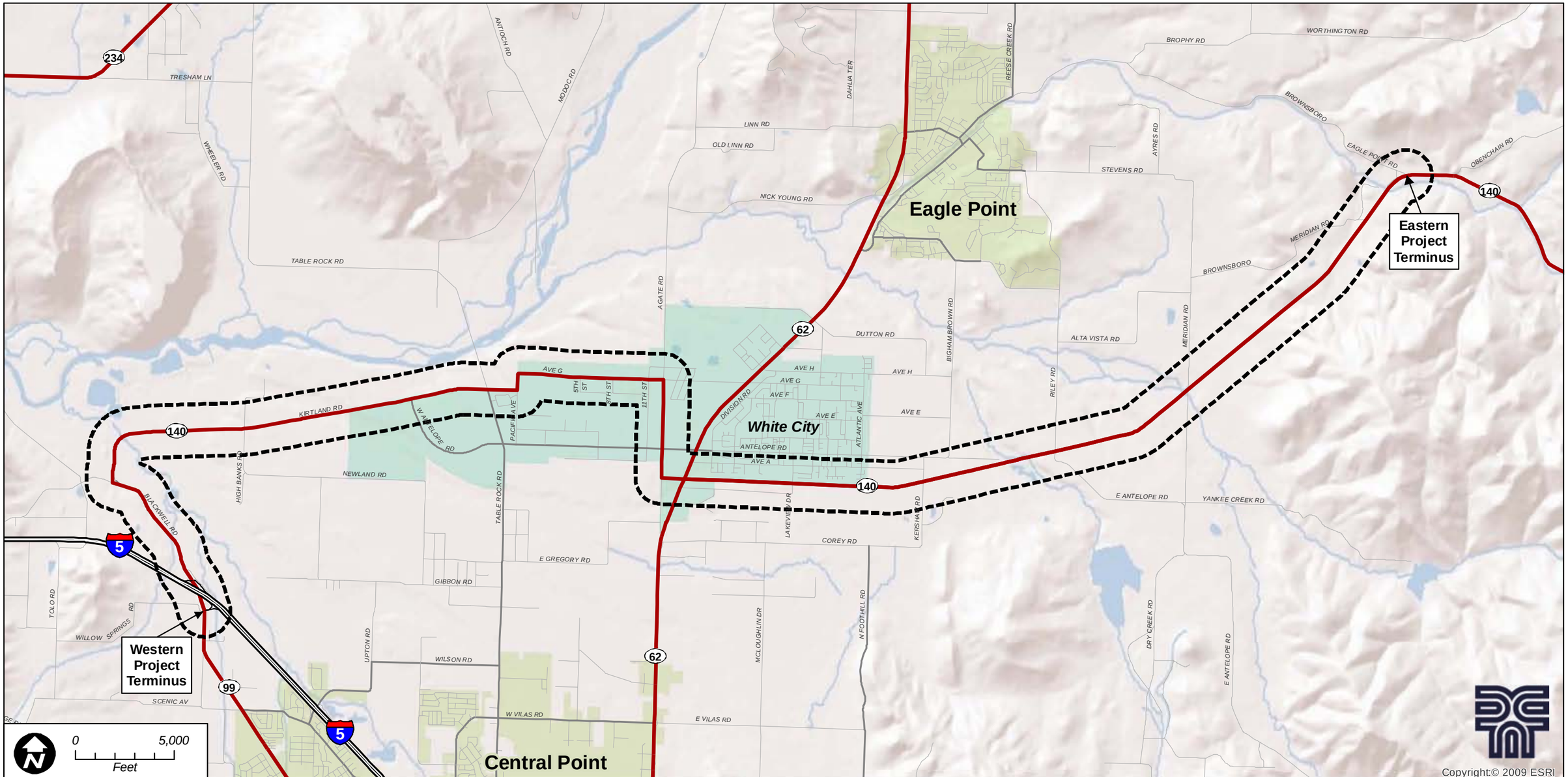
This memorandum is intended to provide mapping and data to identify potential land use and environmental impacts for consideration of corridor improvement concepts. The level of analysis is designed to identify those areas judged to have considerable potential for conflict and to roughly quantify the level of impact to resources. Alternatives with obvious environmental fatal flaws will need to be revised to minimize the environmental concerns. The baseline data identifies several environmental constraints that pose potential barriers to transportation improvements. Most notably, the vernal pools (high- value wetlands that contain T&E species) abut the corridor in some areas and could prohibit any built improvements in certain areas where the pools are present. Furthermore, as identified by ODOT's Rogue Valley Office Archaeologist, potential archeological and historical resources throughout the corridor may also present a challenge to built improvements. Environmental Justice and transportation-disadvantaged populations have also been identified in the White City area. Development in White City is concentrated tightly around existing OR 140 right-of-way, making adverse impacts to businesses and residences difficult to avoid if right-of-way acquisition is necessary for improvements. Other natural features in the study area, such as floodways and riparian corridors, may provide additional design challenges. In the western and eastern ends of the study area, transportation improvements may impact agricultural or rural lands. Most of the identified adverse environmental and land use impacts cannot be wholly avoided but can potentially be minimized and mitigated through design and Best Management Practices (BMPs). However, special attention should be given to avoiding or minimizing:

- Right-of-way acquisitions in Environmental Justice communities
- Section 4(f) protected properties, including parks, recreation and historic properties
- Wetlands impacts
- Impacts to T&E species
- Habitat and riparian corridor impacts
- Regulated floodways
- Exclusive Farm Use or other resource lands

Depending on the location of the preferred project and final design and construction details, there will be specific permits, regulatory requirements, or authorizations required prior to construction of the project. Additional design constraints not cover in this report could include

the location of Hazardous Material sites, fish passage requirements at stream crossings, and stormwater treatment requirements.

Attachments:
Figure 3-1. Study Area
Figure 3-2. Natural Resources
Figure 3-3. Community Features
Figure 3-4. Comprehensive Plan Designations
Figure 3-5. Zoning Map Designations
Figure 3-6. Central Point Urban Reserve Area CP-1B
Figure 3-7. Tax Lot Maps



OR 140 Corridor Plan

Legend

- City Limits
- White City Urban Unincorporated Community Boundary
- Study Area
- Interstate
- Highway
- Ramps
- Major Roads
- Minor Roads

Figure 3-1

Study Area

Source Data: Jackson County, ESRI, Oregon GEO

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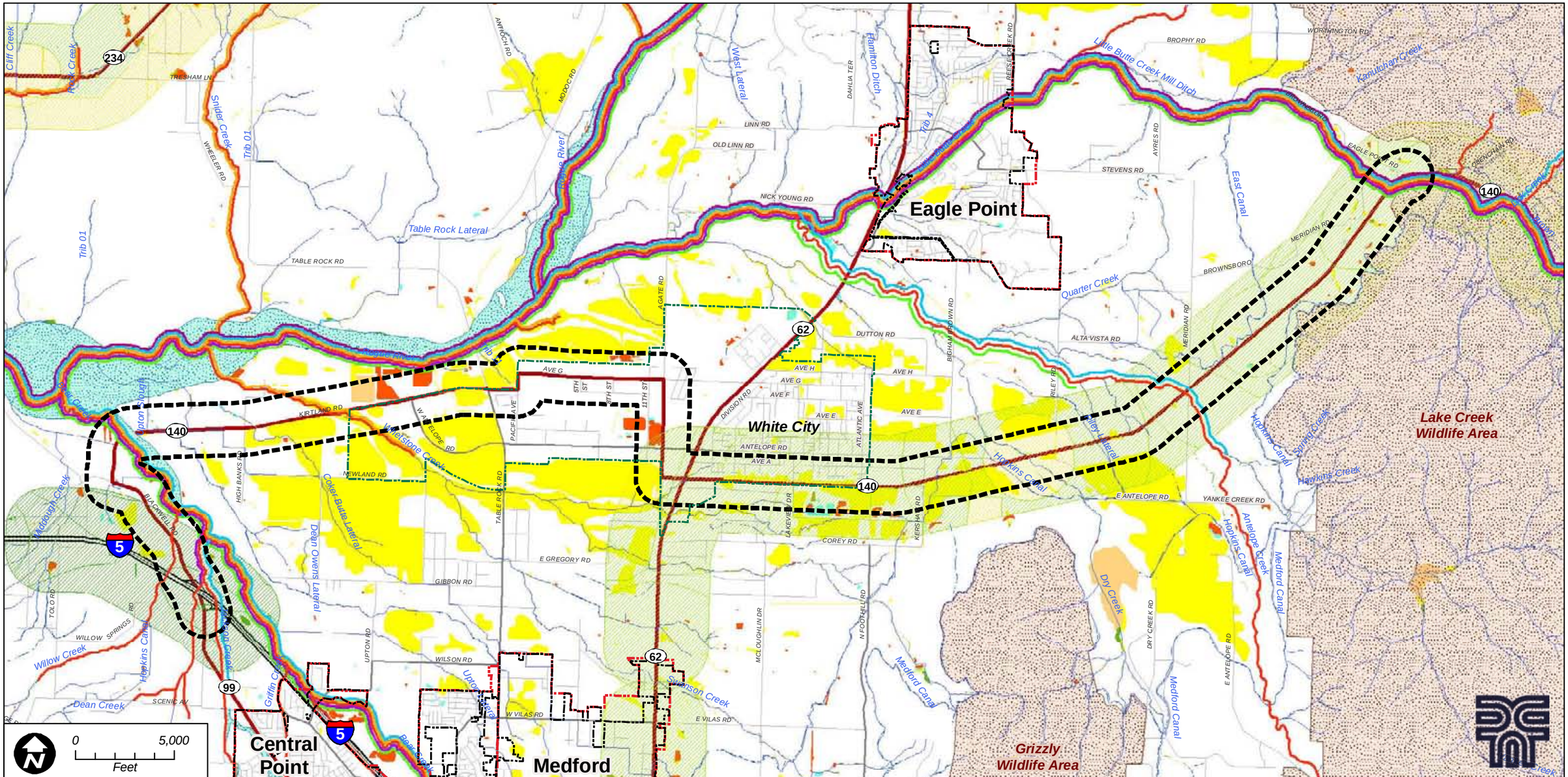

OR 140 Corridor Plan

Legend

- Rivers, Streams, Canals
- City Limits
- White City Urban Unincorporated Community Boundary
- UGB
- Study Area
- Wildlife Areas
- 100-Year Floodplain
- Floodways

Source Data: Jackson County, ESRI, Oregon GEO, Oregon Department of Fish & Wildlife

ODFW Fish Habitat Distribution

- Coho Salmon
- Spring Chinook Salmon
- Fall Chinook Salmon
- Summer Steelhead
- Winter Steelhead
- Pacific Lamprey

ODOT Priority Rank

- 0-2
- 3-4
- 5-6

Wetland Classifications

- Lacustrine
- Palustrine, Aquatic
- Palustrine, Emergent
- Palustrine, Forested
- Palustrine, Scrub-Shrub
- Palustrine, Other
- Riverine

Figure 3-2

Natural Resources

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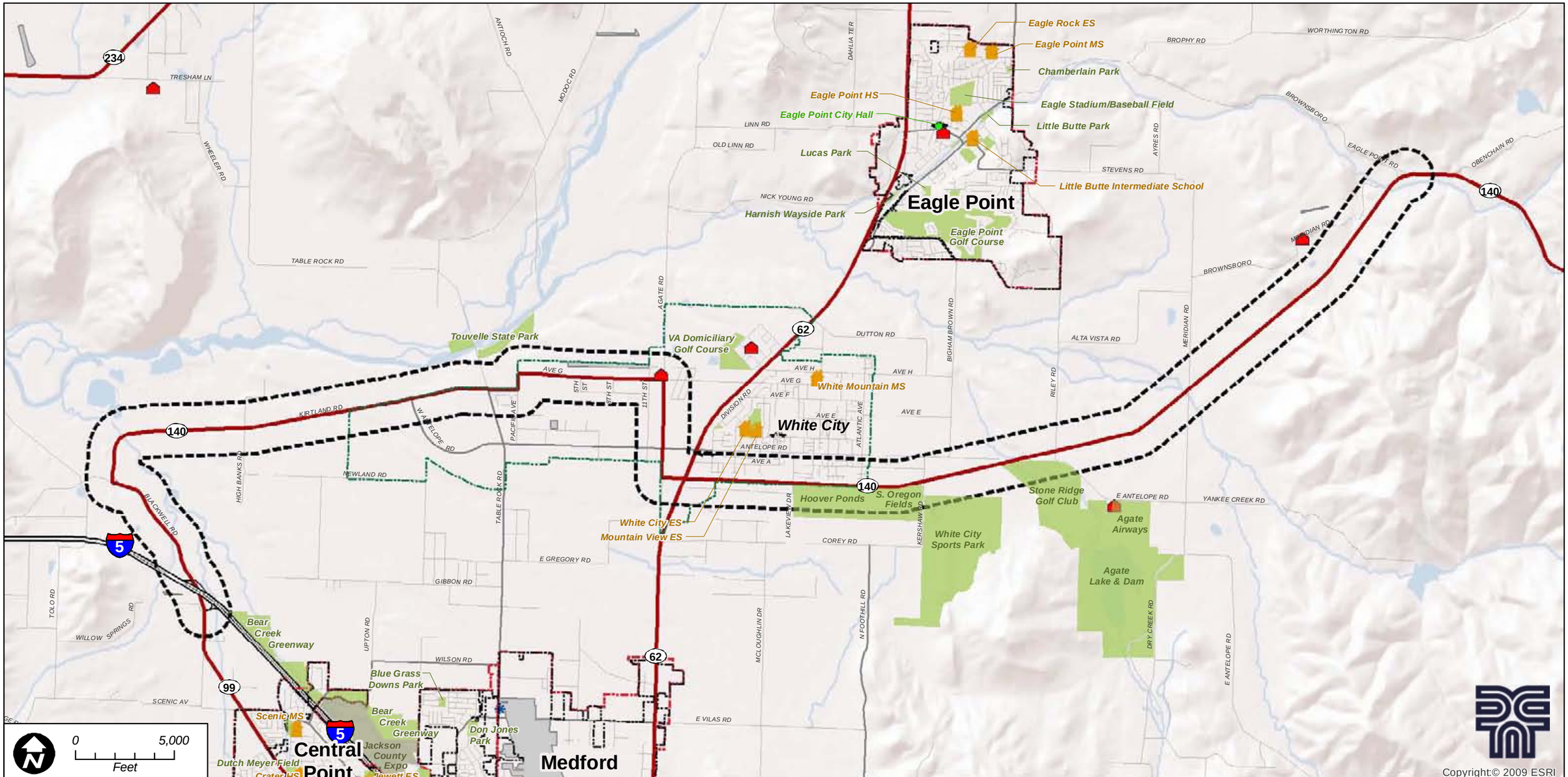


OR 140 Corridor Plan

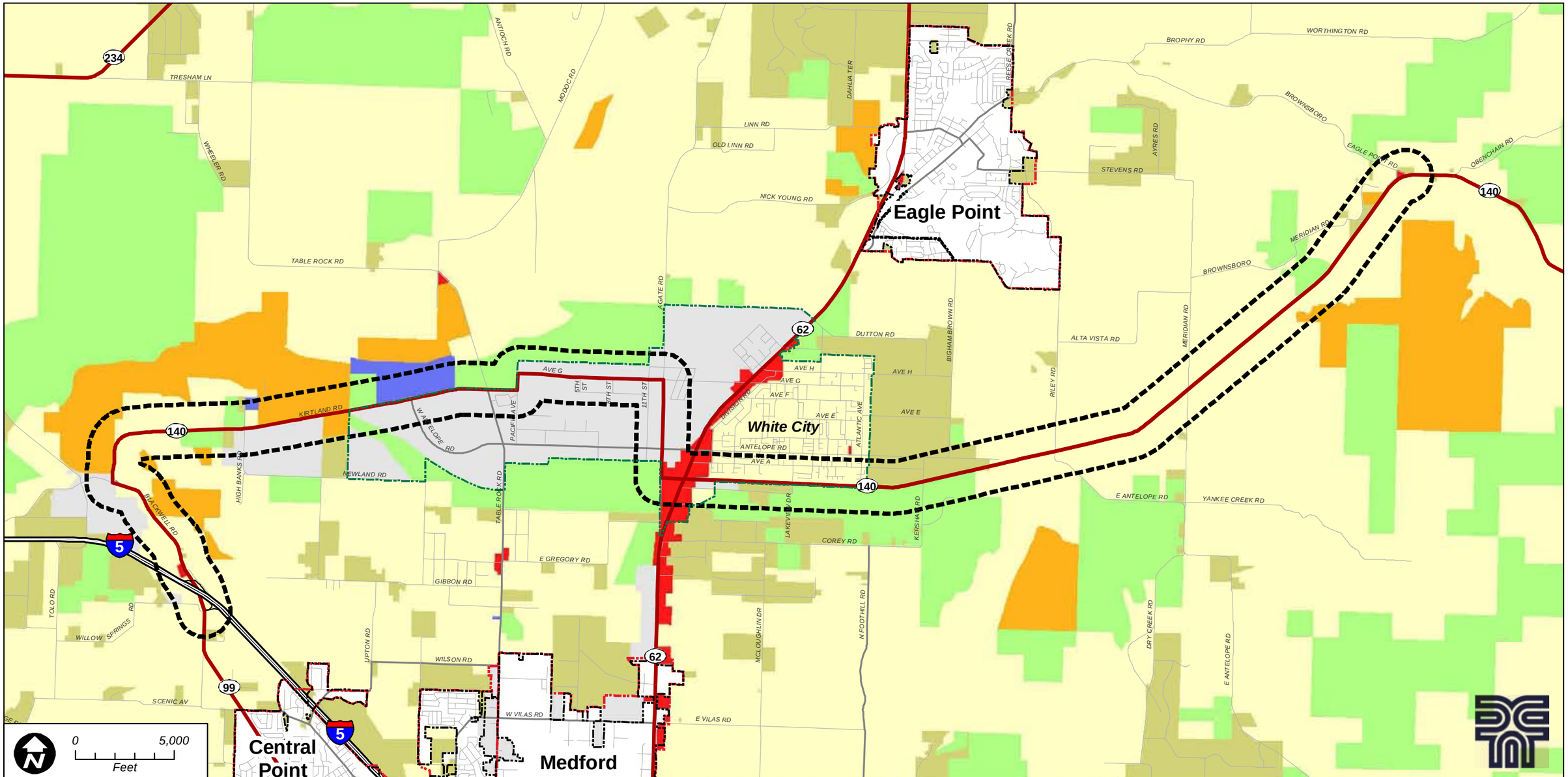
Legend

- City Limits
- White City Urban Unincorporated Community Boundary
- UGB
- Study Area
- Airport / Heliport
- Parks
- Fairgrounds
- City Hall
- Fire Station
- Hospital
- Law Enforcement
- Medical Service
- School

Source Data: Jackson County, ESRI, Oregon GEO

Figure 3-3

Community Features



OR 140 Corridor Plan

Legend

- City Limits
- White City Urban Unincorporated Community Boundary
- UGB
- Study Area

Comprehensive Plan Designations

- Aggregate Removal Land
- Agricultural Land
- Commercial Land
- Forestry / Open Space Land
- Industrial Land
- Limited Use Land
- Rural Residential Land
- Urban Residential Land

Figure 3-4

Comprehensive Plan Designations

Source Data: Jackson County, ESRI, Oregon GEO

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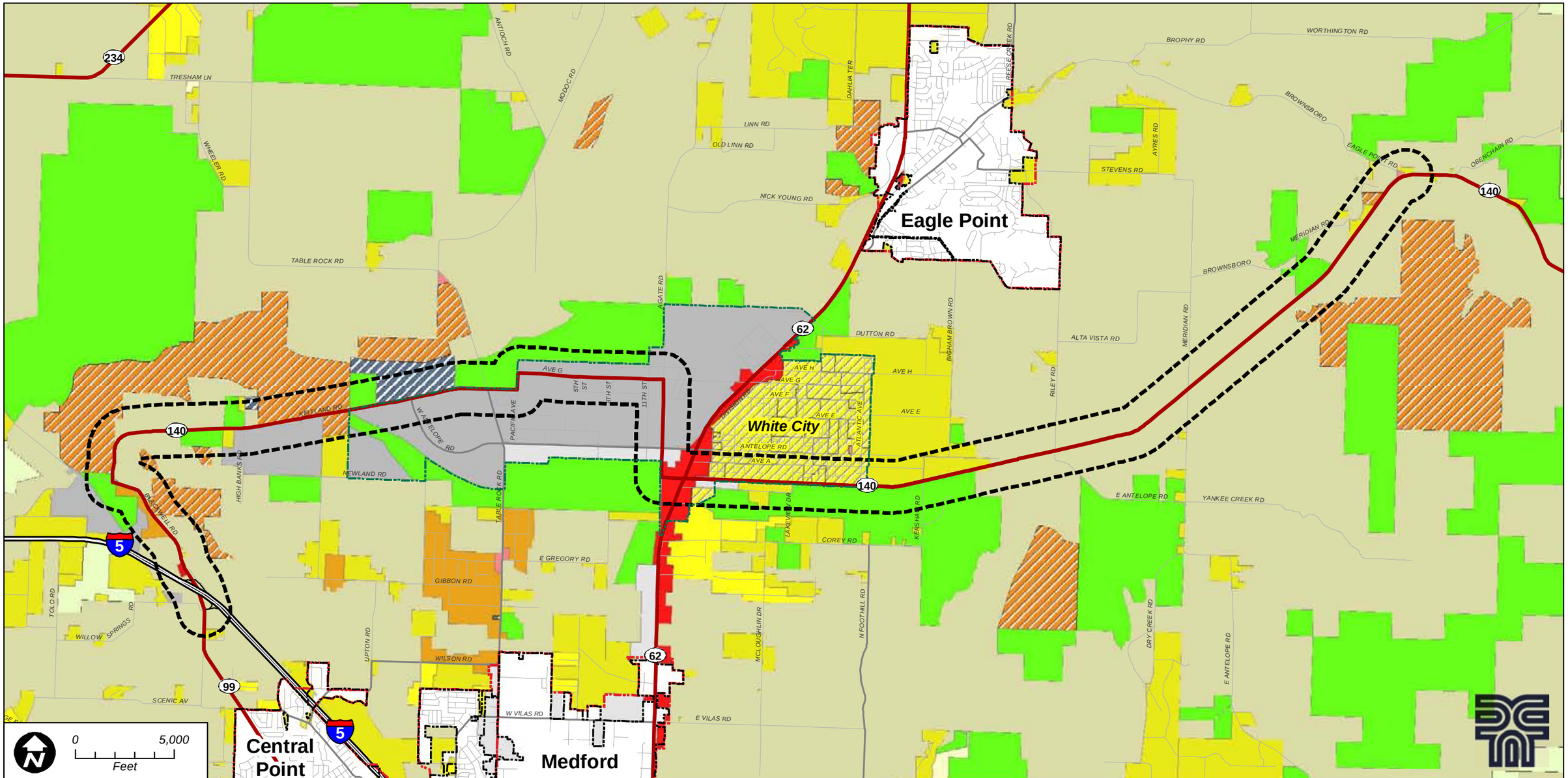

OR 140 Corridor Plan

Legend

- City Limits
- White City Urban Unincorporated Community Boundary
- UGB
- Study Area

Jackson County Zoning

- Aggregate Removal (AR)
- Exclusive Farm Use (EFU)
- Forest Resource (FR)
- General Commercial (GC)
- General Industrial (GI)
- Interchange Commercial (IC)
- Light Industrial (LI)
- Limited Use (LU)
- Neighborhood Commercial (NC)
- Open Space Reserve (OSR)
- Rural Residential - 00 (RR-00)
- Rural Residential - 2.5 (RR-2.5)
- Rural Residential - 5 (RR-5)
- Rural Service Commercial (RS)
- Urban Residential (UR-1)
- White City Urban Residential
- Woodland Resource (WR)

Figure 3-5

Zoning Map Designations

Source Data: Jackson County, ESRI, Oregon GEO

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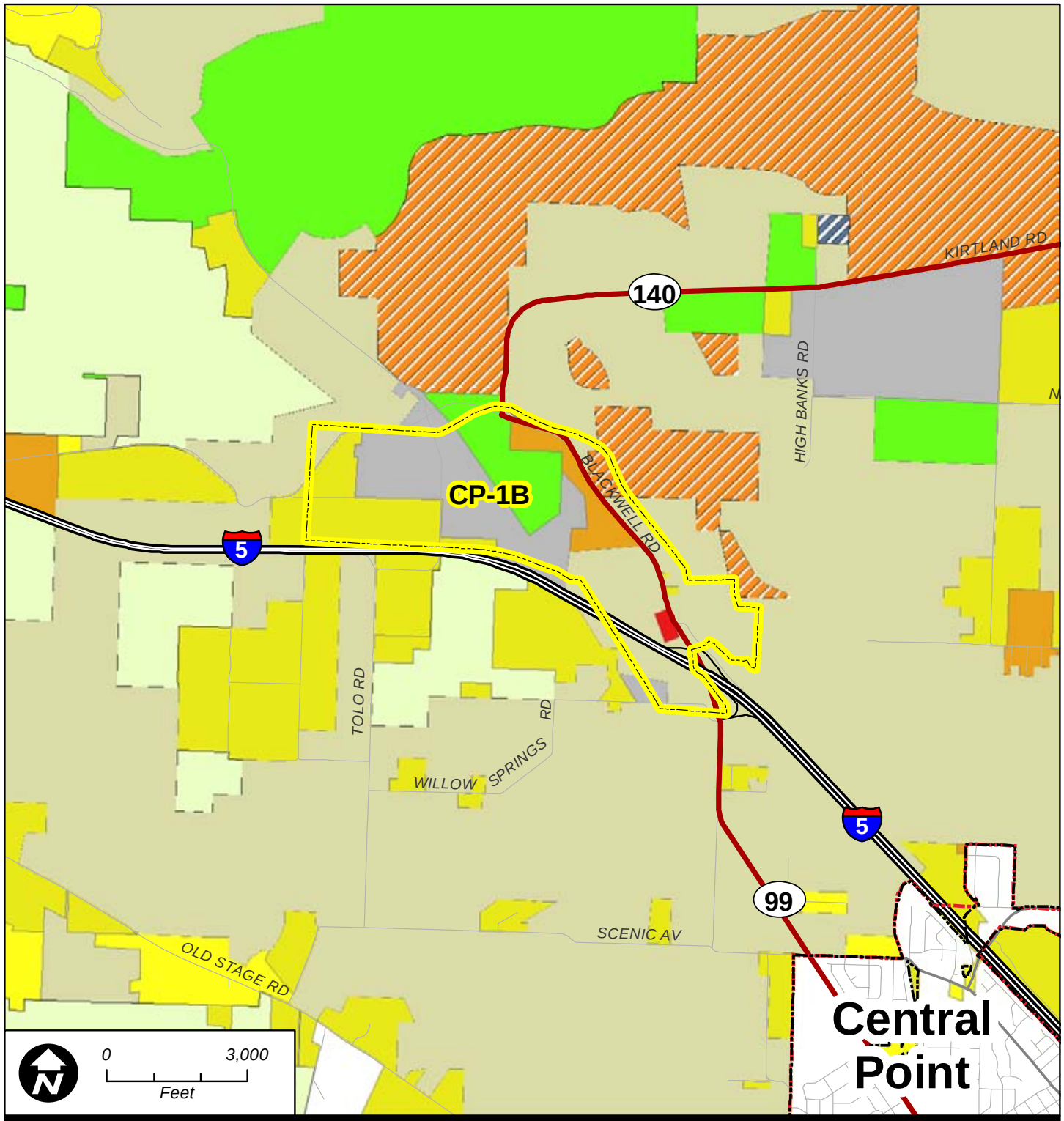


OR 140 Corridor Plan

Legend

- City Limits
- UGB
- Urban Reserve Area

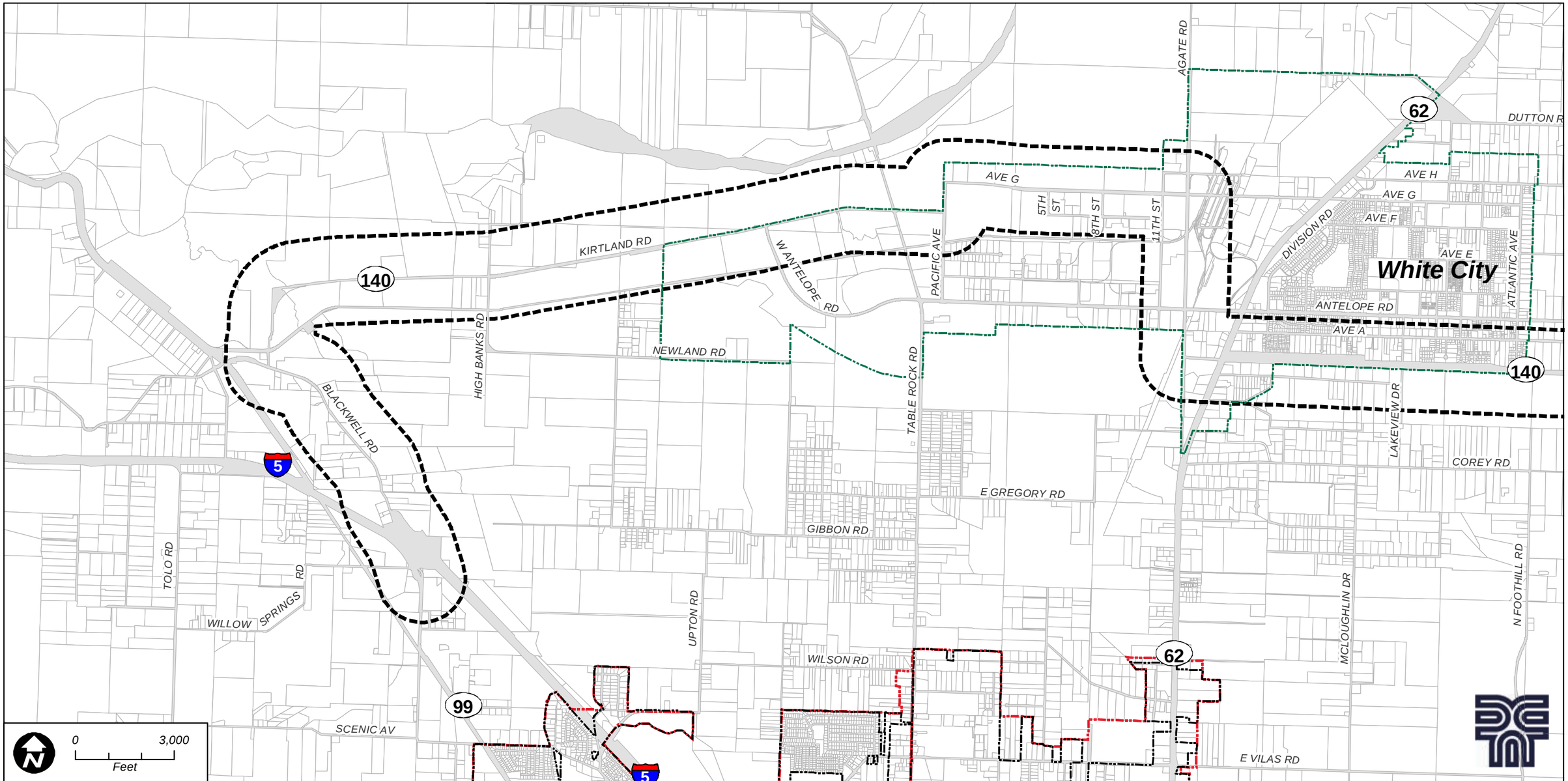
Jackson County Zoning

- Aggregate Removal (AR)
- Exclusive Farm Use (EFU)
- Forest Resource (FR)
- General Industrial (GI)
- Interchange Commercial (IC)
- Limited Use (LU)
- Open Space Reserve (OSR)
- Rural Residential - 2.5 (RR-2.5)
- Rural Residential - 5 (RR-5)
- Urban Residential (UR-1)
- Woodland Resource (WR)

Figure 3-6

Central Point
Urban Reserve Area CP-1B

Source Data:
Jackson County; ESRI; Oregon GEO; Greater Bear Creek Valley Regional Plan, Existing Development Patterns Map, Central Point, November 2009.



OR 140 Corridor Plan

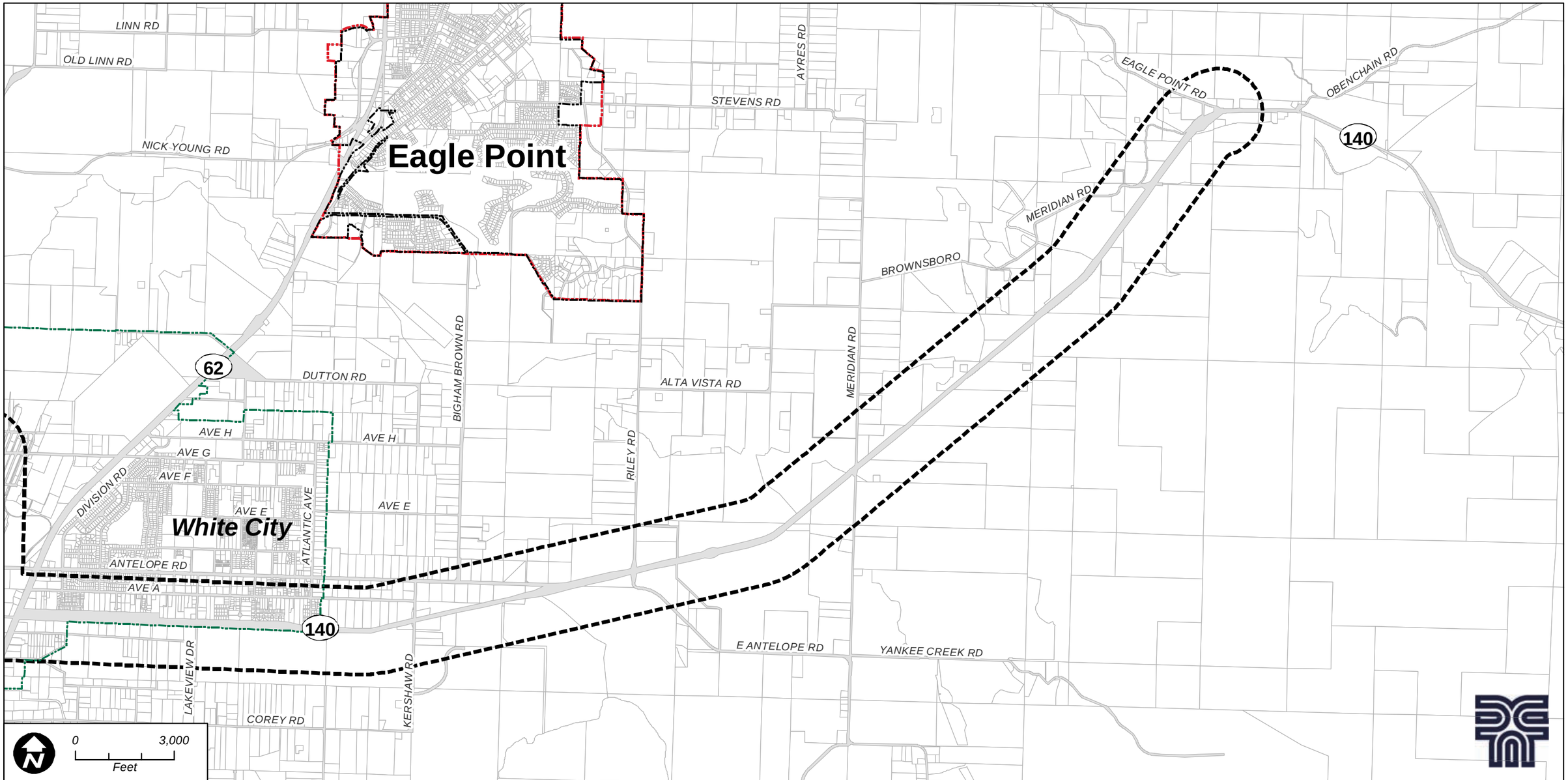
Legend

- City Limits
- White City Urban Unincorporated Community Boundary
- UGB
- Study Area
- Tax Lot

Source Data: Jackson County, ESRI, Oregon GEO

Figure 3-7 Sheet 1

Tax Lots



OR 140 Corridor Plan

Legend

- City Limits
- White City Urban Unincorporated Community Boundary
- UGB
- Study Area
- Tax Lot

Source Data: Jackson County, ESRI, Oregon GEO

Figure 3-7, Sheet 2

Tax Lots

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OR 140 Corridor Plan:
I-5 Exit 35 to Brownsboro–Eagle Point Road

Technical Memorandum #4
Existing Transportation System Conditions

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

March 2013

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4. EXISTING TRANSPORTATION CONDITIONS

This memorandum provides a summary of the existing transportation system and traffic conditions through the OR 140 corridor. It presents a roadway inventory summary, estimated traffic volumes, traffic operations analysis, and an analysis of historic crash patterns. Existing deficiencies are identified based on policies, standards, and goals and objectives established for the corridor plan.

4.1. Existing Transportation System Inventory

The OR 140 corridor serves local and regional vehicular and freight traffic as well as transit, bicycles and pedestrians. The facility inventory examines the highway, intersecting roadways, bridges, pavement conditions, bicycle and pedestrian facilities, transit facilities, Intelligent Transportation Systems, and rail facilities.

4.1.1. Roadway Inventory

OR 140 is classified as a Statewide Highway in the Oregon Highway Plan (OHP). The section extending eastward from OR 62, in White City, to Brownsboro-Eagle Point Road is also classified as a Freight Route and is part of the National Highway System (NHS) and a federally-designated truck route. The section from OR 62 to I-5 Interchange 35 (IC 35) may eventually become designated as a Freight Route in the OHP; however, a change in classification has not been adopted by the OTC. (Discussions of freight demand through the study area can be found in the Freight Traffic discussion under the Traffic Conditions of this report.)

The newly added section of OR 140 west of OR 62 uses existing county roadway facilities which have require 90-degree turns at several locations, including:

- Kirtland Road/Pacific Avenue Intersection – 3-way intersection with STOP sign on Kirtland Road, 55 mph posted speed
- Pacific Avenue/Avenue G Intersection – Continuous roadway, driveway on curve, 55 mph posted speed
- Avenue G/Agate Road Intersection – 4-way intersection with all-way STOP signs, 45 mph posted speed, high demand from OR 62 and Eagle Point to north
- Agate Road/Leigh Way Intersection – 3-way intersection with STOP sign on Leigh Way, 45 mph posted speed, short segment on Leigh Way with nearby traffic signal

Jackson County has a project identified (Key number 17253) in the 2012-2015 Statewide Transportation Improvement Program (STIP) to address the sharp curves at the first two locations. This project has an estimated cost of $1.4 million and will straighten the curves and build to rural major collector standards. Construction is scheduled to begin in 2012.

Table 4-1 summarizes the roadway characteristics for OR 140 in the study area both outside of and within the White City Urban Unincorporated Community (UUC) Boundary. The inventory reviews the federal and local (Jackson County) functional classification as well as posted speed,

number of lanes, and widths of the travel lanes, total surface, and right of way. The majority of the inventory was constructed from ODOT mapping and online databases but posted speeds along the highway were noted during field observations. Note that the segment of OR 140 along Pacific Avenue (milepoints -2.71 to -2.55) is still under Jackson County jurisdiction.

Table 4-1. OR 140 Roadway Inventory

OR 140 Segment	Functional Classification			Posted Speed (mph)	No. of Lanes[4]	Width (ft)			
	Federal[1]	State[2]	Jackson County[3]			Surface[4]	Travel Lanes[4]	Shoulder[4]	Right of Way
West of White City UUC Boundary									
OR 140/Blackwell Rd: I-5 to Kirtland Rd (MP -8.29 to -7.02)	Urban/Rural Principal Arterial - Other	Statewide Highway	Major Collector	45	2	30-32	24	3-4	60’
OR 140/Kirtland Rd: Blackwell Rd to Pacific Ave (MP-7.02 to -4.33)	Rural Principal Arterial	Statewide Highway	Major Collector	45-55	2-3	26-48	24-36	1-8	60-80’
White City (within UUC Boundary)									
OR 140/Kirtland Rd: Blackwell Rd to Pacific Ave (MP-4.33 to -2.71)	Rural Principal Arterial	Statewide Highway	Industrial Collector	45-55	2-3	32-48	24-36	4-7	80’
OR 140/Pacific Ave: Kirtland Rd to Ave G (MP -2.71 to -2.55)[5]	Rural Principal Arterial	Statewide Highway	Industrial Collector	55	2	37	24	6-7	80-300+’
OR 140/Ave G: Pacific Ave to Agate Rd (MP -2.55 to -1.16)	Rural Principal Arterial	Statewide Highway	Industrial Collector	35-55	2	36-37	24	6-7	100’
OR 140/Agate Rd: Ave G to Leigh Way (MP -1.16 to -0.20)	Rural Principal Arterial – Other	Statewide Highway	Industrial Collector	45	2-3	32-46	24-36	4-8	50-100’
OR 140/Leigh Way: Agate Rd to OR 62 (MP -0.20 to 0.0)	Rural Principal Arterial	Statewide Highway	Major Arterial	Not Posted	3	46-50	36	2-6	80’
OR 140: OR 62 to Brownsboro- Eagle Point Rd (MP 0.0 to 1.75)	Urban/Rural Principal Arterial	Statewide Highway, Freight Route	Major Arterial	55	2-4	44-58	26-56	1-10	75-100+’
East of White City UUC Boundary									
OR 140: OR 62 to Brownsboro- Eagle Point Rd (MP 1.75 to 7.98)	Urban/Rural Principal Arterial	Statewide Highway, Freight Route	Major Arterial	55	2-4	38-70	24-56	4-10	75-100+’

Notes:
1. Functional Classification and National Highway System Status on Oregon State Highways, Prepared by the Road Inventory and Classification Services Unit of the Oregon Department of Transportation 3/19/2012, http://www.oregon.gov/ODOT/TD/TDATA/rics/docs/ORStateHwysFCandNHS.pdf
2. State functional classification based on 1999 Oregon Highway, as amended through October 1, 2012, http://www.oregon.gov/ODOT/TD/TP/docs/ohp/d.pdf.
3. Jackson County Transportation System Plan, Ordinance No. 2005-3, Adopted March 16, 2005
4. Highway Inventory Summary Report, http://highway.odot.state.or.us/cf/highwayreports/aml_summary_report_by_route_no.cfm
5. Pacific Avenue from milepoint -2.71 through -2.55 still remains under Jackson County jurisdiction.

Lane and Shoulder Widths

Based on the ODOT standards in the 2012 Highway Design Manual (HDM) for new or reconstruction projects[1], the desired widths for a two-lane, rural highway is a 24-foot roadway with 8-foot shoulders for a total surface width of 40 feet. At minimum[2], lanes should be 11 feet and shoulders should be 4 feet for a total surface width of 30 feet for a two-lane highway.

The ODOT urban standard for new or reconstruction project[3] in an urban fringe/suburban area, such as the White City UUC, is 12-foot travel lanes with minimum 6-foot shoulders for a minimum width of 36 feet. Lane widths may be 11 feet[4] where trucks account for less than 10 percent of the total traffic.

Comparing the existing roadway to these standards and minimums, the following deficiencies are present along OR 140:

- Blackwell Road (west of the White City UUC) – Shoulder widths do not meet full 8-foot standard but meet minimum standard of 4 feet at some sections.
- Kirtland Road (west of the White City UUC) – Shoulder widths do not meet full 8-foot standard for most of the roadway but meet minimum standard of 4 feet everywhere except on one culvert (Whetstone Creek).
- Kirtland Road (within the White City UUC) – Shoulder widths do not meet full minimum 6-foot standard for some sections of the roadway.
- Pacific Avenue (within the White City UUC) – Shoulder widths do not meet full minimum 6-foot standard for some sections of the roadway.
- Agate Road (within the White City UUC) – Shoulder widths do not meet full minimum 6-foot standard for some sections of the roadway.
- Leigh Way (within the White City UUC) – Shoulder widths do not meet full minimum 6-foot standards for a short section near the signalized intersection with OR 62.
- OR 140 (within the White City UUC) – Shoulder widths do not meet full minimum 6-foot standards for a short section of roadway near the signalized intersection with OR 62.
- OR 140 (east of the White City UUC) – Shoulder widths do not meet full standard of 8 feet but meet minimum standard of 4 feet at some sections.

[1] 2012 Highway Design Manual, Table 7-2: ODOT 4R/New Rural Arterial Design Standards (ODOT Standards for New/Reconstruction Projects), Oregon Department of Transportation.

[2] 2012 Highway Design Manual, Table 7-3: Minimum 3R Lane and Shoulder Widths, Oregon Department of Transportation.

[3] 2012 Highway Design Manual, Table 6-4: ODOT 4R/New Urban Standards – Urban Fringe/Suburban Area, Oregon Department of Transportation.

[4] 2012 Highway Design Manual, Table 6-6: ODOT Urban Non-Freeway Design Standards, Oregon Department of Transportation

Right of Way

Right of way for OR 140 generally ranges from 60 to 100 feet although there are a few isolated sections where right of way is even greater.

Cross Street Characteristics

Table 4-2 summarizes characteristics for some of the key intersecting roadways along the OR 140 within the study area. The inventory reviews the local (Jackson County) functional classification as well as posted speed and number of lanes. It also identifies the locations of turn lanes (left and right) at intersections with OR 140.

Table 4-2. OR 140 Corridor Cross Street Inventory

		Cross Street		Intersection with OR 140		
Intersecting Roads	**Functional Classification[1]**	**Travel Lanes**	**Posted Speed (mph)**	**Traffic Control**	**Left-Turn Lanes on OR 140**	**Right-Turn Lanes on OR 140**
High Banks Rd	Local	2	55	STOP Sign	No	Flared
W Antelope Rd	Minor Arterial	2	55	STOP Sign	No	Yes
Table Rock Rd	Minor Arterial	2	55	Traffic Signal	EB Only	No
5th St	Local	2	55	STOP Sign	No	No
8th St	Local	2	45	STOP Sign	No	No
11th St	Rural Major/ Urban Collector	2	45	STOP Sign	No	No
Antelope Rd	Minor Arterial	3	45	Traffic Signal	Yes	No
OR 62[2]	Statewide	5	45	Traffic Signal	No	Yes
Lakeview Dr	Local	2	55	STOP Sign	No	No
Kershaw Rd	Rural Major/ Urban Collector	2	55	STOP Sign	Yes	Yes
Weigh Station EB	-	-	-	-	-	No
Riley Rd/Antelope Rd	Minor Collector	2	55	STOP Sign	No	No
Meridian Rd	Local	2	55	STOP Sign	No	No
Brownsboro-Meridian Rd	Local	2	55	STOP Sign	No	No
Brownsboro -Eagle Point Rd	Rural Major/ Urban Collector	2	55	STOP Sign	No	No

Notes:
1. Jackson County Transportation System Plan, Ordinance No. 2005-3, Adopted March 16, 2005
2. Oregon Highway Plan, 1999 and updated amendments - OR 62 is classified as a statewide highway and identified as part of the nation highway system, a freight route, truck route, and expressway.

4.1.2. Bridge Inventory

The 2010 bridge inventory data for OR 140 was obtained from ODOT's Bridge Maintenance Section and reviewed. One element used to evaluate bridge conditions is the sufficiency rating, which is a complex formula that takes into account four separate factors to obtain a numeric value rating the ability of a bridge to service demand. The result of this method is a percentage

in which 100 percent would represent an entirely sufficient bridge and zero percent would represent an entirely insufficient or deficient bridge. Those bridges with a sufficiency rating of 80 or less are eligible for rehabilitation. Those bridges with a sufficiency of 50 or less are eligible for replacement. Bridges lose their eligibility status for a period of ten years after a (Highway Bridge Program) project is completed.

Two additional elements are used to rate bridge conditions: structural deficiency and functional obsolescence. Structural deficiency is determined based on the condition rating for the deck, superstructure, substructure, or culvert and retaining walls. It may also be based on the appraisal rating of the structural condition or waterway adequacy. Functional obsolescence is determined based on the appraisal rating for the bridge deck geometry, underclearances, and approach roadway alignment. It may also be based on the appraisal rating of the structural condition or waterway adequacy.

Five bridges located on OR 140 within the study area, as listed in Table 4-3. None of these bridges have deficiencies and all have a sufficiency rating above 80.

Table 4-3. OR 140 Bridges

Bridge ID	Milepoint	Name	No. of lanes	Sufficiency Rating	Deficiencies
21064	-7.02	Hwy 270 (OR 140) over Multi-Use Path at MP -7.02	4	97.4	None
18869	-6.55	Bear Creek, Hwy 270 (Kirtland Road) at MP -6.55	2	94.4	None
09774	3.33	Dry Creek, Hwy 270 (OR 140) at MP 3.33	2	80.3	None
09775	4.99	Antelope Creek , Hwy 270	2	93.8	None
09777	7.75	Little Butte Creek, Hwy 270	2	93.4	None

Source: ODOT, Bridge Maintenance Section

4.1.3. Pavement Conditions

The ODOT Pavement Services Unit surveyed pavement conditions on the highway system in 2010. The five pavement condition categories used include: Very Good, Good, Fair, Poor, and Very Poor[5]. With the exception or structures, OR 140 is constructed of asphalt concrete pavement. The rating definitions for asphalt concrete are summarized below:

- **Very Good** – Stable, no creaking, no patching, and no deformation. Excellent riding qualities. Nothing would improve the roadway at this time
- **Good** – Stable, minor cracking, generally hairline and hard to detect. Minor patching and possibly some minor deformation evident. May have dry or light colored appearance. Very good riding qualities. Rutting may be present but is less than ½ inch.

[5] Definitions of the pavement condition categories can be found in the ODOT, Pavement Services Unit, 2010 Pavement Condition Report, Appendix E which can be found at the following internet address: http://www.oregon.gov/ODOT/HWY/CONSTRUCTION/docs/pavement/2010_pavement_condition_report_maps.pdf

- **Fair** – Generally stable, minor areas of structural weakness evident. Cracking is easier to detect, patched but not excessively. Deformation more pronounced and easily noticed. Ride qualities are good to acceptable. Rutting may be present but is less than ¾ inch.
- **Poor** – Areas of instability marked evidence of structural deficiency, large crack patterns (alligatoring), heavy and numerous patches, deformation very noticeable. Riding qualities range from acceptable to poor. When rutting is present, rut depth is greater than ¾ inch.
- **Very Poor** – Pavement in extremely deteriorated condition. Numerous areas of instability. Majority of section showing structural deficiency. Ride quality is unacceptable (probably should slow down).

Table 4-4 summarizes the pavement conditions by roadway section for OR 140.

Table 4-4. 2010 Pavement Condition Inventory

Section Name	Begin Milepoint	End Milepoint	Length (miles)	2010 Rating
OR 140/Blackwell Road: Junction with I-5 - Kirtland Road	-8.29	-7.02	1.27	Very Good
OR 140/Kirtland Road: Blackwell Road - Pacific Avenue	-7.02	-2.71	4.31	Fair
OR 140/Avenue G: Pacific Avenue - Agate Street	-2.55	-1.16	1.39	Fair
OR 140/Agate Street: Avenue G - Leigh Way	**-1.16**	**-0.20**	**0.96**	**Poor**
OR 140/Leigh Way: Agate Street – Junction OR 62	**-0.20**	**0.00**	**0.20**	**Poor**
OR 140: Junction OR 62 – Brownsboro-Eagle Point Road	0.00	7.98	8.20	Good

Source: ODOT, Pavement Services Unit, 2010 Pavement Condition Report

Approximately 58 percent of OR 140 is rated as having pavement that is in Good or Very Good condition. Another 35 percent is rated as Fair. The remaining 7 percent is rated as Poor.

The Poor pavement is located on Agate Street and Leigh Way, west of OR 62. There are no projects currently to address this deficiency identified in the 2012-2015[6] Final STIP although improvements at the OR 140/OR 62 (Key number 17471) scheduled to begin construction in 2014 could improve sections of the pavement on Leigh Way.

4.1.4. Pedestrian and Bicycle Facilities Inventory

The bicycle and pedestrian facilities along OR 140 are limited throughout the corridor area. Findings from the inventory include:

- Sidewalks are only located on Leigh Way and a few sections of Agate Road. The existing sidewalks appear to be recently added and in good condition.

[6] 2012-2015 Statewide Transportation Improvement Program as Amended, http://www.oregon.gov/ODOT/HWY/STIP/docs/2012-2015_STIP/12-15Amended_STIP.pdf

- Only three crosswalks are included in the study area (Blackwell Road/I-5 Southbound ramp terminal, Agate Road/Antelope Road, and OR 140/OR 62).
- No bike lanes are striped although Leigh Way has 6-foot shoulders adjacent to the curb for most of its length.
- Some portions of OR 140 may have shoulders that can serve bicyclists on the roadway. A 6-foot paved shoulder is desirable and a minimum 4-foot shoulder is needed or bicycles are considered to share the roadway. Most of the roadways have shoulders that achieve the minimum 4-foot width (94 percent) with sections that are 6 feet or wider (68 percent). Segments of OR 140 with narrower shoulders include portions of Blackwell Road, the Whetstone Bridge on Kirtland Road, and Leigh Way/OR 140 east and west of the intersection with OR 62.

4.1.5. Transit Inventory

Rogue Valley Transportation District (RVTD) operates one transit route through the study area: Route 60. Route 60 intersects the corridor along OR 62 Monday through Friday, twice each hour, between the hours of 5:00 am and 6:30 pm. The route has a stop in both the northbound and southbound directions on OR 62, just north of OR 140.

4.1.6. Intelligent Transportation Systems (ITS) Inventory

The OR 140 corridor has no existing ITS infrastructure currently in place[7].

4.1.7. Rail Inventory

The Rogue Valley region is served by two railroad lines. The Central Oregon and Pacific (CORP) Railroad is a short line railroad owned by RailAmerica, Inc., which is based in Jacksonville, Florida. The White City Terminal and Utility (WCTU) Railway Company, a short line railroad on 14 miles of track accessing an industrial area in White City, Oregon, is part of RailService, Inc., which is based in Atlanta, Georgia.

Currently, both railroad lines are exclusively freight lines with 90 percent of their delivery consisting of forest products.

No passenger rail service is available in the Rogue Valley; the closest available is AMTRAK located in Eugene, Oregon. The Federal Railroad Administration (FRA) establishes nine classes of track and safety standards that prescribe the maximum speed of operation for both freight and passenger trains. CORP trackage is maintained to FRA Class 1 and 2 conditions, which limits maximum speeds to 10 mph for Class 1 or 25 mph for Class 2. Hence, improvements necessary to provide a competitive passenger rail service south to Medford and beyond would require substantial reconstruction.

[7] I-5 Rogue Valley Corridor Study Technical Memorandum #2 Data Collection and Review of Existing Plans Figure 9-1. David Evans and Associates, Inc. August 2009

Central Oregon and Pacific Railroad (CORP)

CORP, headquartered in Roseburg, Oregon, is a Class II railroad operating between Black Butte (Weed) in Northern California and Eugene, Oregon. From Eugene, the line continues west to Coos Bay, Oregon. A Class II railroad is defined as a mid-sized freight-hauling railroad with operating revenues greater than $20.5 million but less than $277.7 million for at least three consecutive years.

Traffic on the CORP consists of about 38,000 cars that primarily haul forest commodities such as lumber, logs, and plywood. CORP brings in full and empty cars for the WCTU to distribute throughout the White City area, with approximately one train per day Monday through Friday. Remaining shipments consist of liquid petroleum gas, corn, and grain. A large wood products operation in the Roseburg vicinity contributes the bulk of the traffic on the northern end, while shippers south of Grants Pass are the major source of business on the southern end of the line.

Although the CORP operates trackage into northern California, based on a phone conversation with John Bullion, CORP Assistant General Manager, no rail traffic currently occurs south of the City of Ashland. Therefore, all railroad traffic north of Ashland must currently go through Eugene. As a result, Oregon freight shipments destined to go south into California via rail must go north through Eugene and then divert onto the Union Pacific Railroad (UP) route from Eugene to Klamath Falls, Oregon, and the Cascade Summit.

White City Terminal and Utility (WCTU) Railway

WCTU operates freight switching service on 14 miles of track from its connection with CORP. WCTU operates one train daily during the week (Monday through Friday) between 7 AM and 4 PM. Freight hauled includes lumber, plywood, other forest products, cement, sand, and fertilizers.

The WCTU Railway diverges from the CORP line northwest of the Blackwell Road/Kirtland Road. study area intersection. The WCTU line runs parallel to the OR 140 corridor throughout the study area and has numerous at-grade crossings including three along OR 140:

- Kirtland Road: north of Blackwell Road
- Avenue G: west of 11th Street (currently paved and non-operable)
- Agate Road: south of Avenue G

4.2. Traffic Conditions

The assessment of traffic conditions includes development of existing traffic volumes, traffic operations evaluation, and a review of historical crash patterns.

4.2.1. Average Annual Daily Traffic Volumes

The average annual daily traffic (AADT) volumes along OR 140 are currently available through the year 2010. The volumes are summarized in Table 4-5.

Annual traffic volumes on OR 140 have varied considerably over the seven-year period examined. Table 4-5 shows volumes fluctuating on OR 140 west or OR 62 based on Jackson County data with a sharp decrease between 2009 and 2010. Volumes on OR 140 east of OR 62 have also fluctuated over the seven-year analysis period but do not show the sharp drop in demand seen to the west, especially near the I-5 interchange. Lower present day traffic volumes on OR 140 are consistent with trends throughout the state and likely reflect the economic downturn that influenced driver behavior.

Table 4-5. Average Annual Daily Traffic

Mile-point	Count Location	Average Annual Daily Traffic (AADT) Volume[1]							Change	
		2004[2]	2005	2006	2007[2]	2008	2009[3]	2010[2]	Total	Annual
West of White City UUC Boundary										
-8.07	0.10 miles NW of Dean Creek Frontage Rd[4]	-	*9,500*	-	*8,100*	-	8,400	5,200	-11.6%	-2.9%
-6.97	0.05 miles N of Blackwell Rd[4]	-	*8,600*	-	*7,700*	-	7,300	4,300	-15.1%	-3.8%
White City (within UUC Boundary)										
-2.76	0.05 miles W of Pacific Avenue[4]	-	*3,800*	-	*4,400*	-	4,100	2,900	7.9%	2.0%
-1.21	0.05 miles W of Agate Rd[4]	-	*4,200*	-	*4,800*	-	4,500	3,400	7.1%	1.8%
-0.05	0.05 miles W of OR62[4]	-	*4,800*	-	*4,700*	-	3,400	3,400	-29.2%	-7.3%
0.12	0.12 miles E of OR62	5,400	5,300	5,200	5,800	5,200	5,400	5,600	0.0%	0.0%
East of White City UUC Boundary										
2.31	0.02 miles E of Kershaw Rd	4,300	4,200	4,100	5,400	4,900	5,000	5,600	16.3%	3.1%
3.69	0.10 miles E of Riley Rd	4,800	4,700	4,600	3,900	3,500	3,600	3,500	-25.0%	-5.6%
7.96	0.02 miles SW of Brownsboro-Eagle Point Rd	3,500	3,400	3,400	3,300	2,900	3,100	3,000	-11.4%	-2.4%

Notes:
1. The Transportation Systems Monitoring Unit compiles the traffic count information for the state highway system. One third of the state highway system is counted each year and adjusted to reflect AADTs. The AADTs for the remaining two thirds of the system are estimated to reflect area traffic trends.
2. Actual counts on OR 140 east of OR 62 were collected in 2004, 2007, and 2010.
3. Actual counts on OR 140 west of OR 62 were collected in 2009.
4. *Italicized* AADTs were collected by Jackson County in the same general area.

Source; 2004-2009 Transportation Volume Tables, ODOT Transportation Data Section, Transportation Systems Monitoring Unit and Jackson County Road Volume Files, Jackson County Road Department.

4.2.2. Traffic Counts

Traffic volume data collected for this project consist of 16-hour and 4-hour turning movement counts and include detailed vehicle classifications. The 16-hour counts include 15 minute intervals between the 6:00-9:00 AM and 2:00-6:00 PM periods, while the entire 4-hour count includes 15-minute intervals. Table 4-6 provides a list of all intersection count locations, type of count, and count date.

Table 4-6. Vehicle Count Locations and Types

Location	Type of Count	Count Date
West of White City UUC Boundary		
1. OR 99 @ I-5 SB Ramps (Signalized)	16-hour Turning Movement Classification	3/17/2004
2. Blackwell Road @ I-5 NB Ramps	16-hour Turning Movement Classification	3/17/2004
3. Kirtland Road @ Blackwell Road	16-hour Turning Movement Classification	3/17/2004
4. Kirtland Road @ High Banks Road	4-hour Turning Movement Classification	8/4/2010
White City (within UUC Boundary)		
5. Kirtland Road @ Antelope Road	4-hour PM Turning Movement Classification	7/29/2010
6. Kirtland Road @ Table Rock Road	16-hour Turning Movement Classification	8/23/2010
7. Avenue G @ 5th Street	4-hour PM Turning Movement Classification	7/27/2010
8. Avenue G @ 8th Street	4-hour PM Turning Movement Classification	7/28/2010
9. Avenue G @ 11th Street	OR 62 Study Volumes	2007
10. Avenue G @ Agate Road	16-hour Turning Movement Classification	8/24/2010
11. Agate Road @ Antelope Road (Signalized)	16-hour Turning Movement Classification	8/24/2010
12. Agate Road @ Leigh Way	16-hour Turning Movement Classification	8/25/2010
13. Leigh Way/OR 140 @ OR 62 (Signalized)	24-hour PM Turning Movement Classification	8/31/2010
14. OR 140 @ Lakeview Drive	4-hour PM Turning Movement Classification	8/10/2010
East of White City UUC Boundary		
15. OR 140 @ Kershaw Road	4-hour PM Turning Movement Classification	8/16/2010
16. OR 140 @ Riley Road	4-hour PM Turning Movement Classification	8/11/2010
17. OR 140 @ Meridian Road	4-hour PM Turning Movement Classification	8/5/2010
18. OR 140 @ Brownsboro Meridian Road	4-hour PM Turning Movement Classification	8/12/2010
19. OR 140 @ Brownsboro-Eagle Point Road	16-hour Turning Movement Classification	8/25/2010

Traffic count dates range from year 2004 to 2010. While the 2004 count data is older, it is consistent with count data used for the adjacent Interchange 35 Area Management Plan.

The traffic volume data were examined to determine a common peak hour among the intersections, which is the one-hour period when the sum of volumes entering the intersections is highest. Analysis of the peak hour data indicates four distinct sections of the corridor with similar peaking characteristics:

- 3:30-4:30 PM from I-5 southbound ramp terminal to the Blackwell/Kirtland Road
- 3:45-4:45 PM from Kirtland/High Banks Road to the Agate Road/Avenue G
- 4:00-5:00 PM from Agate/Antelope Road to the OR 140/OR 62 intersection
- 4:15-5:15 PM from OR 140/Lakeview Drive to OR 140/Brownsboro-Eagle Point Road

The peak hour at each intersection may not correspond to the common peak hour but intersection peaks generally overlap the major portion of the common hour.

4.2.3. Design Hourly Volumes

ODOT generally requires that transportation facilities be analyzed under design hourly volumes (DHVs), known as 30th highest hour volumes. The 30th highest hour volumes are used in traffic operations analysis so that results are valid for all but a few hours of the year. The procedure for determining 30th highest hour volumes is specified in ODOT's Analysis Procedures Manual (APM)[8] and briefly described below.

The 30th highest hour traffic volumes are calculated by multiplying the peak hour volumes by a seasonal factor. The seasonal factor is determined from automatic traffic recorders (ATR), which are electronic counting sites on roadways that count vehicles continuously. It is desirable to obtain data from ATRs that (1) are within the corridor area, (2) are on similar roadway types or within similar area types, or (3) have similar seasonal trend characteristics. The seasonal factors for the corridor area use a combination of ATR and seasonal trend data. The seasonal trend data averages the commuter and summer trends to represent the travel characteristics for the area.

Peak hour count data was seasonally adjusted, and volumes were balanced to achieve a uniform dataset for analysis. Most of the counts were collected in 2010 (the baseline analysis year); therefore an annual growth adjustment was not applied to those intersections. As required by the project, the three westernmost intersections used volumes from the Interchange Area Management Plan (IAMP) 35 project. Since those counts were done in 2004, the appropriate growth factor was applied to obtain baseline volumes. Additionally, the volumes for this project were reconciled to be consistent with the OR 62 project. Figure 4-1 shows the existing balanced PM peak hour volumes developed for this project.

4.2.4. Freight Traffic

Trucks are a major component of traffic along the OR 140 corridor, especially west of OR 62. This section of the corridor provides a useful link from the aggregate removal sites to OR 62 and I-5 (both freight routes). Table 4-7 summarizes the truck percentages at key corridor intersections from various counts including 4-hour, 16-hour, and 24-hour time periods.

[8] Analysis Procedures Manual, Oregon Department of Transportation, Transportation Development Division Planning Section, Transportation Planning and Analysis Unit, Salem, Oregon, April, 2006, Section 4.3.

Table 4-7. Truck Demand on OR 140

Location (Section Peak Hour)	Peak Hour			Other Periods			
	Trucks[1]	Total Volume	Truck Percentage	Trucks[1]	Total Volume	Truck Percentage	Count Period
West of White City UUC Boundary							
West of High Banks Rd[2] (3:45-4:45)	51	426	12%	136	1328	10%	4-hour
White City (within UUC Boundary)							
West of Table Rock Rd[3] (3:45-4:45)	36	297	12%	482	3436	14%	16-hour
East of Table Rock Rd[3] (3:45-4:45)	26	295	10%	295	3076	10%	16-hour
West of OR 62[4] (4:00-5:00)	10	383	3%	248	3755	7%	24-hour
East of OR 62[4] (4:00-5:00)	20	527	4%	483	6938	7%	24-hour
East of White City UUC Boundary							
West of Brownsboro-Eagle Point Rd[3] (4:15-5:15)	24	286	8%	335	3723	9%	16-hour

Notes:
1. Trucks include single unit and tractor trailers.
2. 4-hour (15:00-19:00), turning movement, classification collected on August 10, 2010
3. 16-hour (6:00-22:00), turning movement, classification collected on August 23, 2010 (Table Rock Road) and August 25, 2010 (Brownsboro-Eagle Point Road)
4. 24-hour (6:00AM-6:00AM), turning movement, classification collected on August 31, 2010/September 1, 2010

Source: Traffic counts collected between August 10, 2004 and September 1, 2010.

The count data shows that peak hour truck traffic as a percentage of overall traffic is highest on the segment of OR 140 between Interchange 35 and the White City industrial area. Peak hour counts show that 10 to 12 percent of the total traffic on this segment is truck traffic. Truck traffic volume and percentage of total traffic is lowest on the west approach to OR 62. Truck volumes immediately east of OR 62 are higher than to the west but the truck percentage of total traffic is similar. Further to the east, the truck percentage of overall traffic increases again but the total truck volume is approximately the same.

Similar truck patterns are evident when longer periods of data are examined; however, the overall truck percentages are generally higher than those calculated for the peak hour. Truck activity generally peaks earlier in the day than overall traffic volumes. Truck peaks also vary during the day, depending on the location and movement.

4.2.5. Operational Criteria

Transportation engineers have established various methods for measuring traffic operations of roadways and intersections. Most jurisdictions use either volume-to-capacity (v/c) ratio or level of service (LOS) to establish performance criteria. Both the LOS and v/c ratio concepts require consideration of factors that include traffic demand, capacity of the intersection or roadway, delay, frequency of interruptions in traffic flow, relative freedom for traffic maneuvers, driving comfort, convenience, and operating cost.

Volume-to-Capacity (V/C) Ratio

A comparison of traffic volume demand to intersection capacity is one method of evaluating how well an intersection is operating. This comparison is presented as a v/c ratio. A v/c ratio of less than 1.00 indicates that the volume is less than capacity. When it is closer to zero, traffic conditions are generally good, with little congestion and low delays for most intersection movements. As the v/c ratio approaches 1.00, traffic becomes more congested and unstable, with longer delays.

Level of Service (LOS)

Level of service is also a widely recognized and accepted measure and descriptor of traffic operations. At both stop-controlled and signalized intersections, LOS is a function of control delay, which includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Six standards have been established, ranging from LOS A, where there is little or no delay, to LOS F, where there is delay of more than 50 seconds at unsignalized intersections, or more than 80 seconds at signalized intersections.

It should be noted that, although delays can sometimes be long for some movements at a STOP-controlled intersection, the v/c ratio may indicate that there is adequate capacity to process the demand for that movement. Similarly at signalized intersections, some movements, particularly side street approaches or left turns onto side streets, may experience longer delays because they receive only a small portion of the green time during a signal cycle, but their v/c ratio may be relatively low. For these reasons, it is important to examine both v/c ratio and LOS when evaluating overall intersection operations. Both are reported in the following section.

95th Percentile Queues

In addition to the operational criteria that measure intersection performance, it is also important to examine queuing and where demand may exceed available storage. Queues that spill out of storage bays and into adjacent travel lanes impair intersection performance by reducing capacity and creating potential safety concerns. Queues may also extend from one intersection through another upstream intersection which also impairs performance. The 95th percentile queue length (meaning 95 percent of all queues will be shorter) is used for this analysis.

4.2.6. Operational Standards

The Oregon Highway Plan (OHP)[9] has established several policies that enforce general objectives and approaches for maintaining highway mobility. Of these policies, the Highway Mobility Standards (Policy 1F) establish maximum v/c ratio targets or standards for peak hour operating conditions for all highways in Oregon based on the location and classification of the

[9] Table 6: Maximum Volume to Capacity Ratio Targets for Peak Hour Operating Conditions, 1999 Oregon Highway Plan, OHP Policy 1F Revisions, Adopted December 21, 2011, Oregon Department of Transportation.

highway segment being examined. The OHP policy also specifies that the v/c ratio standards be maintained for ODOT facilities through a 20-year horizon.

Three different v/c ratio standards from the OHP apply along the OR 140 study corridor. West of OR 62, OR 140 is a statewide highway within the Rogue Valley Metropolitan Planning Organization (RVMPO) boundary; thus the applicable v/c ratio standard is 0.90 except at the interchange, where the ramps have a maximum v/c ratio standard of 0.85. From OR 62 to the east, OR 140 is also designated as a freight route. Within the MPO area, which extends eastward to Meridian Road, the applicable v/c ratio standard is 0.85. Outside the MPO area, east of Meridian Road, the applicable v/c ratio standard is 0.70.

Jackson County has also established performance standards based on v/c ratio. These standards are outlined in the Jackson County TSP (0.95 inside the MPO boundary and 0.85 outside the MPO boundary). Although the corridor resides within Jackson County, none of the study intersections are maintained by the county. The County TSP language states that "where one or more approaches is maintained by a city or ODOT, the more restrictive of the County's or other agency's performance standards will be applied." The state standards are more restrictive and will be applied in the corridor.

4.2.7. Traffic Operations Analysis Procedures

All operations were evaluated using the methodology outlined in the *2000 Highway Capacity Manual* (HCM) along with the procedures outlined in ODOT's Analysis Procedures Manual (APM). The Synchro/SimTraffic analysis software was selected to perform the intersection analysis since it can provide the v/c ratio and LOS output of an HCM analysis and consider the systematic interaction of the intersections with regard to queuing and delays.

Synchro is a macroscopic model similar to the Highway Capacity Software (HCS), and like the HCS, is based on the 2000 HCM. The Synchro model explicitly evaluates traffic operations under coordinated and uncoordinated systems of signalized and unsignalized intersections. The v/c ratios and LOS presented in this report are based on the Synchro model output.

SimTraffic animates traffic flow based on input volumes and signal timing and allows viewing of traffic flow under saturated traffic conditions where traffic may spill over from one intersection to another. It is particularly effective at evaluating closely spaced intersections. The SimTraffic model was run multiple times using different arrival patterns to determine how sensitive traffic operations are with subtle variations in traffic flows. The 95th percentile queues from the SimTraffic model are also considered in this report.

As noted above, the results from both Synchro and SimTraffic were considered in this document. Because these programs evaluate operations using different methodologies, the analysis results sometimes vary; however, the differences are generally minor unless saturated or congested conditions are present. Under saturated conditions, SimTraffic queuing and delays present results that reflect how congested intersections impact each other, while Synchro represents intersection performance in isolation and may provide better results.

4.2.8. Existing Traffic Operations

Traffic operations were evaluated at the 19 corridor intersections. Operations are described in the following sections and the detailed analysis worksheets are presented in Appendix 4-A.

Table 4-8 summarizes the results of the traffic operations analysis and Figure 4-2 presents the v/c ratios and LOS performance by lane group for the corridor intersections. These findings reflect the current signal timing plans implemented by ODOT at all signalized corridor intersections.

Table 4-8. Existing (2010) Design Hour Intersection Operations

Intersection	Critical/ Controlling Movement[1]	2010 PM Peak Hour			Operational Standards[3]
		V/C Ratio[2]	LOS[2]	Delay[2] (sec.)	
West of White City UUC Boundary					
1. OR 99/I-5 SB Ramps (Signal)	Overall	0.67	C	29	0.85
2. OR 140 (Blackwell Rd)/I-5 NB Ramps	WB L/T	0.58	F	21	0.85
3. OR 140/Blackwell Rd/Kirtland Rd	EB L/R	0.67	D	24	0.90
4. OR 140 (Kirtland Rd)/High Banks Rd	WB L/T/R	0.31	A	8	0.90
White City (within UUC Boundary)					
5. OR 140 (Kirtland Rd)/W Antelope Rd	NB L/T/R	0.19	B	5	0.90
6. OR 140 (Kirtland Rd)/Table Rock Rd (Signal)	Overall	0.40	B	13	0.90
7. OR 140 (Ave G)/5th Street	WB L/T	0.19	A	1	0.90
8. OR 140 (Ave G)/8th Street	WB L/T	0.16	A	1	0.90
9. OR 140 (Ave G)/11th Street	EB L/T/R	0.17	A	4	0.90
10. OR 140/Ave G/Agate Rd	EB L/T/R	0.37	B	10	0.90
11. OR 140 (Agate Rd)/Antelope Rd (Signal)	Overall	0.53	B	12	0.90
12. OR 140/Agate Rd/Leigh Way	WB R	0.14	B	6	0.90
13. OR 140 (Leigh Way)/OR 62 (Signal)	Overall	**0.86**	D	46	0.85
14. OR 140/Lakeview Dr	EB L/T/R	0.30	A	7	0.85
East of White City UUC Boundary					
15. OR 140/Kershaw Rd[4]	NB L/T/R	0.58	D	12	0.85
16. OR 140/Riley Rd/E Antelope Rd	EB L/T/R	0.24	A	8	0.85
17. OR 140/Meridian Rd	EB L/T/R	0.15	A	7	0.85
18. OR 140/Brownsboro Meridian Rd	NEB L/T/R	0.14	A	11	0.70
19. OR 140/Brownsboro-Eagle Point Rd	EB L/R	0.13	A	3	0.70

Acronyms: For intersection approaches NB = northbound, SB = southbound, EB = eastbound, and WB = westbound. At the intersection approach L = left-turn movement, T = through movement, and R right-turn movement. Some approaches have shared lanes where two or more travel movements may be permitted as indicated with a slash.

Notes:
1. The critical movement at a signalized intersection is the overall operation of the intersection. The controlling movement at an unsignalized intersection is the movement with the worst v/c ratio.
2. The v/c ratio and Level of Service (LOS) are provided from Synchro HCM Intersection Analysis Reports, while delay values are from SimTraffic.
3. Mobility targets are drawn from Table 6 of the 1999 OHP as amended December 21, 2011. All study area intersections are within the Metropolitan Planning Organization (MPO), with the exception of intersections 18 and 19, which are outside the MPO.

Shaded results indicate where mobility standards are not met

Traffic operations are acceptable under existing conditions throughout the corridor with one exception. The signalized intersection of Leigh Way/OR 140 at OR 62 exceeds operational standards with an overall v/c of 0.86 and LOS D. Although OR 99 at the I-5 Southbound Ramps is not expected to exceed the operational standards, it is at the threshold. Otherwise, the rural intersections should operate well within the applicable mobility standards.

Only one intersection, Leigh Way/OR 140 at OR 62, has significant queuing that either exceeds available storage or extends past the nearest upstream intersection. Table 4-9 summarizes the intersection movements where these queues exist.

Table 4-9. Existing (2010) 95th Percentile Queues Exceeding Available Storage

Intersection	Approach & Movement	95th Percentile Queue (ft.)[1]	Available Storage (ft.)	Percent Time Blocked[1,2]
13. OR 140 (Leigh Way)/OR 62 (Signal)	EB L/T	200	150[3]	7
	WB L/T	400	275[4]	45
	NB L	225	125[4]	8
	NB T	750	400[3]	38
	NB R	250	175[4]	2
	SB T/R	625	425[3]	18

Acronyms: For intersection approaches NB = northbound, SB = southbound, EB = eastbound, and WB = westbound. At the intersection approach L = left-turn movement, T = through movement, and R right-turn movement. Some approaches have shared lanes where two or more travel movements may be permitted as indicated with a slash.

Notes:
1. The 95th percentile queue and percent time blocked values are from SimTraffic.
2. Percent time block reflects the percentage of time when the queue either extends out of a storage bay and interferes with the adjacent through travel lane or extends past the next upstream intersection.
3. Storage distance reflects spacing to the next public access point.
4. Storage distance reflects length of travel lane or turn bay.

4.3. Crash Analysis

A crash analysis was conducted to determine whether any significant, documented safety issues exist within the corridor. As part of the crash analysis, historical crash data were reviewed, intersection and segment crash rates were calculated, and the state's Safety Priority Index System (SPIS) and Safety Investment Program (SIP) were examined.

4.3.1. Crash History

The crash analysis included a review of crash history data supplied by the ODOT Crash Data System (CDS) for the period between January 1, 2005, and December 31, 2009, which were the five most recent full years for which crash data were available at the time of the analysis. The CDS includes 145 crashes in the corridor, as shown in Figure 4-3. The data is summarized below and the reports are contained in Appendix 4-B.

Crash Rates

Crash rates were calculated for the corridor and compared with the statewide crash rates. The crash rate is calculated as the number of crashes per million vehicle miles traveled (crashes/mvm). A fatality/serious injury crash rate can also be calculated and is reported as the number of fatal/serious crashes per 100 million vehicle miles traveled (crashes/100mvm). The 2009 statewide crash rates[10] were:

Statewide, non-freeway crash rate .....1.22 crashes/mvm

Rural, non-freeway crash rate .....0.78 crashes/mvm

Statewide, non-freeway fatal/serious injury crash rate 5.12 crashes/100mvm

Rural, non-freeway fatal/serious injury crash rate.....5.44 crashes/100mvm

The corridor was divided into the section west of OR 62 and the section east of OR 62. The intersection crashes associated with OR 62 were included in each segment but only those that occurred on the east-west legs of the intersection; crashes associated with the north-south legs of the intersection were excluded.

Forty-two crashes occurred along OR 140 from just north of the I-5 northbound ramps to OR 62 from 2005 through 2009. The average 2009 ADT was estimated at 5,500 vehicles per day for this 8.29-mile segment. The resulting crash rate is 0.51 crashes/mvm, which is well below the both the statewide rate of 1.22 and the rural rate of 0.78. However, the estimated fatal/serious injury rate for OR 140 west of OR 62 is estimated at 9.61 crashes/100 mvm, which is much higher than the average rate for both statewide and rural, non-freeway roads. Although no consistent pattern appears evident for these fatal/serious injury crashes, they are particularly concentrated on the 1.27 mile stretch of Blackwell Road. Five occurred at intersections (Blackwell/Frontage-1, Blackwell/Kirtland-2, Kirtland/Table Rock-2) and three occurred on segments (Blackwell-2, Kirtland-1)

On OR 140 between OR 62 and Brownsboro-Eagle Point Road, 49 crashes occurred during the five-year analysis period. The average 2009 ADT was estimated at 4,100 vehicles per day for this 7.98-mile segment. The resulting crash rate is 0.82 crashes/mvm. Although this rate is below the statewide rate of 1.22, it is slightly higher than the statewide rural rate of 0.78. However, the estimated fatal/serious injury rate for OR 140 east of OR 62 is estimated at 5.02 crashes/100mvm, which is under the average rate for both statewide and rural, non-freeway roads. All three of the fatal/serious injury crashes on this segment occurred at intersections (Kershaw-2, Riley-1).

Annual Crashes

Table 4-10 summarizes annual crashes in the corridor by year and severity. The greatest number of crashes occurred during year 2005 with more than twice as many crashes as

[10] 2009 Oregon State Highway Crash Rate Tables, ODOT, August 2010.

occurred during each year from 2007 through 2009. While 2006 had fewer crashes than 2005, the number of corridor crashes was still about 50 percent higher than subsequent years.

Table 4-10. Summary of Crash Severity by Year (2005 - 2009)

Year	Crash Severity			Total Number of Crashes	% by Year	Number of Fatalities/Injuries			
	Fatal/ Injury A	Injury B/C	PDO			Fatalities	Injury A	Injury B	Injury C
2005	3	24	21	48	33%	0	4	20	19
2006	3	17	13	33	23%	0	4	6	13
2007	3	15	4	22	15%	1	3	19	7
2008	1	9	11	21	14.5%	0	2	2	10
2009	2	12	7	21	14.5%	0	3	4	19
Total	12	77	56	145	**100%**	1	16	51	68
% by Severity	8%	53%	39%						

As defined by the Statewide Crash Data System Motor Vehicle Traffic Crash Analysis and Code Manual, May 2007:

Fatality = Death which occurs within 30 days as a result of injuries sustained in the crash.

Injury A = An incapacitating or severe but not fatal injury which prevents a person from continuing the normal activities they were capable of prior to the crash. Examples include -severe bleeding, broken bones, unconsciousness, etc.

Injury B = A non-incapacitating or moderate injury that can be detected by observers at the scene of the crash. Examples include bruises, swelling or lumps, minor bleeding, etc.

Injury C = Possible injury reported by crash participant but with no visible symptoms. Examples include complaint of pain, momentary lapse of consciousness, etc.

PDO = Property damage only.

Source: ODOT Crash Data System, January 1, 2005 through December 31, 2009

There were 12 fatal/injury A (incapacitating injury) crashes but only one crash resulted in a death in the corridor; it happened in year 2007 on Blackwell Road approximately 0.1 miles south of Kirtland Road and involved excessive speed. Eleven other crashes resulted in 16 incapacitating injuries (injury A). The remaining 77 injury crashes resulted in 51 moderate and 68 minor injuries. Only 39 percent of the corridor crashes involved property damage only.

Crashes by Collision Type and Location

Table 4-11 summarizes crashes by collision type and location (intersection or segment). Intersections are highlighted (in yellow) while the segments between intersections are not highlighted. Crash rates were calculated for each of the study area intersections and corridor segments. At intersections, the crash rate is calculated as the number of crashes per million vehicles entering the intersection. Intersections with a crash rate greater than 1.0 crashes per million entering vehicles (crashes/mev) generally warrant closer investigation but are not necessarily indicative of safety concern.

Four dominant collision types were observed in the corridor: turning (26 percent), fixed object (18 percent), rear end (28 percent), and angle (19 percent). All of these collisions types, with the exception of fixed object, involve at least two vehicles. A variety of other collision types occurred in the corridor but none of the collisions involved either pedestrians or bicyclists.

Table 4-11. Summary of Collision Types (January 1, 2005 through December 31, 2009)

Intersection[1]/Segment Location	Collision Type										Total Crashes by Location	Severity			Crash Rate
	Turning	Fixed Object	Rear End	Sideswipe Meeting	Sideswipe Opposite	Angle	Non-Collision	Head On	Backing	Other		Fatal & Injury A	Injury (B-C)	PDO	
OR 140 (Blackwell)[2]	1	0	0	0	0	0	0	0	0	0	**1**	0	0	1	0.54
Frontage @ Blackwell	1	0	0	0	0	0	0	0	0	0	**1**	1	0	0	0.05
OR 140 (Blackwell)	1	6	2	2	0	0	0	0	1	0	**12**	2	9	1	0.68
Blackwell @ Kirtland	5	0	2	0	0	0	0	0	0	0	**7**	2	3	2	0.33
OR 140 (Kirtland)	0	6	2	0	0	0	0	0	0	1	**9**	0	6	3	0.41
High Banks @ Kirtland	0	0	1	0	0	0	0	0	0	0	**1**	0	0	1	0.09
OR 140 (Kirtland)	1	3	3	1	0	0	0	1	0	1	**10**	1	6	3	0.39
Table Rock @ Kirtland	3	0	0	0	0	10	0	0	0	0	**13**	2	7	4	0.81
OR 140 (Kirtland)	0	0	0	0	0	0	0	0	0	1	**1**	0	0	1	0.46
Kirtland @ Pacific	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0.00
OR 140 (Pacific)	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0.00
Pacific @ Ave G	1	1	0	1	0	0	0	0	0	0	**3**	0	1	2	0.34
OR 140 (Ave G)[3]	0	1	0	0	0	0	0	0	0	0	**1**	0	1	0	0.82
Ave G @ Agate	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0.00
OR 140 (Agate)	0	1	0	0	0	0	0	0	0	0	**1**	0	1	0	0.09
Antelope @ Agate	2	0	0	0	0	3	0	0	0	0	**5**	0	2	3	0.63
OR 140 (Agate)	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0.00
Leigh @ Agate	1	0	0	0	0	0	0	0	0	0	**1**	0	0	1	0.13
OR 140 (Leigh)	2	0	0	0	0	0	0	0	0	0	**2**	0	2	0	1.61
OR 62 @ OR 140/Leigh	8	0	22	0	0	2	0	0	1	0	**33**	1	19	13	0.54
OR 140	2	0	0	0	0	0	1	0	0	0	**3**	0	0	3	0.30
Lakeview @ OR 140	2	0	0	0	0	0	0	0	0	0	**2**	0	0	2	0.17
OR 140	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0.00
Kershaw @ OR 140	5	0	1	0	0	9	0	0	0	0	**15**	2	9	4	1.18
OR 140	0	1	1	0	0	1	0	0	0	0	**3**	0	2	1	0.25
Riley @ OR 140	2	0	2	0	0	2	0	0	0	0	**6**	1	2	3	0.65
OR 140	0	1	0	0	1	0	0	0	0	0	**2**	0	1	1	0.21
Meridian @ OR 140	1	1	2	0	0	1	0	0	0	0	**5**	0	3	2	0.82
OR 140	0	3	2	0	0	0	1	0	0	0	**6**	0	2	4	0.36
Brownsboro @ OR 140	0	2	0	0	0	0	0	0	0	0	**2**	0	1	1	0.35
Totals	**38**	**26**	**40**	**4**	**1**	**28**	**2**	**1**	**2**	**3**	**145**	**12**	**77**	**56**	
% Crashes by Type	26%	18%	28%	3%	1%	19%	1%	1%	1%	2%	100%	8%	53%	39%	
Total by Intersection	**31**	**4**	**30**	**1**	**0**	**27**	**0**	**0**	**1**	**0**	**94**	**9**	**47**	**38**	
% Crashes by Type	33%	4%	32%	1%	0%	29%	0%	0%	1%	0%	100%	10%	50%	40%	
Total by Segments	**7**	**22**	**10**	**3**	**1**	**1**	**2**	**1**	**1**	**3**	**51**	**3**	**30**	**18**	
% Crashes by Type	14%	43%	19%	6%	2%	2%	4%	2%	2%	6%	100%	6%	59%	35%	

Notes:

1. Crashes listed in this table include all reported collisions within 265' of the listed facility along side streets.
2. OR 140 (Blackwell Road) begins just north of the interchange ramps so crash data are not evaluated at those locations. The I-5 Exit 35 Interchange Area Management Plan addresses safety at those intersections.
3. There were no reported crashes at the W Antelope intersection with Kirtland or the 5th, 8th, or 11th intersections with OR 140 (Ave G).

Source: ODOT Crash Data System, January 1, 2005 through December 31, 2009.

Fifty-one (35 percent) of the total corridor crashes occurred on segments between study area intersections. Fixed object collisions occurred most frequently (43 percent); these crashes generally involve only one vehicle. Rear end and turning collisions at driveways, alleys, or other minor roadways accounted for another 20 percent and 14 percent of the crashes on the segments. The Blackwell Road segment between the frontage road and Kirtland Road had the greatest number of collisions (12) followed by the two segments of Kirtland Road between High Banks Road and Table Rock Road (10) and between Blackwell Road and High Banks Road (9). These segments also correspond with the locations where the fatal/serious injury crashes are occurring.

Ninety-four (65 percent) of the total corridor crashes occurred at study area intersections. Turning (33 percent), rear end (32 percent), and angle (29 percent) collisions accounted for most of the intersection crashes. While most of the intersection collisions were concentrated at signalized locations, there were collisions at many of the unsignalized intersections where turn lanes and deceleration lanes are not present.

The OR 140/OR 62 intersection had the greatest number of collisions (33) but only five were recorded for OR 140 (predominantly east-west movements or errors) and 28 were recorded for OR 62 (predominantly north-south movements or errors). Despite having the highest number of crashes for the corridor, the intersection crash rate is estimated at 0.54 crashes/mev, which is well below 1.0. Only one of the crashes at this intersection involved a serious injury and that occurred on OR 62 between a northbound vehicle and a southbound vehicle turning left.

The Kershaw Road intersection with OR 140 had the next greatest number of crashes (15) and the highest intersection crash rate at 1.61 crashes/mev. Nine of these crashes occurred in the year 2005 and only six occurred in the subsequent four years. This intersection was upgraded to its current configuration, which includes two-way STOP control on along Kershaw Road, a flashing beacon to alert drivers on the highway, and left- and right-turn lanes on OR 140.

The Table Rock Road intersection with OR 140/Kirtland Road had 13 crashes during the analysis period. Seven occurred in year 2005 and four occurred in year 2006. Only two crashes (one in 2008 and one in 2009) during the last three years of the analysis period. All of the crashes were angle or turning collisions and two resulted in serious injuries. The traffic signal was installed in spring of 2006.

Seven crashes were reported at the Blackwell Road/Kirtland Road intersection during the analysis period. Five were turning collisions and two were rear end collisions. Two of the crashes resulted in serious injuries. This intersection was STOP-controlled on Kirtland Road with through movements on Blackwell Road during the analysis period (years 2005 through 2009). Since then, this intersection has been realigned so that the through movements occur between Kirtland Road and the southeastern leg of Blackwell Road and the northwestern leg of Blackwell Road is now STOP-controlled. This configuration may change crash patterns at the intersection since it also includes a left-turn lane from northbound Blackwell Road to westbound Blackwell Road and a southbound deceleration lane on Kirtland Road for right turns onto westbound Blackwell Road. Crash patterns at this intersection should be monitored.

OR 140 had six crashes at its intersection with Riley Road. These were turning, angle, and rear end collisions. Two crashes resulted in serious injuries. This intersection is currently controlled with STOP signs along Riley Road and does not have a warning beacon.

4.3.2. Safety Priority Index System (SPIS)

The SPIS is a method used in Oregon to identify safety problem areas along state highways. Highways are evaluated in approximately one-tenth mile increments (often grouped into larger segments). Each year these segments are ranked by assigning a SPIS score based on the frequency and severity crashes observed, while taking traffic volume into account. When a segment is ranked in the top 10% of the index, a crash analysis is typically warranted and corrective actions are considered.

There were no segments identified in the worst 10 percent of the Year 2010 SPIS database that corresponds to the crash analysis period for the Corridor Plan. However, the Year 2012 SPIS database identifies the segment containing the OR 140/Kershaw Road intersection with a SPIS ranking in the worst 5 percent.

The Year 2012 SPIS database also indicates a worst 5 percent ranking for the segment of OR 62 that includes the intersection with OR 140. As noted earlier, the majority of these crashes occurred on OR 62 and not on OR 140.

4.3.3. Safety Investment Program (SIP)

Oregon uses the SIP to prioritize investments at identified safety locations through the STIP. SIP locations are broken into five different categories based upon the frequency and severity of observed crashes for five-mile segments of roadway over a three-year study period. The categories are defined as follows:

- Category 1: 0 (no) fatal or injury A (serious) crashes
- Category 2: 1 to 2 fatal or injury A (serious) crashes
- Category 3: 3 to 5 fatal or injury A (serious) crashes
- Category 4: 6 to 9 fatal or injury A (serious) crashes
- Category 5: 10 or more fatal or injury A (serious) crashes

Funding is generally targeted at locations with category rankings 3 through 5. The 2010 SIP database[11] uses data from the years 2007 through 2009 to estimate SIP rankings.

This database has two segments that cover portions of the OR 140 study area: 1) the segment between milepoints 0 and 5 has a Category 2 rating with one fatal/injury A crash and 2) the segment between milepoints 5 and 10 has a Category 1 rating.

[11] Safety Investment Program, http://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/safety_investment_program.shtml

There is no data for of OR 140 west of OR 62 since three years of data has not yet been accumulated for this new section of highway. However, four fatal/injury A crashes have occurred on the segment of Blackwell Road and Kirtland Road that extends five miles north of I-5 (-8.29 to -3.29) during the year 2007 to 2009 period, which is the equivalent of a Category 3 rating.

4.4. Summary of Existing Deficiencies

Existing deficiencies identified through the corridor inventory and analysis are summarized in Table 4-12. The table does not include deficiencies where an improvement identified in the 2012-2015 STIP will remedy the deficiency.

Table 4-12. Summary of Existing Deficiencies

Deficiency	Location	Related Goals
Roadway Inventory		
90-degree Turns	▪ Ave G/Agate Rd Intersection – 4-way STOP controlled, 45 mph posted speed, high demand from OR 62 and Eagle Point to north ▪ Agate Rd/Leigh Way Intersection – 3-way intersection with STOP on Leigh Way, 45 mph posted speed, short segment on Leigh Way with nearby traffic signal	▪ Mobility ▪ Freight Operations ▪ Economic Vitality
Substandard Shoulders	▪ Blackwell Rd (west of the White City UUC) – Does not meet 8-ft standard & meets 4-ft minimum on some sections. ▪ Kirtland Road (west of the White City UUC) – Does not meet 8-ft standard on some sections but meets 4-ft minimum except for one culvert (Whetstone Creek). ▪ Kirtland Road (within the White City UUC) – Does not meet 6-ft standard for some sections of the roadway. ▪ Pacific Avenue (within the White City UUC) – Does not meet 6-ft standard for some sections of the roadway. ▪ Agate Road (within the White City UUC) – Does not meet 6-ft standard for some sections of the roadway. ▪ Leigh Way (within the White City UUC) – Does not meet 6-ft standard for a short section near the signalized intersection with OR 62. ▪ OR 140 (within the White City UUC) – Does not meet 6-ft standard for a short section of roadway near the signalized intersection with OR 62. ▪ OR 140 (east of the White City UUC) – Does not meet 8-ft standard on some sections but meets 4-ft minimum.	▪ Mobility ▪ Freight Operations ▪ Safety
Poor Pavement	▪ Agate Rd ▪ Leigh Way	▪ Mobility
Pedestrian and Bicycle Facilities Inventory		
Limited Sidewalks	▪ The only sidewalks within the White City UUC are located on Leigh Way and a few sections of Agate Road.	▪ Safety
Limited Bike Lanes	▪ No bike lanes are striped although Leigh Way has 6-foot shoulders adjacent to the curb for most of its length.	▪ Safety

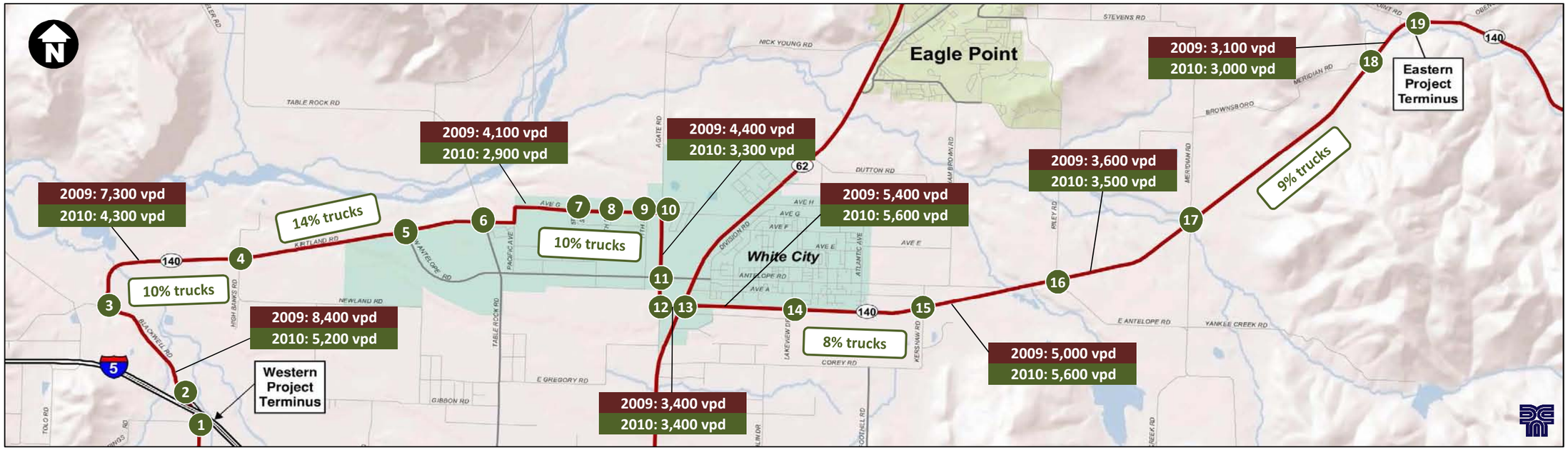
Table 4-12. Summary of Existing Deficiencies

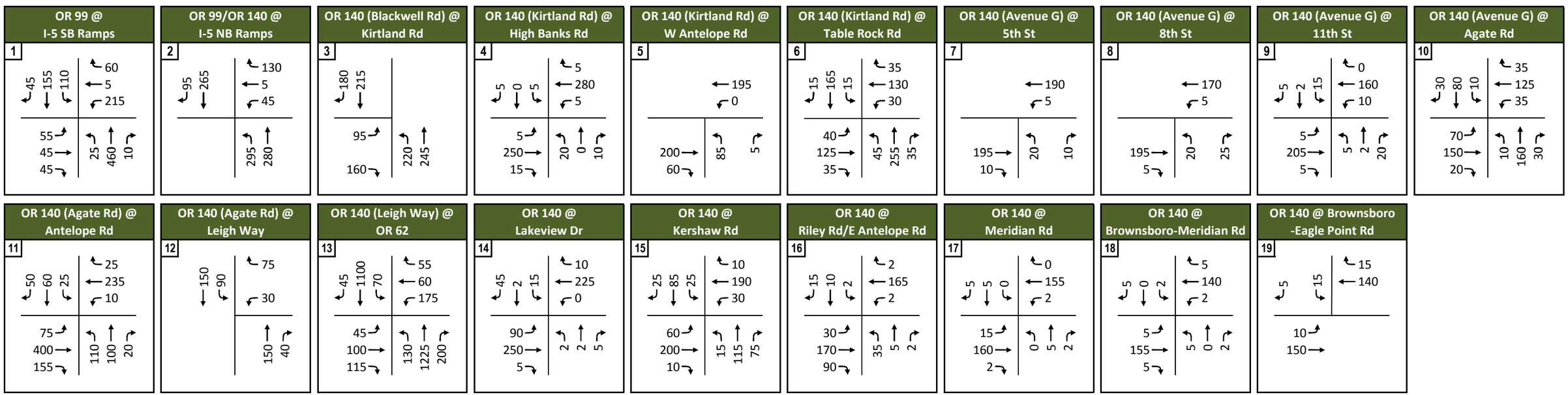
Deficiency	Location	Related Goals
Shoulder Adequacy	▪ Only 68 percent of the roadway has shoulders that meet or exceed a 6-foot desired width for bicycling. ▪ Approximately 94 percent of the roadway has shoulders that achieve the minimum 4-foot width. ▪ Segments of OR 140 with shoulders too narrow to accommodate bicyclists include portions of Blackwell Road, the Whetstone Bridge on Kirtland Road, and Leigh Way/OR 140 east and west of the intersection with OR 62.	▪ Safety
Existing Traffic Operations and Safety		
Operations	▪ The OR 140/OR 62 intersection would have a v/c ratio that exceeds the OHP mobility standard	▪ Mobility ▪ Freight Movement
Safety	▪ The fatal/serious injury crash rate of OR 140 west of OR 62 is almost twice as high as the statewide average for the years 2005-2009. ▪ Eight fatal/serious injury crashes occurred on Blackwell or Kirtland Rd during the 5-year analysis period: - 5 occurred at intersections (Blackwell/Frontage-1, Blackwell/Kirtland-2, Kirtland/Table Rock-2) - 3 occurred on segments (Blackwell-2, Kirtland-1) ▪ Highest crash segments: - Blackwell from Frontage to Kirtland (12 crashes – 1 fatal, 1 severe) - Kirtland from High Banks to Table Rock (10 crashes) - Kirtland from Blackwell to High Banks (9 crashes – 1 severe) ▪ Year 2012 SPIS Ratings in worst 5% - OR 140 segment including Kershaw Rd intersection - OR 62 segment including OR 140 intersection	▪ Safety

Attachments:

Figure 4-1. Existing (2010) Traffic Volumes
Figure 4-2. Existing (2010) Lane Configurations & Traffic Operations
Figure 4-3. Summary of Crash History (January 1, 2005 through December 31, 2009)

Appendix 4-A. Traffic Operations Worksheets
Appendix 4-B. ODOT Crash Data Reports
(January 1, 2005 through December 31, 2009)





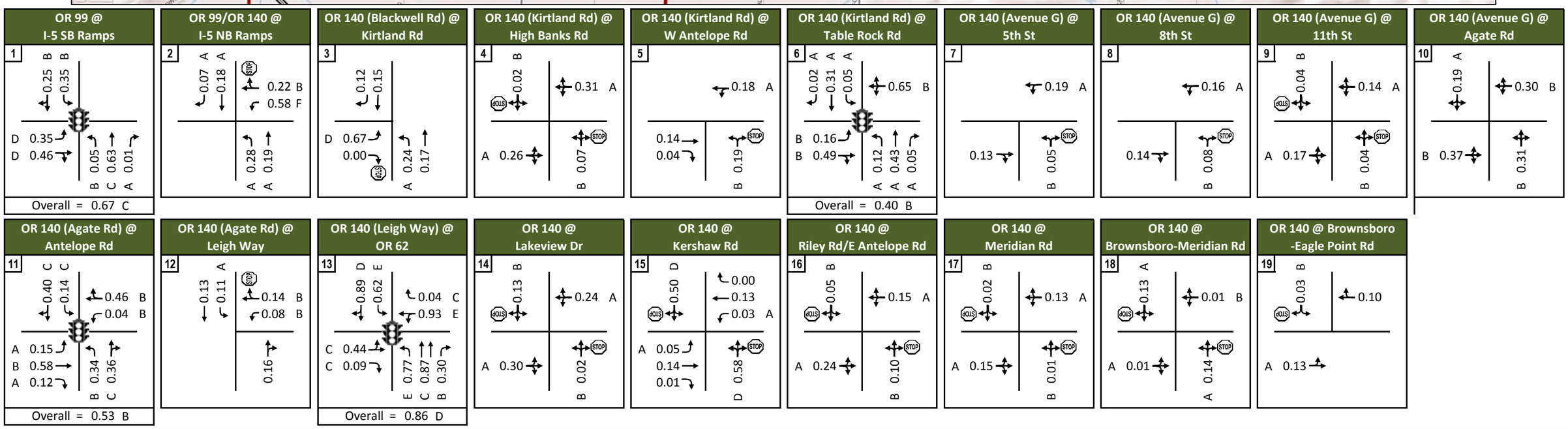
OR 140 Corridor Plan

Legend

2009: #,### vpd	2009 Average Daily Traffic Volume (vehicles per day)
2010: #,### vpd	2010 Average Daily Traffic Volume (vehicles per day)
#% trucks	Truck (Single Unit and Semi-Trailer) Percentage of Total Traffic
#	Intersection Number
→	Turning Movement
###	Design Hourly Volume (PM Peak Hour)

Figure 4-1

Existing (2010) Traffic Volumes



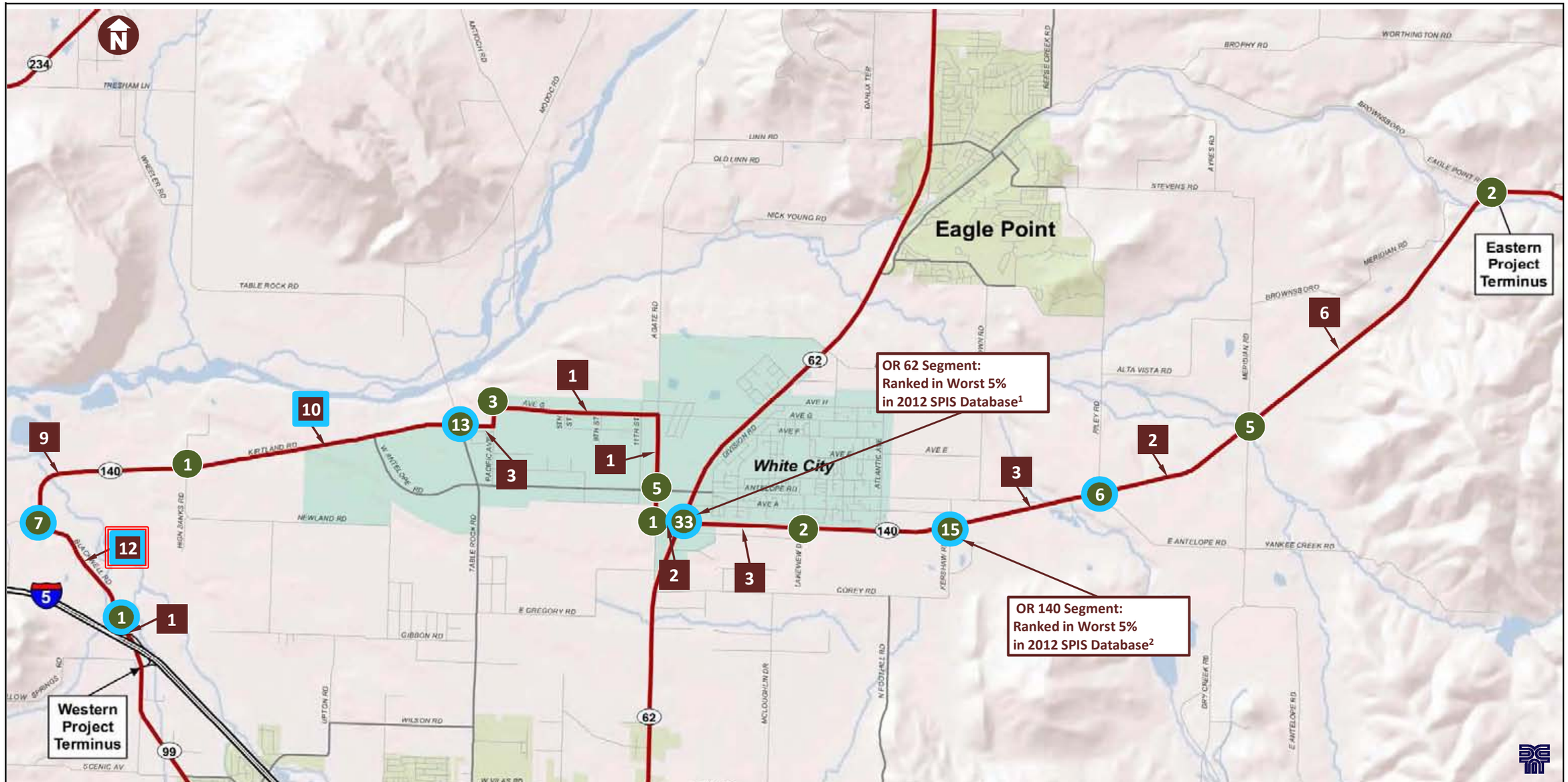
OR 140 Corridor Plan

Legend

- # Intersection Number
- Lane Group
- 0.00 Volume-to-Capacity (V/C) Ratio
- A Level of Service (LOS)
- Traffic Signal
- STOP Sign

Figure 4-2

Existing (2010) Lane Configurations & Traffic Operations



OR 140 Corridor Plan

Legend

- # Number of crashes at an intersection
- # Number of crashes on a segment between intersections
- Indicates an incapacitating injury occurred in one or more crashes
- Indicates a fatality occurred in one or more crashes

Notes:

1. The 2012 SPIS* database also indicates a worst 5% ranking for the segment of OR 62 that includes the intersection with OR 140. The majority of these crashes are occurring on OR 62 and not OR 140.
2. The 2012 SPIS* database identifies the segment containing the OR 140/Kershaw Road intersection with a SPIS ranking in the worst 5%.

**The Safety Priority Index System (SPIS) is a method used in Oregon to identify safety problem areas along state highways. Highways are evaluated in 0.1-mile increments. Each year these segments are ranked by assigning a SPIS score based on the frequency and severity crashes observed, while taking traffic volume into account. The worst 10% of the index are the focus of safety assessment for improvements.*

Figure 4-3

Summary of Crash History (January 1, 2005 through December 31, 2009)

Appendix 4-A

Traffic Operations Worksheets

HCM Signalized Intersection Capacity Analysis
1: I-5 SB Ramps/Willow Springs & OR 99

10/4/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	45	45	215	5	60	25	460	10	110	155	45
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.93		1.00	0.86		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1587		1525	1195		1498	1651	1190	1511	1591	
Flt Permitted	0.71	1.00		0.40	1.00		0.61	1.00	1.00	0.29	1.00	
Satd. Flow (perm)	1212	1587		647	1195		960	1651	1190	457	1591	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	66	54	54	259	6	72	30	554	12	133	187	54
RTOR Reduction (vph)	0	32	0	0	57	0	0	0	3	0	7	0
Lane Group Flow (vph)	66	76	0	259	21	0	30	554	9	133	234	0
Heavy Vehicles (%)	2%	2%	2%	9%	4%	28%	11%	6%	25%	10%	7%	4%
Turn Type	pm+pt			pm+pt			pm+pt		pt+ov	pm+pt		
Protected Phases	3	8		7	4		1	6	6 7	5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	14.9	10.9		30.5	22.0		60.7	57.7	78.3	70.6	63.1	
Effective Green, g (s)	15.9	11.4		31.0	22.5		61.7	59.2	79.8	71.1	64.6	
Actuated g/C Ratio	0.14	0.10		0.28	0.20		0.56	0.53	0.72	0.64	0.58	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	5.5		4.5	5.5	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.8		2.5	4.8	
Lane Grp Cap (vph)	190	163		304	242		550	880	855	377	925	
v/s Ratio Prot	0.01	0.05		c0.12	0.02		0.00	c0.34	0.01	c0.03	0.15	
v/s Ratio Perm	0.04			c0.12			0.03			0.20		
v/c Ratio	0.35	0.46		0.85	0.09		0.05	0.63	0.01	0.35	0.25	
Uniform Delay, d1	42.5	47.0		35.3	35.9		11.2	18.2	4.4	10.8	11.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	1.5		19.7	0.1		0.0	3.4	0.0	0.4	0.7	
Delay (s)	43.3	48.5		55.0	36.1		11.2	21.6	4.4	11.2	12.1	
Level of Service	D	D		E	D		B	C	A	B	B	
Approach Delay (s)		46.5			50.6			20.8			11.8	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM Average Control Delay	28.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	111.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	45	5	130	295	280	0	0	265	95
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	53	6	153	347	329	0	0	312	112
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1491	1335	312	1335	1335	329	312			329		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1491	1335	312	1335	1335	329	312			329		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.2			2.2		
p0 queue free %	100	100	100	47	95	78	72			100		
cM capacity (veh/h)	60	110	728	100	110	701	1232			1230		

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	59	153	347	329	312	112
Volume Left	53	0	347	0	0	0
Volume Right	0	153	0	0	0	112
cSH	101	701	1232	1700	1700	1700
Volume to Capacity	0.58	0.22	0.28	0.19	0.18	0.07
Queue Length 95th (ft)	69	21	29	0	0	0
Control Delay (s)	81.3	11.6	9.1	0.0	0.0	0.0
Lane LOS	F	B	A			
Approach Delay (s)	30.9		4.7		0.0	
Approach LOS	D					

Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	95	160	220	245	215	180
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	112	188	259	288	253	212
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1059	253	465			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1059	253	465			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	39	76	76			
cM capacity (veh/h)	184	769	1071			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	300	259	288	253	212
Volume Left	112	259	0	0	0
Volume Right	188	0	0	0	212
cSH	446	1071	1700	1700	1700
Volume to Capacity	0.67	0.24	0.17	0.15	0.12
Queue Length 95th (ft)	122	24	0	0	0
Control Delay (s)	28.2	9.4	0.0	0.0	0.0
Lane LOS	D	A			
Approach Delay (s)	28.2	4.5		0.0	
Approach LOS	D				

Intersection Summary			
Average Delay	8.3		
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kirtland Rd & High Banks Rd

10/4/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	250	15	5	280	5	20	0	10	5	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	275	16	5	308	5	22	0	11	5	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	313			291			621	618	283	626	624	310
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	313			291			621	618	283	626	624	310
tC, single (s)	4.3			4.6			7.2	7.0	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.7			3.6	4.5	3.4	3.5	4.0	3.3
p0 queue free %	100			99			94	100	99	99	100	99
cM capacity (veh/h)	1152			1040			385	344	735	388	398	730

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	297	319	33	11
Volume Left	5	5	22	5
Volume Right	16	5	11	5
cSH	1152	1040	458	506
Volume to Capacity	0.00	0.01	0.07	0.02
Queue Length 95th (ft)	0	0	6	2
Control Delay (s)	0.2	0.2	13.5	12.3
Lane LOS	A	A	B	B
Approach Delay (s)	0.2	0.2	13.5	12.3
Approach LOS			B	B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	30.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	200	60	0	195	85	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	235	71	0	229	100	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			306		465	235
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			306		465	235
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		82	99
cM capacity (veh/h)			1255		541	804

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	235	71	229	106
Volume Left	0	0	0	100
Volume Right	0	71	0	6
cSH	1700	1700	1255	551
Volume to Capacity	0.14	0.04	0.00	0.19
Queue Length 95th (ft)	0	0	0	18
Control Delay (s)	0.0	0.0	0.0	13.1
Lane LOS				B
Approach Delay (s)	0.0		0.0	13.1
Approach LOS				B

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	24.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	125	35	30	130	35	45	255	35	15	165	15
Ideal Flow (vphpl)	1785	1785	1785	1785	1785	1785	1785	1785	1785	1785	1785	1785
Total Lost time (s)	6.0	6.0			6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97			0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1570	1511			1582		1462	1716	1392	1556	1684	1214
Flt Permitted	0.77	1.00			0.91		0.59	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	1270	1511			1451		911	1716	1392	968	1684	1214
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	43	134	38	32	140	38	48	274	38	16	177	16
RTOR Reduction (vph)	0	16	0	0	13	0	0	0	14	0	0	9
Lane Group Flow (vph)	43	156	0	0	197	0	48	274	24	16	177	7
Heavy Vehicles (%)	8%	12%	22%	5%	10%	10%	16%	4%	9%	9%	6%	25%
Turn Type	Perm			Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	8.2	8.2			8.2		16.2	14.4	14.4	13.8	13.2	13.2
Effective Green, g (s)	8.2	8.2			8.2		16.2	14.4	14.4	13.8	13.2	13.2
Actuated g/C Ratio	0.21	0.21			0.21		0.41	0.37	0.37	0.35	0.34	0.34
Clearance Time (s)	6.0	6.0			6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	2.5	2.5			2.0		1.5	2.5	2.5	1.5	2.5	2.5
Lane Grp Cap (vph)	266	316			304		402	630	511	350	567	409
v/s Ratio Prot		0.10					c0.01	c0.16		0.00	0.11	
v/s Ratio Perm	0.03				c0.14		0.04		0.02	0.02		0.01
v/c Ratio	0.16	0.49			0.65		0.12	0.43	0.05	0.05	0.31	0.02
Uniform Delay, d1	12.7	13.7			14.2		7.0	9.3	8.0	8.3	9.6	8.7
Progression Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.9			3.6		0.0	0.4	0.0	0.0	0.2	0.0
Delay (s)	12.9	14.6			17.7		7.0	9.7	8.0	8.3	9.9	8.7
Level of Service	B	B			B		A	A	A	A	A	A
Approach Delay (s)		14.2			17.7			9.2			9.7	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	12.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	39.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
7: Kirtland Rd & Pacific Ave

10/4/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	155	0	15	0	0	0	35	55	0	0	60	155
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	180	0	17	0	0	0	41	64	0	0	70	180
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	305	305	160	323	395	64	250			64		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	305	305	160	323	395	64	250			64		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	70	100	98	100	100	100	97			100		
cM capacity (veh/h)	607	588	885	602	524	1000	1238			1538		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	198	0	105	250
Volume Left	180	0	41	0
Volume Right	17	0	0	180
cSH	624	1700	1238	1538
Volume to Capacity	0.32	0.00	0.03	0.00
Queue Length 95th (ft)	34	0	3	0
Control Delay (s)	13.4	0.0	3.3	0.0
Lane LOS	B	A	A	
Approach Delay (s)	13.4	0.0	3.3	0.0
Approach LOS	B	A		

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	195	10	5	190	20	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	214	11	5	209	22	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			225		440	220
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			225		440	220
tC, single (s)			4.6		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.7		3.5	3.4
p0 queue free %			100		96	99
cM capacity (veh/h)			1105		566	798

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	225	214	33
Volume Left	0	5	22
Volume Right	11	0	11
cSH	1700	1105	627
Volume to Capacity	0.13	0.00	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.0	0.3	11.1
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	11.1
Approach LOS			B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	195	5	5	170	20	25
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	227	6	6	198	23	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			233		439	230
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			233		439	230
tC, single (s)			4.3		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.4		3.5	3.4
p0 queue free %			100		96	96
cM capacity (veh/h)			1252		573	785

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	233	203	52
Volume Left	0	6	23
Volume Right	6	0	29
cSH	1700	1252	674
Volume to Capacity	0.14	0.00	0.08
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.3	10.8
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	10.8
Approach LOS			B

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	24.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	205	5	10	160	0	5	2	20	15	2	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	223	5	11	174	0	5	2	22	16	2	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	174			228			439	432	226	455	435	174
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	174			228			439	432	226	455	435	174
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	100	97	97	100	99
cM capacity (veh/h)	1403			1340			519	510	814	496	508	870

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	234	185	29	24
Volume Left	5	11	5	16
Volume Right	5	0	22	5
cSH	1403	1340	708	551
Volume to Capacity	0.00	0.01	0.04	0.04
Queue Length 95th (ft)	0	1	3	3
Control Delay (s)	0.2	0.5	10.3	11.8
Lane LOS	A	A	B	B
Approach Delay (s)	0.2	0.5	10.3	11.8
Approach LOS			B	B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	70	150	20	35	125	35	10	160	30	10	80	30
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	74	160	21	37	133	37	11	170	32	11	85	32

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	255	207	213	128
Volume Left (vph)	74	37	11	11
Volume Right (vph)	21	37	32	32
Hadj (s)	0.04	-0.04	-0.05	-0.10
Departure Headway (s)	5.2	5.2	5.3	5.4
Degree Utilization, x	0.37	0.30	0.31	0.19
Capacity (veh/h)	644	639	616	596
Control Delay (s)	11.2	10.4	10.7	9.7
Approach Delay (s)	11.2	10.4	10.7	9.7
Approach LOS	B	B	B	A

Intersection Summary			
Delay	10.6		
HCM Level of Service	B		
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	400	155	10	235	25	110	100	20	25	60	50
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	5.4	5.4	4.0	5.4		4.0	5.4		4.0	5.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.97		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1511	1667	1365	1458	1590		1421	1630		1630	1448	
Flt Permitted	0.57	1.00	1.00	0.41	1.00		0.68	1.00		0.68	1.00	
Satd. Flow (perm)	907	1667	1365	631	1590		1022	1630		1161	1448	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	78	417	161	10	245	26	115	104	21	26	62	52
RTOR Reduction (vph)	0	0	92	0	4	0	0	9	0	0	39	0
Lane Group Flow (vph)	78	417	69	10	267	0	115	116	0	26	75	0
Heavy Vehicles (%)	10%	5%	9%	14%	8%	13%	17%	5%	3%	2%	8%	18%
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	28.6	24.2	24.2	21.0	20.4		16.5	11.2		8.5	7.2	
Effective Green, g (s)	28.6	24.2	24.2	21.0	20.4		16.5	11.2		8.5	7.2	
Actuated g/C Ratio	0.51	0.43	0.43	0.37	0.36		0.29	0.20		0.15	0.13	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	5.4		4.0	5.4	
Vehicle Extension (s)	1.5	4.2	4.2	1.5	4.6		1.5	3.7		1.5	3.7	
Lane Grp Cap (vph)	510	719	589	245	578		338	325		187	186	
v/s Ratio Prot	c0.01	c0.25		0.00	0.17		c0.03	c0.07		0.00	0.05	
v/s Ratio Perm	0.07		0.05	0.01			0.07			0.02		
v/c Ratio	0.15	0.58	0.12	0.04	0.46		0.34	0.36		0.14	0.40	
Uniform Delay, d1	7.9	12.1	9.6	14.0	13.7		15.7	19.3		20.7	22.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	1.5	0.1	0.0	1.1		0.2	0.8		0.1	1.8	
Delay (s)	7.9	13.6	9.7	14.0	14.7		16.0	20.2		20.8	24.3	
Level of Service	A	B	A	B	B		B	C		C	C	
Approach Delay (s)		11.9			14.7			18.2			23.6	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	56.1	Sum of lost time (s)	18.8
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	30	75	150	40	90	150
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	43	107	214	57	129	214
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			TWLTL
Median storage veh)						2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	714	243			271	
vC1, stage 1 conf vol	243					
vC2, stage 2 conf vol	471					
vCu, unblocked vol	714	243			271	
tC, single (s)	6.4	6.4			4.2	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.5			2.3	
p0 queue free %	92	86			89	
cM capacity (veh/h)	523	749			1220	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	43	107	271	129	214
Volume Left	43	0	0	129	0
Volume Right	0	107	57	0	0
cSH	523	749	1700	1220	1700
Volume to Capacity	0.08	0.14	0.16	0.11	0.13
Queue Length 95th (ft)	7	12	0	9	0
Control Delay (s)	12.5	10.6	0.0	8.3	0.0
Lane LOS	B	B		A	
Approach Delay (s)	11.1		0.0	3.1	
Approach LOS	B				

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	31.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	100	115	175	60	55	130	1225	200	70	1100	45
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1563	1458		1478	1458	1599	3260	1390	1599	3209	
Flt Permitted		0.76	1.00		0.60	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1202	1458		921	1458	1599	3260	1390	1599	3209	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	52	115	132	201	69	63	149	1408	230	80	1264	52
RTOR Reduction (vph)	0	0	90	0	0	43	0	0	25	0	2	0
Lane Group Flow (vph)	0	167	42	0	270	20	149	1408	205	80	1314	0
Heavy Vehicles (%)	2%	14%	2%	18%	3%	2%	4%	2%	7%	4%	3%	3%
Turn Type	Perm		Perm	Perm		Perm	Prot		Perm	Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			
Actuated Green, G (s)		34.7	34.7		34.7	34.7	14.1	55.9	55.9	9.4	51.2	
Effective Green, g (s)		36.7	36.7		36.7	36.7	14.1	57.9	57.9	9.4	53.2	
Actuated g/C Ratio		0.32	0.32		0.32	0.32	0.12	0.50	0.50	0.08	0.46	
Clearance Time (s)		6.0	6.0		6.0	6.0	4.0	6.0	6.0	4.0	6.0	
Vehicle Extension (s)		2.5	2.5		2.5	2.5	2.5	4.4	4.4	2.5	4.4	
Lane Grp Cap (vph)		380	461		291	461	194	1627	694	130	1472	
v/s Ratio Prot							c0.09	c0.43		0.05	0.41	
v/s Ratio Perm		0.14	0.03		c0.29	0.01			0.15			
v/c Ratio		0.44	0.09		0.93	0.04	0.77	0.87	0.30	0.62	0.89	
Uniform Delay, d1		31.5	27.9		38.4	27.5	49.4	25.6	17.1	51.6	28.8	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.6	0.1		33.9	0.0	15.9	6.4	1.1	7.2	8.6	
Delay (s)		32.1	28.0		72.3	27.5	65.3	32.0	18.1	58.7	37.4	
Level of Service		C	C		E	C	E	C	B	E	D	
Approach Delay (s)		30.3			63.8			33.0			38.6	
Approach LOS		C			E			C			D	

Intersection Summary			
HCM Average Control Delay	37.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	116.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	90	250	5	0	225	10	2	2	5	15	2	45
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	101	281	6	0	253	11	2	2	6	17	2	51
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	264			287			796	750	284	751	747	258
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	264			287			796	750	284	751	747	258
tC, single (s)	4.1			4.4			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.5			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			100			99	99	99	94	99	94
cM capacity (veh/h)	1300			1117			267	314	755	304	315	780

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	388	264	10	70
Volume Left	101	0	2	17
Volume Right	6	11	6	51
cSH	1300	1117	439	547
Volume to Capacity	0.08	0.00	0.02	0.13
Queue Length 95th (ft)	6	0	2	11
Control Delay (s)	2.6	0.0	13.4	12.5
Lane LOS	A		B	B
Approach Delay (s)	2.6	0.0	13.4	12.5
Approach LOS			B	B

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	60	200	10	30	190	10	15	115	75	25	85	25
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	71	235	12	35	224	12	18	135	88	29	100	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	235			247			750	682	235	826	682	224
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	235			247			750	682	235	826	682	224
tC, single (s)	4.1			4.2			7.1	6.5	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.4	3.5	4.0	3.3
p0 queue free %	95			97			92	60	89	83	71	96
cM capacity (veh/h)	1326			1273			230	342	792	169	342	816

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	71	235	12	35	224	12	241	159
Volume Left	71	0	0	35	0	0	18	29
Volume Right	0	0	12	0	0	12	88	29
cSH	1326	1700	1700	1273	1700	1700	414	316
Volume to Capacity	0.05	0.14	0.01	0.03	0.13	0.01	0.58	0.50
Queue Length 95th (ft)	4	0	0	2	0	0	90	67
Control Delay (s)	7.9	0.0	0.0	7.9	0.0	0.0	25.2	27.3
Lane LOS	A			A			D	D
Approach Delay (s)	1.7			1.0			25.2	27.3
Approach LOS							D	D

Intersection Summary			
Average Delay	11.4		
Intersection Capacity Utilization	40.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	30	170	90	2	165	2	35	5	2	2	10	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	34	191	101	2	185	2	39	6	2	2	11	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	188			292			522	501	242	505	551	187
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	188			292			522	501	242	505	551	187
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.4
p0 queue free %	98			100			91	99	100	99	97	98
cM capacity (veh/h)	1387			1270			438	460	797	418	431	840

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	326	190	47	30
Volume Left	34	2	39	2
Volume Right	101	2	2	17
cSH	1387	1270	450	589
Volume to Capacity	0.02	0.00	0.10	0.05
Queue Length 95th (ft)	2	0	9	4
Control Delay (s)	1.0	0.1	13.9	11.4
Lane LOS	A	A	B	B
Approach Delay (s)	1.0	0.1	13.9	11.4
Approach LOS			B	B

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	160	2	2	155	0	0	5	2	0	5	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	17	182	2	2	176	0	0	6	2	0	6	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	176			184			406	398	183	403	399	176
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	176			184			406	398	183	403	399	176
tC, single (s)	4.2			4.1			7.1	6.5	6.7	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.8	3.5	4.0	3.3
p0 queue free %	99			100			100	99	100	100	99	99
cM capacity (veh/h)	1353			1391			541	532	750	546	531	867

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	201	178	8	11
Volume Left	17	2	0	0
Volume Right	2	0	2	6
cSH	1353	1391	580	659
Volume to Capacity	0.01	0.00	0.01	0.02
Queue Length 95th (ft)	1	0	1	1
Control Delay (s)	0.8	0.1	11.3	10.6
Lane LOS	A	A	B	B
Approach Delay (s)	0.8	0.1	11.3	10.6
Approach LOS			B	B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	0	5	5	0	2	5	155	5	2	140	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	2	0	6	6	0	2	6	189	6	2	171	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	385	386	174	389	386	192	177			195		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	385	386	174	389	386	192	177			195		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	99	100	100	100			100		
cM capacity (veh/h)	569	545	870	563	545	850	1399			1378		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	9	201	179
Volume Left	2	6	6	2
Volume Right	6	2	6	6
cSH	755	623	1399	1378
Volume to Capacity	0.01	0.01	0.00	0.00
Queue Length 95th (ft)	1	1	0	0
Control Delay (s)	9.8	10.9	0.3	0.1
Lane LOS	A	B	A	A
Approach Delay (s)	9.8	10.9	0.3	0.1
Approach LOS	A	B		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	10	150	140	15	15	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	11	170	159	17	17	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	176				361	168
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	176				361	168
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	99
cM capacity (veh/h)	1400				633	877

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	182	176	23
Volume Left	11	0	17
Volume Right	0	17	6
cSH	1400	1700	680
Volume to Capacity	0.01	0.10	0.03
Queue Length 95th (ft)	1	0	3
Control Delay (s)	0.5	0.0	10.5
Lane LOS	A		B
Approach Delay (s)	0.5	0.0	10.5
Approach LOS			B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	28.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection Sign configuration not allowed in HCM analysis.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	210	245	50	205	150	15	65	975	245	25	860	70
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0	4.0	5.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1568	1733	1352	1646	1720		1409	3260	1444	1662	3228	1458
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1568	1733	1352	1646	1720		1409	3260	1444	1662	3228	1458
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	241	282	57	236	172	17	75	1121	282	29	989	80
RTOR Reduction (vph)	0	0	40	0	2	0	0	0	71	0	0	19
Lane Group Flow (vph)	241	282	17	236	187	0	75	1121	211	29	989	61
Heavy Vehicles (%)	6%	1%	10%	1%	0%	4%	18%	2%	3%	0%	3%	2%
Turn Type	Prot		Perm	Prot			Prot		custom	Prot		custom
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						6			2
Actuated Green, G (s)	25.7	27.1	27.1	20.6	22.0		10.6	55.8	50.2	5.0	50.2	55.8
Effective Green, g (s)	24.7	27.1	27.1	19.6	22.0		9.6	58.8	53.2	4.0	53.2	58.8
Actuated g/C Ratio	0.19	0.21	0.21	0.15	0.17		0.08	0.46	0.42	0.03	0.42	0.46
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	304	368	287	253	297		106	1503	603	52	1347	672
v/s Ratio Prot	c0.15	c0.16		c0.14	0.11		c0.05	c0.34		0.02	0.31	
v/s Ratio Perm			0.01						0.15			0.04
v/c Ratio	0.79	0.77	0.06	0.93	0.63		0.71	0.75	0.35	0.56	0.73	0.09
Uniform Delay, d1	49.0	47.2	40.0	53.3	49.0		57.6	28.2	25.3	60.9	31.2	19.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.2	9.2	0.1	38.6	4.1		19.3	2.1	0.4	12.3	2.1	0.1
Delay (s)	62.2	56.4	40.1	91.9	53.1		76.9	30.3	25.7	73.2	33.3	19.4
Level of Service	E	E	D	F	D		E	C	C	E	C	B
Approach Delay (s)		57.2			74.6			31.8			33.4	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM Average Control Delay	41.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	127.5	Sum of lost time (s)	14.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	65	90	65	25	70	25	1075	100	35	745	50
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	3.0		4.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1627	1716	1334	1660	1667	1334	1433	3201		1599	3221	
Flt Permitted	0.74	1.00	1.00	0.71	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1265	1716	1334	1237	1667	1334	1433	3201		1599	3221	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	121	75	103	75	29	80	29	1236	115	40	856	57
RTOR Reduction (vph)	0	0	84	0	0	65	0	4	0	0	3	0
Lane Group Flow (vph)	121	75	19	75	29	15	29	1347	0	40	910	0
Confl. Peds. (#/hr)	2		2	2		2			2			2
Heavy Vehicles (%)	2%	2%	10%	0%	5%	10%	16%	2%	6%	4%	2%	4%
Turn Type	Perm		Perm	Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						
Actuated Green, G (s)	13.7	13.7	13.7	13.7	13.7	13.7	2.9	41.9		4.4	43.4	
Effective Green, g (s)	13.7	13.7	13.7	13.7	13.7	13.7	2.9	44.9		4.4	46.4	
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	0.18	0.04	0.60		0.06	0.62	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	6.0		4.0	6.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0	3.0	3.0	5.3		3.0	5.3	
Lane Grp Cap (vph)	231	313	244	226	305	244	55	1916		94	1993	
v/s Ratio Prot		0.04			0.02		0.02	c0.42		c0.03	0.28	
v/s Ratio Perm	c0.10		0.01	0.06		0.01						
v/c Ratio	0.52	0.24	0.08	0.33	0.10	0.06	0.53	0.70		0.43	0.46	
Uniform Delay, d1	27.7	26.2	25.4	26.7	25.5	25.3	35.4	10.4		34.1	7.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.3	0.1	0.9	0.1	0.1	8.8	1.6		3.1	0.4	
Delay (s)	29.3	26.5	25.5	27.5	25.6	25.4	44.2	12.0		37.2	8.0	
Level of Service	C	C	C	C	C	C	D	B		D	A	
Approach Delay (s)		27.3			26.3			12.7			9.2	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

1: I-5 SB Ramps/Willow Springs & OR 99 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.6	0.6	0.2	5.2	0.1	0.6	0.1	1.9	0.0	0.5	0.4	0.1
Delay / Veh (s)	38.7	50.6	17.6	87.9	7.6	32.5	14.7	14.3	1.3	15.3	8.7	4.6

1: I-5 SB Ramps/Willow Springs & OR 99 Performance by movement

Movement	All
Total Delay (hr)	10.2
Delay / Veh (s)	28.7

2: I-5 NB Ramp & Blackwell Rd Performance by movement

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.2	0.0	0.2	0.7	0.4	0.5	0.2	2.2
Delay / Veh (s)	15.1	20.5	5.4	8.2	5.0	6.1	7.4	6.8

3: Blackwell Rd & Kirtland Rd Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.7	0.7	0.7	0.5	0.6	0.6	3.7
Delay / Veh (s)	23.3	14.9	10.6	6.2	10.7	11.4	11.5

4: Kirtland Rd & High Banks Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Total Delay (hr)	0.0	0.7	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	1.5
Delay / Veh (s)	6.2	7.3	6.1	10.8	7.8	6.9	5.1	3.2	4.9	3.8	7.3

5: Kirtland Rd & W Antelope Rd Performance by movement

Movement	EBT	EBR	WBT	NBL	NBR	All
Total Delay (hr)	0.7	0.2	0.3	0.1	0.0	1.3
Delay / Veh (s)	10.4	9.7	5.2	5.4	3.4	7.7

6: Kirtland & Table Rock Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.1	0.6	0.1	0.1	0.5	0.1	0.2	1.1	0.1	0.1	0.6	0.0
Delay / Veh (s)	14.4	14.6	7.3	13.7	12.7	5.3	14.4	15.9	8.8	14.5	12.8	8.4

6: Kirtland & Table Rock Performance by movement

Movement	All
Total Delay (hr)	3.5
Delay / Veh (s)	13.3

7: Kirtland Rd & Pacific Ave Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.7
Delay / Veh (s)	10.9	3.6	11.3	2.3	1.5	2.4	0.9	4.9

8: Ave G & 5th St Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.2
Delay / Veh (s)	1.5	0.5	1.6	0.7	4.3	3.3	1.4

9: Ave G & 8th St Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.2
Delay / Veh (s)	1.4	1.1	1.7	0.5	4.7	3.3	1.3

10: Ave G & 11th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	All
Total Delay (hr)	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Delay / Veh (s)	2.0	1.6	1.2	4.9	3.7	5.5	5.6	3.9	4.5	7.4	3.5	2.7

11: Ave G & Agate Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.2	0.5	0.1	0.1	0.4	0.1	0.0	0.6	0.1	0.0	0.2	0.0
Delay / Veh (s)	7.7	11.3	7.6	6.6	11.2	7.7	10.0	12.4	8.9	5.0	9.0	4.0

11: Ave G & Agate Rd Performance by movement

Movement	All
Total Delay (hr)	2.2
Delay / Veh (s)	10.0

12: Antelope Rd & Agate Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.4	1.2	0.1	0.0	0.9	0.1	0.5	0.4	0.0	0.1	0.4	0.1
Delay / Veh (s)	18.8	11.0	2.7	21.3	12.2	8.8	16.8	11.7	8.7	20.2	18.8	9.4

12: Antelope Rd & Agate Rd Performance by movement

Movement	All
Total Delay (hr)	4.2
Delay / Veh (s)	11.8

13: OR 140 & Agate Rd Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.4
Delay / Veh (s)	8.0	1.6	5.5	0.7	0.5	3.3	0.5	2.0

14: OR 140 & OR 62 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.5	1.2	0.5	7.3	2.2	0.9	2.4	12.7	1.3	1.1	11.5	0.5
Delay / Veh (s)	41.8	43.0	14.0	142.9	136.9	57.6	70.2	37.6	23.8	58.7	38.2	36.8

14: OR 140 & OR 62 Performance by movement

Movement	All
Total Delay (hr)	42.1
Delay / Veh (s)	46.0

15: OR 140 & Lakeview Dr Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Total Delay (hr)	0.2	0.6	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
Delay / Veh (s)	7.9	7.1	7.6	8.0	7.9	7.4	7.6	4.4	6.4	13.1	4.1	7.3

16: OR 140 & Kershaw Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.1	0.4	0.0	0.1	0.4	0.0	0.0	0.4	0.2	0.1	0.3	0.1
Delay / Veh (s)	7.2	6.7	6.3	8.4	8.0	6.6	11.0	14.3	8.7	10.9	12.4	6.5

16: OR 140 & Kershaw Rd Performance by movement

Movement	All
Total Delay (hr)	2.1
Delay / Veh (s)	9.0

17: OR 140 & Riley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.1	0.4	0.2	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay / Veh (s)	7.6	8.2	7.1	4.4	8.2	8.1	4.5	7.8	3.2	8.2	8.8	3.3

17: OR 140 & Riley Rd Performance by movement

Movement	All
Total Delay (hr)	1.2
Delay / Veh (s)	7.6

18: OR 140 & Meridian Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT	SBR	All
Total Delay (hr)	0.0	0.3	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.7
Delay / Veh (s)	8.5	6.6	3.8	17.6	8.6	8.8	2.0	7.9	2.3	7.5

19: Brownsboro-Meridian Rd & OR 140 Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.6
Delay / Veh (s)	4.0	2.7	3.9	4.8	9.8	11.7	2.1	0.2	1.1	1.7	6.4

20: OR 140 & Brownsboro Hwy Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Total Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	0.2
Delay / Veh (s)	3.9	3.4	0.8	0.8	3.6	3.0	2.2

23: I-5 SB Ramps/Willow Springs & Performance by movement

Movement	EBT	EBR	WBT	All
Total Delay (hr)	0.0	0.1	0.3	0.4
Delay / Veh (s)	1.7	1.7	3.7	2.9

101: Antelope Rd & OR 62 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	9.2	9.6	1.2	19.2	12.3	1.3	1.7	12.9	2.4	0.5	9.4	0.4
Delay / Veh (s)	161.9	143.2	83.6	347.4	300.4	271.2	89.3	45.0	35.3	67.9	39.6	19.0

101: Antelope Rd & OR 62 Performance by movement

Movement	All
Total Delay (hr)	79.9
Delay / Veh (s)	91.4

102: Avenue G & Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.6	0.4	0.2	0.3	0.1	0.1	0.5	22.3	2.0	0.2	2.8	0.2
Delay / Veh (s)	20.2	18.6	8.8	18.3	13.1	3.2	53.8	74.0	72.5	25.1	14.0	11.5

102: Avenue G & Performance by movement

Movement	All
Total Delay (hr)	29.7
Delay / Veh (s)	43.3

Total Network Performance

Total Delay (hr)	198.5
Delay / Veh (s)	91.2

Intersection: 1: I-5 SB Ramps/Willow Springs & OR 99

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	TR
Maximum Queue (ft)	87	158	312	191	62	382	47	129	149
Average Queue (ft)	42	56	203	43	14	165	3	54	50
95th Queue (ft)	80	122	345	116	46	300	23	104	119
Link Distance (ft)		713	298	298		729	729		1480
Upstream Blk Time (%)			9	0					
Queuing Penalty (veh)			12	0					
Storage Bay Dist (ft)	150				300			475	
Storage Blk Time (%)		1				1			
Queuing Penalty (veh)		1				0			

Intersection: 2: I-5 NB Ramp & Blackwell Rd

Movement	WB	WB	NB
Directions Served	LT	R	L
Maximum Queue (ft)	94	89	151
Average Queue (ft)	30	34	46
95th Queue (ft)	66	64	106
Link Distance (ft)	1082	1082	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			850
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Blackwell Rd & Kirtland Rd

Movement	EB	EB	NB	SB
Directions Served	L	R	L	R
Maximum Queue (ft)	239	86	124	39
Average Queue (ft)	74	53	51	4
95th Queue (ft)	173	87	103	21
Link Distance (ft)	652			
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		50	250	250
Storage Blk Time (%)	15	3		
Queuing Penalty (veh)	26	3		

Intersection: 4: Kirtland Rd & High Banks Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LR	LR
Maximum Queue (ft)	56	32	55	28
Average Queue (ft)	4	1	19	7
95th Queue (ft)	30	14	47	26
Link Distance (ft)	8289	8497	551	888
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Kirtland Rd & W Antelope Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	88
Average Queue (ft)	33
95th Queue (ft)	61
Link Distance (ft)	534
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Kirtland & Table Rock

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	R	L	T	R
Maximum Queue (ft)	75	169	140	88	212	66	32	125	75
Average Queue (ft)	23	67	66	24	81	34	7	52	23
95th Queue (ft)	59	133	115	61	162	69	25	106	64
Link Distance (ft)		3858	1493		2562			1256	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	160			230		30	300		30
Storage Blk Time (%)		0			28	1		23	0
Queuing Penalty (veh)		0			22	2		7	1

Intersection: 7: Kirtland Rd & Pacific Ave

Movement	EB	NB
Directions Served	LR	LTR
Maximum Queue (ft)	144	74
Average Queue (ft)	61	12
95th Queue (ft)	108	46
Link Distance (ft)	1493	2415
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Ave G & 5th St

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	33	82
Average Queue (ft)	2	22
95th Queue (ft)	18	56
Link Distance (ft)	1623	411
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Ave G & 8th St

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	42	78
Average Queue (ft)	2	27
95th Queue (ft)	17	57
Link Distance (ft)	1781	441
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Ave G & 11th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	12	30	44	49
Average Queue (ft)	1	3	23	17
95th Queue (ft)	8	17	49	44
Link Distance (ft)	1781	694	288	427
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: Ave G & Agate Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	129	85	94	69
Average Queue (ft)	60	48	51	38
95th Queue (ft)	98	74	82	57
Link Distance (ft)	694	4129	3081	1159
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: Antelope Rd & Agate Rd

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	TR	L	TR
Maximum Queue (ft)	157	299	91	87	246	135	127	69	120
Average Queue (ft)	43	96	34	9	80	52	42	21	55
95th Queue (ft)	101	199	70	47	177	105	90	52	102
Link Distance (ft)		764	764		1614		528		3081
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	75			75		100		100	
Storage Blk Time (%)	2	8		0	7	1	1	0	1
Queuing Penalty (veh)	8	6		0	1	1	1	0	0

Intersection: 13: OR 140 & Agate Rd

Movement	WB	WB	SB
Directions Served	L	R	L
Maximum Queue (ft)	74	81	105
Average Queue (ft)	23	36	17
95th Queue (ft)	55	67	62
Link Distance (ft)		1054	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100		175
Storage Blk Time (%)	0	0	0
Queuing Penalty (veh)	0	0	0

Intersection: 14: OR 140 & OR 62

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	L	T	TR
Maximum Queue (ft)	234	195	335	804	264	770	835	265	206	652	690
Average Queue (ft)	106	57	271	326	117	338	384	83	58	304	329
95th Queue (ft)	200	142	403	878	230	675	743	263	143	588	620
Link Distance (ft)		1054		5392		2264	2264			1327	1327
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	130		200		130			50	200		
Storage Blk Time (%)	7	0	45		8	23	38	2		18	
Queuing Penalty (veh)	8	1	25		50	31	77	11		13	

Intersection: 15: OR 140 & Lakeview Dr

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	114	34	65
Average Queue (ft)	22	8	30
95th Queue (ft)	71	31	57
Link Distance (ft)	5392	464	781
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: OR 140 & Kershaw Rd

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	R	L	R	LTR	LTR
Maximum Queue (ft)	42	10	48	10	118	108
Average Queue (ft)	8	0	6	1	54	43
95th Queue (ft)	29	5	27	6	98	79
Link Distance (ft)					2469	1083
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	450	350	450	350		
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 17: OR 140 & Riley Rd

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	84	52	58
Average Queue (ft)	7	21	18
95th Queue (ft)	40	43	45
Link Distance (ft)	6762	603	1225
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 18: OR 140 & Meridian Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	66	6	21	13
Average Queue (ft)	4	0	3	2
95th Queue (ft)	30	4	13	9
Link Distance (ft)	7344	11835	3188	1987
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 19: Brownsboro-Meridian Rd & OR 140

Movement	EB	WB	NB
Directions Served	LR	LR	LTR
Maximum Queue (ft)	26	33	9
Average Queue (ft)	5	8	0
95th Queue (ft)	21	28	4
Link Distance (ft)	1151	410	11835
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 20: OR 140 & Brownsboro Hwy

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	24	32
Average Queue (ft)	2	14
95th Queue (ft)	14	37
Link Distance (ft)	2867	915
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 23: I-5 SB Ramps/Willow Springs &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	125	6
Average Queue (ft)	17	0
95th Queue (ft)	84	4
Link Distance (ft)	922	922
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 101: Antelope Rd & OR 62

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	T	R	L	T	T
Maximum Queue (ft)	175	1099	200	125	1245	224	869	887	175	198	535	589
Average Queue (ft)	158	589	38	118	908	85	376	404	78	29	275	303
95th Queue (ft)	208	1244	129	149	1710	187	780	824	202	110	448	482
Link Distance (ft)		1614			1437		1327	1327			1369	1369
Upstream Blk Time (%)		0			17			0				
Queuing Penalty (veh)		1			0			0				
Storage Bay Dist (ft)	150		175	100		200			150	200		
Storage Blk Time (%)	35	17	0	61	14	0	21	25	0	0	14	26
Queuing Penalty (veh)	106	46	0	100	28	1	14	63	2	0	4	18

Intersection: 101: Antelope Rd & OR 62

Movement	SB
Directions Served	R
Maximum Queue (ft)	175
Average Queue (ft)	29
95th Queue (ft)	133
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	150
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 102: Avenue G &

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	L	T	L	T	TR	L	T	TR
Maximum Queue (ft)	98	94	61	56	204	1235	1253	46	154	175
Average Queue (ft)	38	30	20	13	28	508	542	11	58	81
95th Queue (ft)	78	66	49	41	117	1211	1235	33	129	156
Link Distance (ft)		4129		1969		2523	2523		1842	1842
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		100		200			200		
Storage Blk Time (%)		0	0		0	28			0	
Queuing Penalty (veh)		0	0		0	7			0	

Network Summary

Network wide Queuing Penalty: 699

1: I-5 SB Ramps/Willow Springs & OR 99 Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	1.4	5.9	2.0	0.9	10.2
Delay / Veh (s)	35.1	66.6	14.1	10.5	28.7

2: I-5 NB Ramp & Blackwell Rd Performance by approach

Approach	WB	NB	SB	All
Total Delay (hr)	0.4	1.1	0.7	2.2
Delay / Veh (s)	8.1	6.6	6.4	6.8

3: Blackwell Rd & Kirtland Rd Performance by approach

Approach	EB	NB	SB	All
Total Delay (hr)	1.3	1.1	1.2	3.7
Delay / Veh (s)	18.2	8.3	11.0	11.5

4: Kirtland Rd & High Banks Rd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	0.8	0.7	0.0	0.0	1.5
Delay / Veh (s)	7.3	7.8	4.4	4.2	7.3

5: Kirtland Rd & W Antelope Rd Performance by approach

Approach	EB	WB	NB	All
Total Delay (hr)	0.8	0.3	0.1	1.3
Delay / Veh (s)	10.3	5.2	5.2	7.7

6: Kirtland & Table Rock Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	0.8	0.6	1.4	0.7	3.5
Delay / Veh (s)	13.2	11.5	14.8	12.5	13.3

7: Kirtland Rd & Pacific Ave Performance by approach

Approach	EB	NB	SB	All
Total Delay (hr)	0.6	0.1	0.1	0.7
Delay / Veh (s)	10.5	1.8	1.3	4.9

8: Ave G & 5th St Performance by approach

Approach	EB	WB	NB	All
Total Delay (hr)	0.1	0.0	0.0	0.2
Delay / Veh (s)	1.5	0.8	4.0	1.4

9: Ave G & 8th St Performance by approach

Approach	EB	WB	NB	All
Total Delay (hr)	0.1	0.0	0.0	0.2
Delay / Veh (s)	1.4	0.5	3.8	1.3

10: Ave G & 11th St Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	0.1	0.2	0.0	0.0	0.3
Delay / Veh (s)	1.6	3.8	4.3	4.6	2.7

11: Ave G & Agate Rd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	0.7	0.5	0.7	0.2	2.2
Delay / Veh (s)	10.0	9.8	11.8	7.4	10.0

12: Antelope Rd & Agate Rd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	1.7	1.0	0.9	0.6	4.2
Delay / Veh (s)	9.8	12.1	13.7	16.0	11.8

13: OR 140 & Agate Rd Performance by approach

Approach	WB	NB	SB	All
Total Delay (hr)	0.2	0.0	0.1	0.4
Delay / Veh (s)	3.7	0.6	1.4	2.0

14: OR 140 & OR 62 Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	2.2	10.4	16.4	13.1	42.1
Delay / Veh (s)	30.1	125.9	38.4	39.3	46.0

15: OR 140 & Lakeview Dr Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	0.8	0.5	0.0	0.1	1.4
Delay / Veh (s)	7.3	7.9	6.0	4.9	7.3

16: OR 140 & Kershaw Rd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	0.5	0.5	0.7	0.4	2.1
Delay / Veh (s)	6.8	8.0	11.9	11.0	9.0

17: OR 140 & Riley Rd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	0.6	0.4	0.1	0.0	1.2
Delay / Veh (s)	7.8	8.2	4.8	5.7	7.6

18: OR 140 & Meridian Rd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	0.3	0.4	0.0	0.0	0.7
Delay / Veh (s)	6.7	8.7	5.9	4.5	7.5

19: Brownsboro-Meridian Rd & OR 140 Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	0.0	0.0	0.5	0.0	0.6
Delay / Veh (s)	3.1	4.2	11.4	1.1	6.4

20: OR 140 & Brownsboro Hwy Performance by approach

Approach	EB	WB	SB	All
Total Delay (hr)	0.2	0.0	0.0	0.2
Delay / Veh (s)	3.4	0.8	3.4	2.2

23: I-5 SB Ramps/Willow Springs & Performance by approach

Approach	EB	WB	All
Total Delay (hr)	0.1	0.3	0.4
Delay / Veh (s)	1.7	3.7	2.9

101: Antelope Rd & OR 62 Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	20.0	32.8	16.9	10.3	79.9
Delay / Veh (s)	144.8	325.7	45.6	38.9	91.4

102: Avenue G & Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	1.2	0.5	24.8	3.2	29.7
Delay / Veh (s)	16.1	10.9	73.4	14.3	43.3

Total Network Performance

Total Delay (hr)	198.5
Delay / Veh (s)	91.2

Appendix 4-B

ODOT Crash Data Reports
(January 1, 2005 through December 31, 2009)

Intersection	Int. Code	Serial No	Date	Time	Time		Day	Co. Name/City	Roadway	MP	Coll Type	Event			Cause			Error			Surface	Weather	Daylight	Tot Veh	Vehicle	Vehicle	Kill	Inj	INJ_A	INJ_B	INJ_C	Alc	Drugs	Speed
OR 62	1168741	01874	9/12/2005	5P	12:00 AM	Night	MO	Jackson	CRATER LAKE	6	REAR	0	0	0	07	27	0	0	043	0	DRY	CLR	DAY	0	11	11	0	0	0	0	0	N	N	N
OR 62	1193545	00510	3/21/2006	1P	1:00 PM	Midday	SA	Jackson	CRATER LAKE	6.01	REAR	0	0	0	10	0	0	0	026	0	DRY	CLR	DAY	0	11	11	0	1	0	0	1	N	N	N
OR 62	1200287	01188	6/6/2006	5P	5:00 PM	PM	SA	Jackson	CRATER LAKE	6.01	REAR	0	0	0	07	0	0	0	042	0	DRY	CLR	DAY	0	11	11	0	1	0	0	1	N	N	N
OR 62	1282824	00716	4/24/2008	8P	8:00 PM	Night	SA	Jackson	CRATER LAKE	6.01	TURN	0	0	0	02	0	0	0	000	0	DRY	CLR	DLIT	0	11	11	0	1	0	0	1	N	N	N
OR 62	1146958	00605	3/26/2005	12P	12:00 AM	Night	SA	Jackson	CRATER LAKE	6.02	REAR	0	0	0	10	0	0	0	026	0	DRY	CLR	DAY	0	11	11	0	0	0	0	0	N	N	N
OR 62	1170335	02472	11/1/2005	5P	5:00 PM	PM	SA	Jackson	CRATER LAKE	6.02	REAR	0	0	0	07	0	0	0	026	0	WET	RAIN	DLIT	0	11	11	0	0	0	0	0	N	N	N
OR 62	1327861	00745	4/22/2009	5P	5:00 PM	PM	SA	Jackson	CRATER LAKE	6.02	REAR	0	0	0	07	0	0	0	014	026	DRY	CLR	DAY	0	11	11	0	0	0	0	0	N	N	N
OR 62	1174727	02302	10/20/2005	5P	5:00 PM	PM	SA	Jackson	CRATER LAKE	6.02	REAR	013	0	0	07	27	0	0	043	0	DRY	CLR	DUSK	0	11	11	0	1	0	0	1	N	N	N
OR 62	1149020	00809	4/17/2005	10A	10:00 AM	Midday	SU	Jackson	CRATER LAKE	6.02	REAR	0	0	0	06	0	0	0	031	0	DRY	CLR	DAY	0	11	11	0	0	0	0	0	N	N	N
OR 62	1171008	02110	10/5/2005	3P	3:00 PM	PM	SA	Jackson	CRATER LAKE	6.03	REAR	0	0	0	10	27	0	0	043	052	DRY	CLR	DAY	0	11	11	0	1	0	0	1	N	N	N
OR 62	1207043	01509	7/14/2006	12P	12:00 AM	Night	SA	Jackson	CRATER LAKE	6.03	REAR	0	0	0	10	22	0	0	026	0	DRY	CLR	DAY	0	11	11	0	1	0	1	0	N	N	N
OR 62	1210200	00201	1/26/2006	8A	8:00 AM	AM	SA	Jackson	CRATER LAKE	6.03	REAR	0	0	0	07	0	0	0	014	0	DRY	CLR	DAY	0	11	11	0	1	0	0	1	N	N	N
OR 62	1266316	02372	11/29/2007	1P	1:00 PM	Midday	SA	Jackson	CRATER LAKE	6.03	REAR	0	0	0	10	0	0	0	026	0	DRY	CLR	DAY	0	11	11	0	2	0	0	2	N	Y	N
OR 62	1303187	02156	12/8/2008	1P	1:00 PM	Midday	MO	Jackson	CRATER LAKE	6.03	REAR	0	0	0	13	0	0	0	045	026	DRY	CLR	DAY	0	11	11	0	2	0	0	2	N	N	N
OR 62	1317540	00109	1/17/2009	12P	12:00 AM	Night	SA	Jackson	CRATER LAKE	6.03	REAR	013	0	0	07	0	0	0	026	0	DRY	CLD	DAY	0	11	11	0	2	0	0	2	N	N	N
OR 62	1290187	00981	6/16/2008	3P	3:00 PM	PM	MO	Jackson	CRATER LAKE	6.03	REAR	0	0	0	07	0	0	0	026	014	DRY	CLR	DAY	0	11	11	0	0	0	0	0	N	N	N
OR 62	1189650	00251	2/5/2006	9P	9:00 PM	Night	SU	Jackson	CRATER LAKE	6.03	TURN	0	0	0	10	08	02	0	001	044	DRY	CLD	DLIT	0	11	11	0	1	0	0	1	Y	N	N
OR 62	1312000	02189	12/25/2008	11A	11:00 AM	Midday	SA	Jackson	CRATER LAKE	6.03	TURN	0	0	0	04	0	0	0	020	0	WET	RAIN	DAY	0	11	11	0	2	2	0	0	N	N	N
OR 62	1200483	01190	6/7/2006	2P	2:00 PM	Midday	SA	Jackson	CRATER LAKE	6.03	REAR	0	0	0	07	0	0	0	042	0	DRY	CLR	DAY	0	11	11	0	0	0	0	0	N	N	N
OR 62	1277864	00372	2/22/2008	11A	11:00 AM	Midday	SA	Jackson	CRATER LAKE	6.03	REAR	0	0	0	07	0	0	0	024	026	UNK	UNK	DAY	0	11	11	0	0	0	0	0	N	N	N
OR 62	1143870	00412	2/13/2005	2P	2:00 PM	Midday	SU	Jackson	CRATER LAKE	6.03	ANGL	088	0	0	04	05	0	0	020	039	DRY	CLR	DAY	0	11	11	0	1	0	1	0	N	N	N
OR 62	1146951	00468	3/5/2005	1P	1:00 PM	Midday	SA	Jackson	CRATER LAKE	6.03	TURN	0	0	0	08	27	0	0	000	0	DRY	CLR	DAY	0	11	11	0	1	0	0	1	N	N	N
OR 62	1204140	01425	7/7/2006	8A	8:00 AM	AM	SA	Jackson	CRATER LAKE	6.03	TURN	0	0	0	04	0	0	0	000	0	DRY	CLR	DAY	0	11	11	0	1	0	1	0	N	N	N
OR 62	1212529	01769	8/27/2006	2P	2:00 PM	Midday	SU	Jackson	CRATER LAKE	6.03	TURN	0	0	0	02	0	0	0	004	028	DRY	CLR	DAY	0	11	11	0	0	0	0	0	N	N	N
OR 62	1148640	00828	4/20/2005	3P	3:00 PM	PM	SA	Jackson	CRATER LAKE	6.03	ANGL	0	0	0	02	0	0	0	028	0	DRY	CLR	DAY	0	11	11	0	0	0	0	0	N	N	N
OR 62	1153449	00596	3/29/2005	9A	9:00 AM	Midday	SA	Jackson	CRATER LAKE	6.03	TURN	0	0	0	02	27	0	0	028	0	DRY	CLR	DAY	0	11	11	0	0	0	0	0	N	N	N
OR 62	1195957	00911	4/21/2006	1P	1:00 PM	Midday	SA	Jackson	CRATER LAKE	6.04	BACK	0	0	0	27	10	0	0	016	011	DRY	CLR	DAY	0	11	11	0	0	0	0	0	N	N	N
OR 62	1299408	01979	11/16/2008	2P	2:00 PM	Midday	SU	Jackson	CRATER LAKE	6.06	REAR	0	0	0	32	0	0	0	026	052	DRY	CLR	DAY	0	11	11	0	2	0	0	2	N	N	N
OR 62	1194923	00645	3/18/2006	12P	12:00 AM	Night	SA	Jackson	LAKE OF THE WOODS	0	REAR	0	0	0	07	32	0	0	043	014	DRY	CLR	DAY	2	11	11	0	2	0	0	2	N	N	N
OR 62	1228529	00119	1/10/2007	6P	6:00 PM	Night	SA	Jackson	LAKE OF THE WOODS	0	TURN	0	0	0	08	01	0	0	001	047	SNO	SNOW	DLIT	2	11	11	0	1	0	0	1	N	N	Y
OR 62	1317541	00107	1/17/2009	8A	8:00 AM	AM	SA	Jackson	LAKE OF THE WOODS	0	REAR	124	0	0	01	0	0	0	047	026	ICE	FOG	DAY	2	11	11	0	2	0	0	2	N	N	Y
OR 62	1351007	02286	11/21/2009	9A	9:00 AM	Midday	SA	Jackson	LAKE OF THE WOODS	0	REAR	0	0	0	11	0	0	0	000	0	WET	FOG	DAY	2	11	11	0	0	0	0	0	N	N	N
OR 62	1317527	00147	1/9/2009	1P	1:00 PM	Midday	SA	Jackson	LAKE OF THE WOODS	0.01	REAR	0	0	0	07	0	0	0	026	0	DRY	CLR	DAY	2	11	11	0	1	0	0	1	N	N	N
OR 140	1170080	02136	10/12/2005	3P	3:00 PM	PM	SA	Jackson	LAKE OF THE WOODS	0.1	TURN	0	0	0	02	0	0	0	028	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
OR 140	1225524	02539	11/28/2006	5P	5:00 PM	PM	SA	Jackson	LAKE OF THE WOODS	0.1	TURN	0	0	0	02	0	0	0	000	0	WET	CLD	DARK	2	11	11	0	0	0	0	0	N	N	N
OR 140	1193901	00593	3/10/2006	6A	6:00 AM	AM	SA	Jackson	LAKE OF THE WOODS	1	NCOL	079	0	0	01	0	0	0	047	083	ICE	CLD	DAY	1	11	0	0	0	0	0	0	N	N	Y
Lakeview	1285169	00831	5/9/2008	6P	6:00 PM	Night	SA	Jackson	LAKE OF THE WOODS	1.03	TURN	0	0	0	08	0	0	0	002	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Lakeview	1168700	02012	9/3/2005	3P	3:00 PM	PM	SA	Jackson	LAKE OF THE WOODS	1.03	TURN	0	0	0	06	0	0	0	000	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Kershaw	1247636	01251	6/25/2007	6P	6:00 PM	Night	MO	Jackson	LAKE OF THE WOODS	2.29	REAR	0	0	0	07	27	0	0	026	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Kershaw	1160527	01543	7/15/2005	3P	3:00 PM	PM	SA	Jackson	LAKE OF THE WOODS	2.29	TURN	013	010	0	02	0	0	0	000	0	DRY	CLR	DAY	3	11	11	0	6	2	1	3	N	N	N
Kershaw	1163644	01705	8/17/2005	5P	5:00 PM	PM	SA	Jackson	LAKE OF THE WOODS	2.29	ANGL	0	0	0	03	0	0	0	000	0	DRY	CLR	DAY	2	11	11	0	1	0	1	0	N	N	N
Kershaw	1164334	01793	8/22/2005	9P	9:00 PM	Night	MO	Jackson	LAKE OF THE WOODS	2.29	ANGL	0	0	0	03	0	0	0	000	0	DRY	CLR	DARK	2	11	11	0	1	0	1	0	N	N	N
Kershaw	1170139	02349	11/18/2005	8P	8:00 PM	Night	SA	Jackson	LAKE OF THE WOODS	2.29	TURN	0	0	0	02	0	0	0	000	0	DRY	CLR	DLIT	2	11	11	0	0	0	0	0	N	N	N
Kershaw	1217154	02150	10/21/2006	10A	10:00 AM	Midday	SA	Jackson	LAKE OF THE WOODS	2.29	TURN	0	0	0	02	0	0	0	004	028	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Kershaw	1164341	01800	8/25/2005	11A	11:00 AM	Midday	SA	Jackson	LAKE OF THE WOODS	2.29	TURN	082	0	0	02	0	0	0	028	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Kershaw	1160088	01250	6/27/2005	8A	8:00 AM	AM	MO	Jackson	LAKE OF THE WOODS	2.29	ANGL	0	0	0	02	0	0	0	000	0	DRY	CLR	DAY	2	11	11	0	2	0	1	1	N	N	N
Kershaw	1164648	01647	8/6/2005	7P	7:00 PM	Night	SA	Jackson	LAKE OF THE WOODS	2.29	ANGL	079	0	0	02	0	0	0	000	0	DRY	CLR	DAY	2	11	11	0	2	0	0	2	N	N	N
Kershaw	1171009	02185	10/7/2005	6A	6:00 AM	AM	SA	Jackson	LAKE OF THE WOODS	2.29	ANGL	0	0	0	02	0	0	0	000	0	DRY	CLR	DAWN	2	11	11	0	2	0	1	1	N	N	N
Kershaw	1327679	00717	4/17/2009	7A	7:00 AM	AM	SA	Jackson	LAKE OF THE WOODS	2.29	ANGL	010	0	0	02	0	0	0	000	0	DRY	CLD	DAY	2	11	11	0	2	2	0	0	N	N	N
Kershaw	1159158	01100	6/5/2005	12A	12:00 PM	Midday	SU	Jackson	LAKE OF THE WOODS	2.29	TURN	0	0	0	02	0	0	0	000	0	DRY	CLR	DARK	2	11	11	0	1	0	0	1	N	N	N
Kershaw	1285167	00761	5/21/2008	5P	5:00 PM	PM	SA	Jackson	LAKE OF THE WOODS	2.29	ANGL	0	0	0	02	0	0	0	000	0	DRY	CLR	DAY	2	11	11	0	2	0	0	2	N	N	N
Kershaw	1293306	01348	8/17/2008	12P	12:00 AM	Night	SU	Jackson	LAKE OF THE WOODS	2.29	ANGL	0	0	0	02	0	0	0	000	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Kershaw	1349408	01539	8/5/2009	9P	9:00 PM	Night	SA	Jackson	LAKE OF THE WOODS	2.29	ANGL	0	0	0	14	0	0	0	021	0	DRY	CLR	DAY	2	11	11	0	3	0	2	1	N	N	N
OR 140	1303379	02194	12/22/2008	11A	11:00 AM	Midday	MO	Jackson	LAKE OF THE WOODS	2.3	FIX	079	088	092	10	26	0	0	081	0	WET	RAIN	DAY	1	11	0	0	0	0	0	0	N	N	N
OR 140	1247656	01292	6/26/2007	1P	1:00 PM	Midday	SA	Jackson	LAKE OF THE WOODS	2.59	ANGL	0	0	0	02	0	0	0	000	0	DRY	CLR	DAY	2	11	11	0	2	0	1	1	N	N	N
OR 140	1164355	01658	8/8/2005	6A	6:00 AM	AM	MO	Jackson	LAKE OF THE WOODS	3.29	REAR	0	0	0	07	0	0	0	042	0	DRY	CLR	DAY	2	11	11	0	1	0	1	0	N	N	N
Riley	1212560	01827	8/10/2006	4P	4:00 PM	PM	SA	Jackson	LAKE OF THE WOODS	3.58	REAR	079	0	0	10	0	0	0	026	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Riley	1282931	00608	4/10/2008	5P	5:00 PM	PM	SA	Jackson	LAKE OF THE WOODS	3.59	ANGL	092	0	0	10	26	0	0	080	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Riley	1242956	01097	5/28/2007	2P	2:00 PM	Midday	MO	Jackson	LAKE OF THE WOODS	3.59	REAR	0	0	0	07	0	0	0	026	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Riley	1200605	01339	6/16/2006	3P	3:00 PM	PM	SA	Jackson	LAKE OF THE WOODS	3.59	TURN	0	0	0	02	08	0	0	004	002	DRY	CLR	DAY	2	11	11	0	2	2	0	0	N	N	N
Riley	1181349	02306	10/16/2005	9A	9:00 AM	Midday	SU	Jackson	LAKE OF THE WOODS	3.59	ANGL	0	0	0	02	0	0	0	000	0	DRY	CLR	DAY	2	11	11	0	2	0	2	0	N	N	N
Riley	1247629	01241	6/23/2007	1P	1:00 PM	Midday	SA	Jackson	LAKE OF THE WOODS	3.59	TURN	082	0	0	02	0	0	0	000	0	DRY	CLR	DAY	2	11	11	0	5	0	5	0	N	N	N
OR 140	1200686	01089	5/17/2006	6P	6:00 PM	Night	SA	Jackson	LAKE OF THE WOODS	4.55	SS-O	0	0	0	06	13	0	0	045	031	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
OR 140	1242949	01083	5/27/2007	4A	4:00 AM	Night	SU	Jackson	LAKE OF THE WOODS	4.67	FIX	079	010	0	16	0	0	0	080	081	DRY	CLD	DARK	1	11	0	0	1	0	1	0	N	N	N
Meridian	1143868	00408	2/12/2005	6P	6:00 PM	Night	SA	Jackson	LAKE OF THE WOODS	5.03	FIX	101	0	0	12	0	0	0	000	0	WET	RAIN	DARK	1	11	0	0	0	0	0	0	N	N	N
Meridian	1214513	01886	9/12/2006	4P	4:00 PM	PM	SA	Jackson	LAKE OF THE WOODS	5.03	REAR	0	0	0	07	27	0	0	016	043	DRY	CLR	DAY	2	11	11	0	1	0	1	0	N	N	N
Meridian	1298977	01723	10/9/2008	6P	6:00 PM	Night	SA	Jackson	LAKE OF THE WOODS	5.03	ANGL	0	0	0	02	0	0	0	000	0	WET	RAIN	DUSK	2	11	11	0	1	0	0	1	N	N	N
Meridian	1148981	00816	4/18/2005	3P	3:00 PM	PM	MO	Jackson	LAKE OF THE WOODS	5.03	REAR	0	0	0	07	0	0	0	026	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Meridian	1250838	01352	7/9/2007	5P	5:00 PM	PM	MO	Jackson	LAKE OF THE WOODS	5.03	TURN	0	0	0	06	32	27	0	080	031	DRY	CLR	DAY	2	11	11	0	1	0	1	0	N	N	N
OR 140	1200722	01230	6/1/2006	10P	10:00 PM	Night	SA	Jackson	LAKE OF THE WOODS	6	FIX	079	010	0	01	0	0	0	081	047	DRY	CLD	DARK	1	11	0	0	1	0	1	0	N	N	Y
OR 140	1165547	01586	8/1/2005	12P	12:00 AM	Night	MO	Jackson	LAKE OF THE WOODS	6.37	REAR	043	0	0	10	27	07	0	052	043	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
OR 140	1186341	00148	1/24/2006	7A	7:00 AM	AM	SA	Jackson	LAKE OF THE WOODS	6.4	REAR	093	0	0	01	27	0	0	042	0	DRY	CLR	DAY	2	11	11	0	1	0	0	1	N	N	Y
OR 140	1159157	01097	6/4/2005	3P	3:00 PM	PM	SA	Jackson	LAKE OF THE WOODS	6.78	FIX	043	092	0	10	26	0	0	083	081	DRY	CLR	DAY	1	11	0	0	0	0	0	0	N	N	N

Intersection	Int. Code	Serial No	Date	Time	Time		Day	Co. Name/City	Roadway	MP	Coll Type	Event			Cause			Error			Surface	Weather	Daylight	Tot Veh	Vehicle	Vehicle	Kill	Inj	INJ_A	INJ_B	INJ_C	Alc	Drugs	Speed
OR 140	1225974	02855	12/22/2006	9A	9:00 AM	Midday	SA	Jackson	LAKE OF THE WOODS	7	NCOL	079	124	0	10	0	0	0	080	083	ICE	CLR	DAY	1	11	0	0	0	0	0	0	N	N	N
OR 140	1225976	02857	12/22/2006	9A	9:00 AM	Midday	SA	Jackson	LAKE OF THE WOODS	7.52	FIX	079	124	0	01	0	0	0	047	081	ICE	CLR	DAY	1	11	0	0	0	0	0	0	N	N	Y
Brownsboro-Eagle Pt	1230954	00384	2/16/2007	11A	11:00 AM	Midday	SA	Jackson	LAKE OF THE WOODS	7.98	FIX	043	092	0	10	26	0	0	081	0	DRY	CLR	DAY	1	11	0	0	0	0	0	0	N	N	N
Brownsboro-Eagle Pt	1349697	01875	9/18/2009	10P	10:00 PM	Night	SA	Jackson	LAKE OF THE WOODS	7.98	FIX	079	0	0	03	0	0	0	021	081	DRY	CLR	DARK	1	11	0	0	6	0	0	6	N	N	N
OR 140 (Blackwell)	1170308	02495	11/3/2005	8A	8:00 AM	AM	SA	Jackson	BLACKWELL RD	-8.26	TURN	0	0	0	02	0	0	028	0	0	WET	RAIN	DAY	2	11	11	0	0	0	0	0	N	N	N
Frontage (Blackwell)	1181345	02239	10/28/2005	7A	7:00 AM	AM	SA	Jackson	BLACKWELL RD	-8.19	TURN	0	0	0	02	0	0	000	0	0	WET	RAIN	DAWN	2	11	11	0	1	1	0	0	N	N	N
OR 140 (Blackwell)	1353260	01935	10/25/2009	7P	7:00 PM	Night	SU	Jackson	BLACKWELL RD	-8.02	SS-M	035	0	0	05	0	0	080	039	0	WET	CLD	DARK	2	11	41	0	2	1	0	1	N	N	N
OR 140 (Blackwell)	1289819	01107	6/6/2008	10A	10:00 AM	Midday	SA	Jackson	BLACKWELL RD	-8.01	FIX	079	037	053	10	0	0	081	0	0	DRY	CLD	DAY	1	11	0	0	1	0	1	0	N	N	N
OR 140 (Blackwell)	1247574	01165	6/1/2007	8P	8:00 PM	Night	SA	Jackson	BLACKWELL RD	-7.79	FIX	079	058	0	16	0	0	081	0	0	DRY	CLR	DAY	1	11	0	0	1	0	0	1	N	Y	N
OR 140 (Blackwell)	1174276	02821	12/18/2005	5A	5:00 AM	Night	SU	Jackson	BLACKWELL RD	-7.76	FIX	079	0	0	01	0	0	047	081	0	ICE	SLT	DARK	1	11	0	0	0	0	0	0	N	N	Y
OR 140 (Blackwell)	1181347	02280	10/24/2005	11A	11:00 AM	Midday	MO	Jackson	BLACKWELL RD	-7.52	REAR	0	0	0	10	0	0	026	052	0	DRY	CLR	DAY	2	11	11	0	2	0	1	1	N	N	N
OR 140 (Blackwell)	1283231	00272	2/1/2008	7A	7:00 AM	AM	SA	Jackson	BLACKWELL RD	-7.27	SS-M	079	0	0	01	0	0	047	081	0	ICE	CLR	DAY	2	11	11	0	0	0	0	0	N	N	Y
OR 140 (Blackwell)	1228568	00254	1/19/2007	7A	7:00 AM	AM	SA	Jackson	BLACKWELL RD	-7.26	BACK	0	0	0	02	0	0	011	028	0	WET	CLD	DAY	2	51	11	0	0	0	0	0	N	N	N
OR 140 (Blackwell)	1234635	00539	3/3/2007	9A	9:00 AM	Midday	SA	Jackson	BLACKWELL RD	-7.22	FIX	079	010	0	01	32	0	047	083	052	DRY	CLR	DAY	1	41	0	1	1	0	1	0	N	N	Y
OR 140 (Blackwell)	1186801	00171	1/15/2006	7A	7:00 AM	AM	SU	Jackson	BLACKWELL RD	-7.12	FIX	079	124	0	10	0	0	081	0	0	ICE	CLD	DAY	1	11	0	0	1	0	0	1	N	N	N
OR 140 (Blackwell)	1339329	00999	6/10/2009	7P	7:00 PM	Night	SA	Jackson	BLACKWELL RD	-7.12	FIX	079	0	0	32	01	0	047	052	081	WET	RAIN	DAY	1	11	0	0	1	0	0	1	N	N	Y
OR 140 (Blackwell)	1225016	02799	12/13/2006	5P	5:00 PM	PM	SA	Jackson	BLACKWELL RD	-7.06	REAR	0	0	0	07	0	0	026	0	0	WET	RAIN	DARK	2	11	11	0	1	0	0	1	N	N	N
OR 140 (Blackwell)	1282988	00649	4/12/2008	2P	2:00 PM	Midday	SA	Jackson	BLACKWELL RD	-7.05	TURN	0	0	0	02	0	0	000	0	0	DRY	CLR	DAY	2	91	11	0	1	0	1	0	N	N	N
Blackwell (Kirtland)	1181664	02235	10/26/2005	3P	3:00 PM	PM	SA	Jackson	BLACKWELL RD	-7.02	REAR	0	0	0	07	27	0	043	0	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Blackwell (Kirtland)	1160071	01283	6/17/2005	12A	12:00 PM	Midday	SA	Jackson	KIRTLAND RD	-7.02	TURN	0	0	0	08	0	0	004	0	0	DRY	CLR	DARK	2	11	11	0	1	0	1	0	N	N	N
Blackwell (Kirtland)	1200306	01280	6/12/2006	6A	6:00 AM	AM	MO	Jackson	KIRTLAND RD	-7.02	TURN	0	0	0	02	0	0	000	0	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Blackwell (Kirtland)	1294500	01458	8/11/2008	3P	3:00 PM	PM	MO	Jackson	KIRTLAND RD	-7.02	REAR	0	0	0	07	0	0	026	0	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Blackwell (Kirtland)	1321360	00034	1/2/2009	12P	12:00 AM	Night	SA	Jackson	KIRTLAND RD	-7.02	TURN	0	0	0	02	0	0	028	0	0	DRY	CLR	DAY	2	51	11	0	0	0	0	0	N	N	N
Blackwell (Kirtland)	1212523	01714	8/24/2006	5P	5:00 PM	PM	SA	Jackson	KIRTLAND RD	-7.02	TURN	0	0	0	02	0	0	000	0	0	DRY	CLR	DAY	2	11	11	0	2	1	1	0	N	N	N
Blackwell (Kirtland)	1250892	01430	7/21/2007	11A	11:00 AM	Midday	SA	Jackson	KIRTLAND RD	-7.02	TURN	0	0	0	02	0	0	000	0	0	DRY	CLR	DAY	2	11	11	0	5	1	4	0	N	N	N
OR 140 (Kirtland)	1224986	02708	12/20/2006	12P	12:00 AM	Night	SA	Jackson	KIRTLAND RD	-7.01	FIX	079	0	0	11	0	0	017	0	0	DRY	CLR	DAY	2	11	11	0	1	0	0	1	N	N	N
OR 140 (Kirtland)	1353216	01874	9/18/2009	4P	4:00 PM	PM	SA	Jackson	KIRTLAND RD	-6.97	REAR	0	0	0	07	0	0	026	0	0	DRY	CLR	DAY	2	11	11	0	1	0	0	1	N	N	N
OR 140 (Kirtland)	1352958	01566	8/26/2009	8A	8:00 AM	AM	SA	Jackson	KIRTLAND RD	-6.61	OTH	035	0	0	12	0	0	000	0	0	DRY	CLR	DAY	1	11	0	0	0	0	0	0	N	N	N
OR 140 (Kirtland)	1283023	00681	4/2/2008	5A	5:00 AM	Night	SA	Jackson	KIRTLAND RD	-6.56	FIX	053	0	0	10	0	0	081	0	0	DRY	CLR	DAWN	1	11	0	0	0	0	0	0	Y	N	N
OR 140 (Kirtland)	1235273	00368	2/10/2007	1P	1:00 PM	Midday	SA	Jackson	KIRTLAND RD	-6.31	FIX	079	010	0	10	0	0	080	081	0	WET	RAIN	DAY	1	11	0	0	2	0	2	0	N	N	N
OR 140 (Kirtland)	1177333	02681	12/3/2005	5A	5:00 AM	Night	SA	Jackson	KIRTLAND RD	-6.18	FIX	046	0	0	10	0	0	081	0	0	ICE	FOG	DARK	1	11	0	0	0	0	0	0	N	N	N
OR 140 (Kirtland)	1148646	00756	4/23/2005	8A	8:00 AM	AM	SA	Jackson	KIRTLAND RD	-5.87	FIX	079	037	0	27	12	0	025	016	081	WET	CLD	DAY	1	11	0	0	1	0	1	0	N	N	N
OR 140 (Kirtland)	1174198	02762	12/11/2005	6A	6:00 AM	AM	SU	Jackson	KIRTLAND RD	-5.87	FIX	079	010	0	01	0	0	047	0	0	ICE	CLD	DAWN	1	11	0	0	1	0	0	1	N	N	Y
OR 140 (Kirtland)	1247658	01294	6/27/2007	6A	6:00 AM	AM	SA	Jackson	KIRTLAND RD	-5.7	REAR	013	0	0	07	0	0	026	0	0	DRY	CLR	DAY	3	11	11	0	1	0	0	1	N	N	N
High Banks (Kirtland)	1246557	01128	6/7/2007	3P	3:00 PM	PM	SA	Jackson	KIRTLAND RD	-5.37	REAR	0	0	0	10	0	0	026	0	0	DRY	CLR	DAY	2	11	51	0	0	0	0	0	N	N	N
OR 140 (Kirtland)	1181350	02307	10/16/2005	7A	7:00 AM	AM	SU	Jackson	KIRTLAND RD	-5.06	FIX	079	034	0	10	0	0	081	0	0	DRY	FOG	DAWN	1	11	0	0	0	0	0	0	N	N	N
OR 140 (Kirtland)	1186779	00073	1/5/2006	7A	7:00 AM	AM	SA	Jackson	KIRTLAND RD	-5.06	REAR	0	0	0	07	0	0	026	0	0	WET	FOG	DAWN	2	11	11	0	2	0	1	1	N	N	N
OR 140 (Kirtland)	1186799	00162	1/12/2006	9A	9:00 AM	Midday	SA	Jackson	KIRTLAND RD	-5.06	REAR	0	0	0	01	0	0	042	0	0	WET	RAIN	DAY	2	11	11	0	0	0	0	0	N	N	Y
OR 140 (Kirtland)	1143885	00333	2/10/2005	5A	5:00 AM	Night	SA	Jackson	KIRTLAND RD	-4.87	SS-M	0	0	0	05	0	0	039	0	0	WET	FOG	DARK	2	11	11	0	1	0	1	0	N	N	N
OR 140 (Kirtland)	1242946	01079	5/26/2007	11P	11:00 PM	Night	SA	Jackson	KIRTLAND RD	-4.87	FIX	079	0	0	05	0	0	081	039	0	DRY	CLR	DARK	1	11	0	0	1	0	1	0	Y	N	N
OR 140 (Kirtland)	1354332	02547	12/5/2009	7A	7:00 AM	AM	SA	Jackson	KIRTLAND RD	-4.37	REAR	079	0	0	01	0	0	047	042	080	ICE	CLR	DAY	2	11	11	0	0	0	0	0	N	N	Y
OR 140 (Kirtland)	1234645	00551	3/2/2007	5A	5:00 AM	Night	SA	Jackson	KIRTLAND RD	-4.2	OTH	031	0	0	12	0	0	000	0	0	WET	CLD	DARK	1	11	0	0	0	0	0	0	N	N	N
OR 140 (Kirtland)	1234650	00557	3/2/2007	5A	5:00 AM	Night	SA	Jackson	KIRTLAND RD	-4.2	FIX	101	010	089	10	0	0	022	0	0	WET	CLD	DARK	1	11	0	0	1	0	1	0	N	N	N
OR 140 (Kirtland)	1212596	01858	8/17/2006	9A	9:00 AM	Midday	SA	Jackson	KIRTLAND RD	-3.7	TURN	0	0	0	08	0	0	000	0	0	DRY	CLR	DAY	2	51	11	0	1	0	0	1	N	N	N
OR 140 (Kirtland)	1250826	01339	7/7/2007	5P	5:00 PM	PM	SA	Jackson	KIRTLAND RD	-3.7	HEAD	010	0	0	05	32	27	039	080	052	DRY	CLR	DAY	2	11	11	0	4	2	1	1	N	N	N
Table Rock (Kirtland)	1139068	00070	1/9/2005	4P	4:00 PM	PM	SU	Jackson	KIRTLAND RD	-2.99	ANGL	0	0	0	02	0	0	000	0	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Table Rock (Kirtland)	1143873	00213	2/26/2005	9A	9:00 AM	Midday	SA	Jackson	KIRTLAND RD	-2.99	ANGL	010	0	0	02	0	0	028	0	0	DRY	FOG	DAY	2	11	11	0	3	1	2	0	N	N	N
Table Rock (Kirtland)	1152207	00968	5/1/2005	3P	3:00 PM	PM	SU	Jackson	KIRTLAND RD	-2.99	ANGL	0	0	0	02	0	0	000	0	0	DRY	CLR	DAY	2	11	11	0	3	0	0	3	N	N	N
Table Rock (Kirtland)	1168733	02135	10/12/2005	8P	8:00 PM	Night	SA	Jackson	KIRTLAND RD	-2.99	ANGL	0	0	0	02	0	0	000	0	0	DRY	CLR	DARK	2	11	11	0	0	0	0	0	N	N	N
Table Rock (Kirtland)	1170088	02228	10/31/2005	12P	12:00 AM	Night	MO	Jackson	KIRTLAND RD	-2.99	ANGL	0	0	0	01	02	0	047	0	0	DRY	CLR	DAY	2	11	11	0	3	0	2	1	N	N	Y
Table Rock (Kirtland)	1172293	02224	10/29/2005	12P	12:00 AM	Night	SA	Jackson	KIRTLAND RD	-2.99	ANGL	013	0	0	02	0	0	000	0	0	DRY	CLR	DAY	3	11	11	0	3	0	2	1	N	N	N
Table Rock (Kirtland)	1172297	02303	10/20/2005	4P	4:00 PM	PM	SA	Jackson	KIRTLAND RD	-2.99	ANGL	013	0	0	02	0	0	000	0	0	DRY	CLR	DAY	3	11	11	0	1	0	1	0	N	N	N
Table Rock (Kirtland)	1186812	00228	1/30/2006	3P	3:00 PM	PM	MO	Jackson	KIRTLAND RD	-2.99	ANGL	0	0	0	02	0	0	028	0	0	WET	RAIN	DAY	2	11	11	0	0	0	0	0	N	N	N
Table Rock (Kirtland)	1190576	00388	2/23/2006	6A	6:00 AM	AM	SA	Jackson	KIRTLAND RD	-2.99	ANGL	0	0	0	03	0	0	021	0	0	DRY	CLR	DAWN	2	11	11	0	2	1	0	1	N	N	N
Table Rock (Kirtland)	1195784	00737	4/12/2006	3P	3:00 PM	PM	SA	Jackson	KIRTLAND RD	-2.99	ANGL	0	0	0	03	0	0	000	0	0	WET	CLD	DAY	2	11	11	0	0	0	0	0	N	N	N
Table Rock (Kirtland)	1202075	01335	6/16/2006	11A	11:00 AM	Midday	SA	Jackson	KIRTLAND RD	-2.99	TURN	0	0	0	02	0	0	000	0	0	DRY	CLD	DAY	2	11	11	0	0	0	0	0	N	N	N
Table Rock (Kirtland)	1289617	00992	6/19/2008	5P	5:00 PM	PM	SA	Jackson	KIRTLAND RD	-2.99	TURN	0	0	0	02	0	0	004	028	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Table Rock (Kirtland)	1354311	02477	12/13/2009	11A	11:00 AM	Midday	SU	Jackson	KIRTLAND RD	-2.99	TURN	0	0	0	02	0	0	000	0	0	WET	CLD	DAY	2	11	11	0	1	0	1	0	N	N	N
OR 140 (Kirtland)	1352879	01540	8/5/2009	12P	12:00 AM	Night	SA	Jackson	KIRTLAND RD	-2.74	OTH	025	080	0	10	0	0	017	0	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Pacific (Ave G)	1322509	00393	2/25/2009	4A	4:00 AM	Night	SA	Jackson	PACIFIC AVE	-2.55	TURN	0	0	0	33	05	0	039	051	021	WET	CLD	DLIT	2	11	11	0	1	0	1	0	N	N	N
Pacific (Ave G)	1143884	00327	2/9/2005	8A	8:00 AM	AM	SA	Jackson	AVENUE G (WHITE CITY)	-2.55	FIX	058	088	0	01	0	0	081	047	0	ICE	FOG	DAY	1	11	0	0	0	0	0	0	N	N	Y
Pacific (Ave G)	1285744	00896	5/29/2008	2P	2:00 PM	Midday	SA	Jackson	AVENUE G (WHITE CITY)	-2.55	SS-M	0	0	0	01	05	32	047	039	052	DRY	CLD	DAY	2	11	11	0	0	0	0	0	N	N	Y
OR 140 (Ave G)	1328236	00667	4/6/2009	8A	8:00 AM	AM	MO	Jackson	AVENUE G (WHITE CITY)	-1.19	FIX	079	0	0	10	0	0	081	0	0	DRY	CLD	DAY	1	11	0	0	1	0	0	1	N	N	N
OR 140 (Agate)	1266665	02308	11/4/2007	8P	8:00 PM	Night	SU	Jackson	AGATE RD	-0.82	FIX	079	010	003	10	0	0	081	0	0	DRY	CLR	DARK	1	11	0	0	1	0	1	0	N	N	N
Antelope (Agate)	1151833	00933	5/6/2005	10A	10:00 AM	Midday	SA	Jackson	AGATE RD	-0.5	ANGL	0	0	0	03	0	0	021	0	0	WET	RAIN	DAY	2	11	11	0	1	0	0	1	N	N	N
Antelope (Agate)	1152698	00912	5/31/2005	3P	3:00 PM	PM	SA	Jackson	AGATE RD	-0.5	ANGL	0	0	0	02	0	0	000	0	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Antelope (Agate)	1263161	02135	10/20/2007	3P	3:00 PM	PM	SA	Jackson	AGATE RD	-0.5	TURN	0	0	0	08	0	0	004	0	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Antelope (Agate)	1339459	01078	6/15/2009	11A	11:00 AM	Midday	MO	Jackson	AGATE RD	-0.5	ANGL	013	0	0	04	0	0	020	0	0	DRY	CLR	DAY	3	11	11	0	3	0	0	3	N	N	N
Antelope (Agate)	1352753	01482	8/12/2009	11A	11:00 AM	Midday	SA	Jackson	AGATE RD	-0.5	TURN	0	0	0	02	0	0	004	028	0	DRY	CLR	DAY	2	11	11	0	0	0	0	0	N	N	N
Leigh (Agate)	1322519	00395	2/23/2009	12P	12:00 AM	Night	MO	Jackson	AGATE RD	-0.2	TURN	0	0	0	02	0	0	028	0	0	WET	RAIN	DAY	2	11	11	0	0	0	0	0	N	N	N
OR 140 (Leigh)	1283041	00743	4/18/2008	10A	10:00 AM	Midday	SA	Jackson	LEIGH WY (WHITE CTY)	-0.02	TURN	0	0	0	02	0	0	028	0	0	DRY	CLR	DAY	2	11	11	0	1	0	0	1	N	N	N
OR 140 (Leigh)	1283384	00739	4/17/2008	12P	12:00 AM	Night	SA	Jackson	LEIGH WY (WHITE CTY)	-0.02	TURN	0	0	0	02	0	0	028	0	0	DRY	CLR	DAY	2	41	11	0	1	0	0	1	N	N	N

OR 140 Corridor Plan:
I-5 Exit 35 to Brownsboro–Eagle Point Road

Technical Memorandum #5
Future System Conditions Analysis

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March 2013

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5. FUTURE SYSTEM CONDITIONS ANALYSIS

This memorandum summarizes the analysis of future baseline conditions which examines long-term highway operational and safety concerns. It expands on the existing traffic conditions "snapshot" by examining how the system is expected to operate for a planning horizon of Year 2034. Future deficiencies are identified based on policies, standards, and goals and objectives established for the corridor plan.

5.1. Future Traffic Volume Development

The future baseline analysis is based on one land use scenario which is consistent with the Rogue Valley Metropolitan Planning Organization (RVMPO) Regional Transportation Plan (RTP) forecasts through the year 2034.

5.1.1. Travel Demand Forecasting Model

The future traffic model volumes are developed from the RVMPO travel demand forecasting model. The model relies on socioeconomic data (e.g., households and employment) to determine travel demand and system attributes (e.g., roadway capacity, speeds, and distances) to represent the transportation supply. The RVMPO currently uses the EMME/2 computer program for estimating travel demand.

The travel demand model for the RTP was developed for a base year of 2006 and a forecast year of 2034. Population forecasts were developed from Jackson County's comprehensive plan and are consistent with the official forecasts produced by the Office of Economic Analysis (OEA). The employment forecasts were developed from a number of different sources including the Economic Opportunities Analysis conducted in the RVMPO planning area in 2007, U.S. Commerce Department data, shorter term economic forecasts by the state OEA, Oregon Employment Department data and outlook, and consultation with local jurisdictions. The resulting population and employment forecasts for the region are summarized in Table 5-1.

Table 5-1. Regional Transportation Plan Growth Forecasts

	2006	2009	2015	2020	2026	2034
Households	64,678	69,302	76,670	82,582	89,504	98,486
Population	157,272	172,665	191,994	207,502	225,596	248,324
Employment	110,459	115,430	125,371	133,566	148,772	150,666

Source: 2009-2034 Regional Transportation Plan, April 27, 2009, Table 2.2-3: RTP Summary Forecasts

The roadway network used in the travel demand forecasts for the OR 140 Corridor Plan is the financially-constrained RTP network with Phases 1 and 2 (Unit 2) of the OR 62: I-5 to Dutton Road project, which terminates just south of the OR 140 intersection with OR 62.

5.1.2. Turning Movement Volumes

Turning movement traffic forecasts for the study area intersections were developed from the 2006 and 2034 forecasting models and the 2010 existing traffic data. The process generally followed the procedures from ODOT's Analysis Procedures Manual (APM)[1]. However, some additional traffic diversions were applied to the initial forecasts to reflect anticipated congestion at the OR 140/OR 62 intersection. The resulting volumes are shown in Figure 5-1 for the 2034 RTP scenario.

5.1.3. Average Annual Daily Traffic Volumes

Estimated 2034 average annual daily traffic (AADT) volumes along OR 140 are summarized in Table 5-2 and compared with volumes from year 2009 and 2010 (the most recent count data available from the ODOT Transportation Data Section). Because the AADT volumes at some locations vary so much between 2009 and 2010, a range of future AADT is shown for Year 2034. The calculated growth in AADT was derived from the peak hour volume growth developed from the RVMPO travel demand model.

Table 5-2. Average Annual Daily Traffic (AADT)

Mile-point	Count Location	Average Annual Daily Traffic Volume[1]			Approx. Growth
		2009	2010	2034[2]	
West of White City UUC Boundary					
-8.07	0.10 miles NW of Dean Creek Frontage Rd	8,400	5,200	9,000-12,000	3,000-4,000
-6.97	0.05 miles N of Blackwell Rd	7,300	4,300	7,000-10,000	2,500-3,500
White City (within UUC Boundary)					
-2.76	0.05 miles W of Pacific Avenue	4,100	2,900	6,000-8,000	3,000-4,000
-1.21	0.05 miles W of Agate Rd	4,400	3,300	7,000-9,000	4,000-5,000
-0.05	0.05 miles W of OR62	3,400	3,400	7,000-9,000	4,000-5,000
0.12	0.12 miles E of OR 62	5,400	5,600	9,000-10,000	3,500-4,500
East of White City UUC Boundary					
2.31	0.02 miles E of Kershaw Rd	5,000	5,600	8,000-9,000	2,500-3,500
3.69	0.10 miles E of Riley Rd	3,600	3,500	5,000-6,000	1,500-2,500
7.96	0.02 miles SW of Brownsboro-Eagle Point Rd	3,100	3,000	5,000-6,000	2,000-3,000

Notes:
1. The Transportation Systems Monitoring Unit compiles the traffic count information for the state highway system.
2. The 2034 estimates of AADT are based on peak hour traffic volumes.

Source: 2009 Transportation Volume Tables, ODOT Transportation Data Section, Transportation Systems Monitoring Unit and David Evans and Associates, Inc.

In general, traffic volumes on OR 140 are expected to grow by 3,000 to 4,000 vehicles per day along all segments of the corridor. The one area where growth is expected to be higher is

[1] Analysis Procedures Manual, Oregon Department of Transportation, Transportation Development Division Planning Section, Transportation Planning and Analysis Unit, Salem, Oregon, April, 2006, Section 4.3.

immediately west of OR 62, where construction of Phases 1 and 2 (Unit 2) of the OR 62: I-5 to Dutton Road project would change traffic circulation patterns.

Although volume growth in the corridor would be fairly consistent, the percentage of growth would vary depending on the existing volume of traffic. Near I-5, where existing volumes are highest, the forecast traffic growth rate is lower. Areas with low existing traffic volumes are forecast to have higher overall traffic growth rates.

5.1.4. Traffic Distribution

To understand the through traffic demands on OR 140 and how much is locally generated by adjacent land uses, the RVMPO travel demand model was used to estimate where traffic is coming from (origins) and going to (destinations) for two segments of OR 140. The general traffic distribution for the segment of OR 140 on Kirtland Road west of Antelope Road is illustrated in Figure 5-2 and the segment of OR 140 east of OR 62 is illustrated in Figure 5-3.

OR 140/Kirtland Road west of Antelope Road

This segment was selected because it is located west of most of the localized activity associated with White City and it has no nearby parallel routes that could be carrying traffic with a similar distribution. The key findings illustrated in Figure 5-2 are:

- Only 20 percent of the traffic on this segment of OR 140 is estimated as through traffic traveling to/from areas east of the Rogue Valley metropolitan area. This traffic may use several routes (i.e., Antelope Road or Avenue G) to travel through White City.
- Approximately 75 percent of the traffic on this segment of OR 140 is estimated as traveling to/from Interchange 35 to access I-5 north.
- Approximately 50 percent of the traffic on this segment of OR 140 is estimated as traveling to/from OR 62 north of White City. This traffic would use the Jackson County portion of Avenue G between OR 62 and Agate Road to access OR 140 rather than traveling further to the south.

OR 140 east of OR 62

This segment was selected because it lies just east of a major decision-point for traffic on OR 140. The key findings illustrated in Figure 5-3 are:

- Only 15 percent of the traffic on OR 140 east of OR 62 is estimated as traveling through along OR 140 to/from I-5 or lands near the freeway interchange.
- Approximately 45 percent of the traffic west of this segment of OR 140 is estimated as traveling to/from OR 62 south of White City while the remaining 40 percent is estimated as traveling to/from the White City industrial areas and some of the lands to the south.
- Approximately 30 percent of the traffic is estimated to be traveling to/from areas east of the Rogue Valley metropolitan area.

5.2. Future Transportation Network

The transportation network used in the future operations analysis includes the following capacity improvement projects directly related to OR 140:

1. Kirtland Road/Avenue G: Table Rock to 700 feet E of Pacific Avenue – Straighten 90-Degree Curves *(STIP Key Number 17253, RVMPO RTP # 805)*
2. OR 62 & OR 140 Intersection: Relocate signal and modify lane configuration *(STIP Key Number 17471)*
3. Foothills Road: Corey Road to Atlantic Street – New two lane rural major collector and signal *(RVMPO RTP # 809)*
4. OR 62: I-5 to Dutton Road (Corridor Solutions) Unit 2 (Phase 1 and 2) – Modernization project to relieve congestion *(STIP Key Nos. 13226, 13994, 17188)*

Note: The network <u>does not</u> include construction of the OR 62 Full Corridor Solution.

5.3. Intersection Results

The future baseline analysis intersection results are summarized below in tabular form and compared to the Oregon Highway Plan (OHP) mobility standards. All Synchro and SimTraffic output worksheets are provided in Appendix 5-A. Table 5-3 presents the results of the traffic operations analysis on critical intersection approaches and Table 5-4 presents the 95th percentile queuing estimates. Figure 5-4 illustrates the operations for all intersection movements.

Six intersections are expected to have v/c ratios that would exceed the applicable OHP targets under future conditions. Four of these intersections would have demand that is forecast to be at or exceed highway capacity (v/c >= 1.0).

Both of the I-5 Exit 35 ramp intersections are shown to have v/c ratios above the OHP mobility target. The Draft I-5 Exit 35 IAMP includes projects to address these deficiencies but they have not been assumed in the baseline traffic operations analysis because funding has not been identified. The I-5 Southbound Ramps at OR 99/Willow Springs Road would operate with a v/c ratio of 0.99. Operations at this intersection are expected to exceed ODOT mobility standards sometime in the next 5 to 10 years. The I-5 Northbound off-ramp would have a v/c ratio of 1.36 with operations also expected to exceed the OHP mobility standard sometime in the next 5 to 10 years. ODOT's preliminary traffic signal warrants do not support the need for a traffic signal at the northbound off-ramp in the next 20 years[2].

[2] TPAU uses Signal Warrants 1, Case A and Case B (MUTCD), which deal primarily with high volumes on the intersecting minor street and high volumes on the major-street. 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.

Table 5-3. Future (2034) Baseline Intersection Operations

Intersection	Milepoint	Critical/ Controlling Movement[1]	2034 PM Peak Hour			Operational Standards[3]
			V/C Ratio[2]	LOS[2]	Delay[2] (sec.)	
West of White City UUC Boundary						
1. OR 99/I-5 SB Ramps (Signal)	0.34	Overall	**0.99**	D	268	0.85
2. OR 140 (Blackwell Rd)/I-5 NB Ramps	-8.29	WB L/T	**1.36**	F	19	0.85
3. OR 140/Blackwell Rd/Kirtland Rd	-7.02	EB L	**0.97**	F	27	0.90
4. OR 140 (Kirtland Rd)/High Banks Rd	-5.37	WB L/T/R	0.52	A	11	0.90
White City (within UUC Boundary)						
5. OR 140 (Kirtland Rd)/W Antelope Rd	-3.74	WB L/T	0.32	A	7	0.85
6. OR 140 (Kirtland Rd)/Table Rock Rd (Signal)	-2.99	Overall	0.54	B	24	0.85
7. OR 140 (Ave G)/5th Street	-1.95	WB L/T	0.37	A	2	0.85
8. OR 140 (Ave G)/8th Street	-1.64	WB L/T	0.31	A	1	0.85
9. OR 140 (Ave G)/11th Street	-1.29	EB L/T/R	0.37	A	3	0.85
10. OR 140/Ave G/Agate Rd	-1.16	EB L/T/R	**1.07**	F	40	0.85
11. OR 140 (Agate Rd)/Antelope Rd (Signal)	-0.50	Overall	0.66	C	35	0.85
12. OR 140/Agate Rd/Leigh Way	-0.20	WB L	0.75	F	19	0.85
13. OR 140 (Leigh Way)/OR 62 (Signal)	0.00	Overall	**1.03**	E	335	0.85
14. OR 140/Lakeview Dr	1.03	EB L/T/R	0.61	A	10	0.85
20. OR 140/Foothill Rd (Signal)	1.69	Overall	0.70	B	16	0.85
East of White City UUC Boundary						
15. OR 140/Kershaw Rd[4]	2.29	SB L/T/R	**1.00**	F	16	0.85
16. OR 140/Riley Rd/E Antelope Rd	3.59	EB L/T/R	0.34	A	9	0.85
17. OR 140/Meridian Rd	5.03	EB L/T/R	0.24	A	8	0.85
18. OR 140/Brownsboro Meridian Rd	7.41	NEB L/T/R	0.22	A	14	0.70
19. OR 140/Brownsboro-Eagle Point Rd	7.98	EB L/R	0.22	A	5	0.70

Acronyms: For intersection approaches NB = northbound, SB = southbound, EB = eastbound, and WB = westbound. At the intersection approach L = left-turn movement, T = through movement, and R right-turn movement. Some approaches have shared lanes where two or more travel movements may be permitted as indicated with a slash.

Notes:
1. The critical movement at a signalized intersection is the overall operation of the intersection. The controlling movement at an unsignalized intersection is the movement with the worst v/c ratio.
2. The v/c ratio and LOS are provided from Synchro HCM Intersection Analysis Reports, while delay values are from SimTraffic.
3. Mobility standards are drawn from Table 6 of the 1999 OHP as amended December 21, 2011. All study area intersections are within the MPO, with the exception of intersections 18 and 19, which are outside the MPO.
4. Analysis does not assume turn restrictions at Kershaw Road intersection that could be part of the Foothill Road extension and traffic signal.

Shaded results indicate where mobility standards are not met

The intersection of Kirtland/Blackwell Road is calculated to operate with a v/c ratio of 0.97 under future baseline conditions and is expected to exceed mobility standards sometime beyond the next 10 years. However, if drivers at the eastbound approach were to take advantage of the center median refuge on Kirtland Road to execute a two-stage left-turn movement, then the v/c ratio may be as low as half what is shown in the table. Currently the median has a double yellow line, which would indicate traffic should not enter the median and this would need to change for analysis to assume the two-stage left turn.

The eastbound approach to the intersection of Avenue G/Agate Road is expected to operate with a v/c ratio of 1.07 under future baseline conditions. Assuming even rates of traffic growth on all approaches, this intersection is expected to exceed the OHP mobility standard in about 10 years but continue to operate below capacity for as long as 15 years.

Although the analysis assumes STIP Project 17471 will add a separate westbound left-turn lane on OR 140 at OR 62, the intersection is still expected to have a v/c ratio of 1.03 by Year 2034. The intersection already operates at the OHP mobility standard under existing conditions. As congestion increases at this intersection, traffic diversions to other roadways, particularly Antelope Road and Agate Road, are anticipated.

Operations on the northbound approach of Kershaw Road at OR 140 are expected to near capacity under future baseline conditions. Traffic demand will likely shift to the signalized Foothill Road intersection; however, congestion and delays on Kershaw Road could become a significant concern until the Foothill connection is constructed.

Table 5-4. Future (2034) Baseline 95th Percentile Queues Exceeding Available Storage

Intersection	Approach & Movement	95th Percentile Queue (ft.)	Available Storage (ft.)	Percent Time Blocked[1]
1. OR 99/I-5 SB Ramps (Signal)	SB L	700	475 [3]	16%
3. OR 140/Blackwell Rd/Kirtland Rd	EB R	100	50 [3]	21%
11. OR 140 (Agate Rd)/Antelope Rd (Signal)	EBL	150	75 [3]	5%
	WBL	225	75 [3]	33%
	NBL	175	100 [3]	16%
	SBL	175	100 [3]	3%
13. OR 140 (Leigh Way)/OR 62 (Signal)	EB L	225	150 [3]	75%
	EB TR	875	370 [2]	
	WB L	425	200 [3]	63%
	WB T	>1,000	615 [2]	
	NB L	525	300 [3]	43%
	NB T	>1,000	400 [2]	
	NB R	350	50 [3]	10%
	SB T/R	900	425 [2]	

Acronyms: For intersection approaches NB = northbound, SB = southbound, EB = eastbound, and WB = westbound. At the intersection approach L = left-turn movement, T = through movement, and R right-turn movement. Some approaches have shared lanes where two or more travel movements may be permitted as indicated with a slash.

Notes:

1. Percent time block reflects the percentage of time when the queue either extends out of a storage bay and interferes with the adjacent through travel lane or extends past the next upstream intersection.
2. Storage distance reflects spacing to the next public access point.
3. Storage distance reflects length of travel lane or turn bay.

Four intersections are also expected to experience occasional queuing in excess of the storage bay length or reach/surpass a public access point. Some queue spillover in the southbound left-turn lane at the I-5 Southbound ramps is anticipated but the storage can be extended because

of the two-way left-turn lane. Queuing for the eastbound right turns would mix with the queues for the eastbound left-turn lane because of the short storage distance. At the intersection of OR 140 (Agate Road)/Antelope Road some queue spillover is anticipated for the eastbound and westbound left-turn lanes but storage can be extended because of the two-way left-turn lane. Additionally, occasional queuing in excess of the storage bay length is anticipated for the northbound and southbound left-turn lanes which may spillover into the adjacent through travel lane. The most significant queuing would occur at the OR 140/OR 62 intersection and all approaches would be affected because capacity at this intersection is not anticipated to be adequate to serve future demand.

5.4. Summary of Future Deficiencies

Future operational deficiencies identified through the baseline analysis are summarized in Table 5-5.

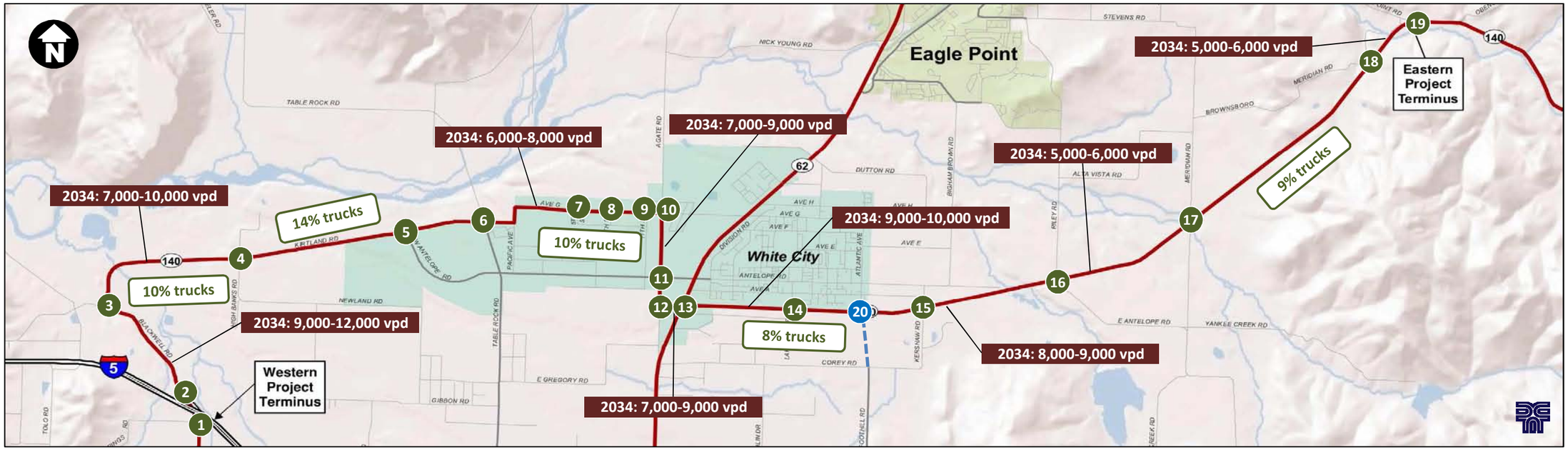
Table 5-5. Summary of Future Deficiencies

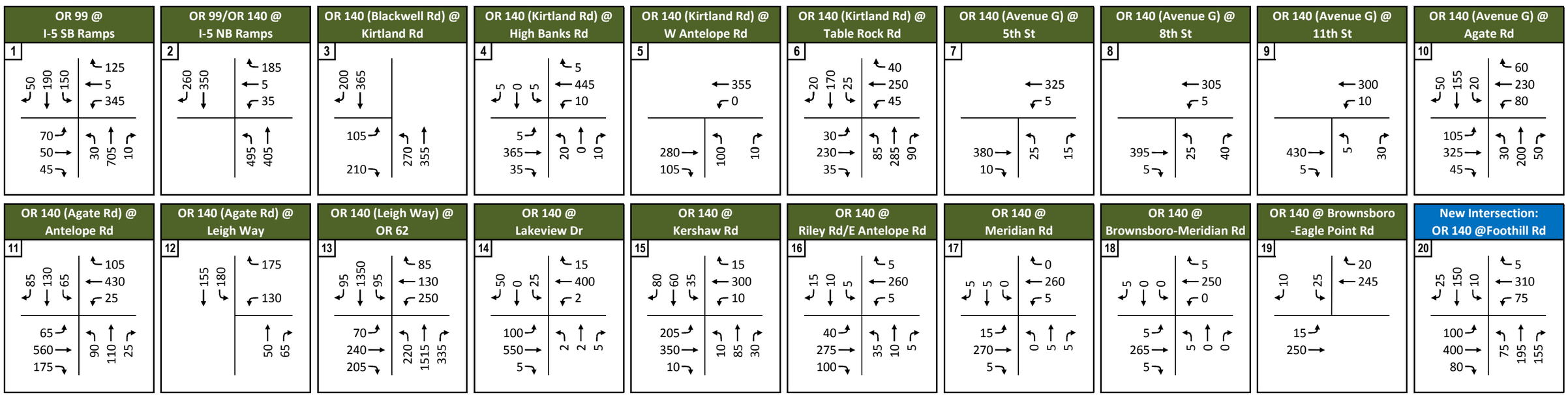
Deficiency	Location	Related Goals
Operations	▪ Six (6) intersections are expected to have v/c ratios that would not meet the applicable mobility targets under future conditions and four (4) of these intersections would have v/c ratios greater than 1.0: - OR 99 @ I-5 SB Ramps (signalized) - OR 140 @ I-5 NB Ramps - OR 140/Blackwell Rd @ Kirtland Rd - OR 140/Ave G @ Agate Rd - OR 140 @ OR 62 (signalized) - OR 140 @ Kershaw Rd	▪ Mobility ▪ Freight Movement

Attachments:

Figure 5-1. Future (2034) Baseline Conditions– Design Hour Traffic Volumes
Figure 5-2. Traffic Distribution on OR 140 – Kirtland Road west of Antelope Road
Figure 5-3. Traffic Distribution on OR 140 east of OR 62
Figure 5-4. Future (2034) Baseline Conditions – Traffic Operations

Appendix 5-A. Traffic Operations Worksheets





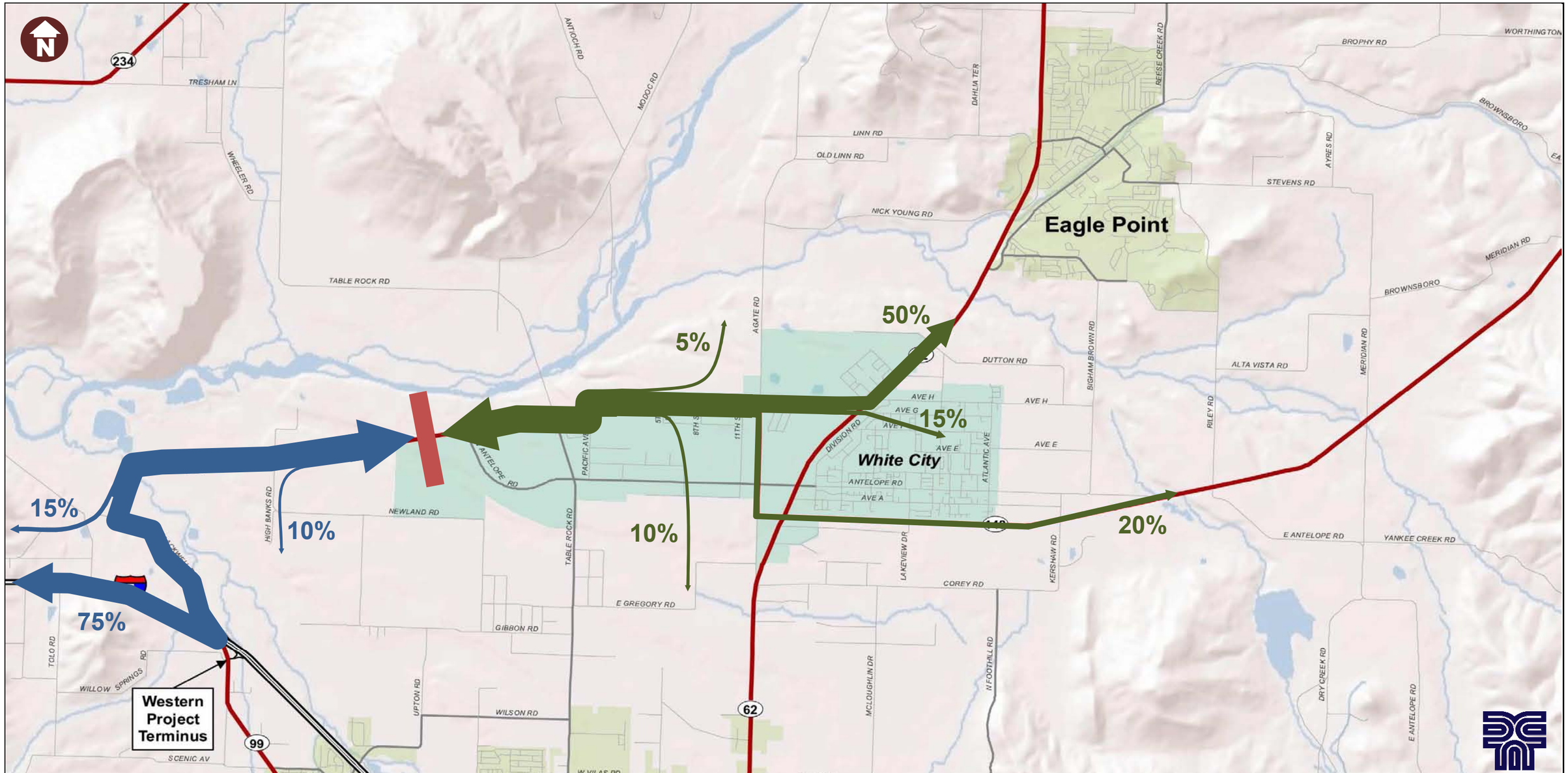
OR 140 Corridor Plan

Legend

2034: #,###-#,### vpd	2034 Forecast Range of Average Daily Traffic Volume (vehicles per day)
#% trucks	Truck (Single Unit and Semi-Trailer) Percentage of Total Traffic
#	Intersection Number
→	Turning Movement
###	Design Hourly Volume (PM Peak Hour)
- - -	Future Roadway Connection

Figure 5-1

Future (2034) Baseline Traffic Volumes



OR 140 Corridor Plan

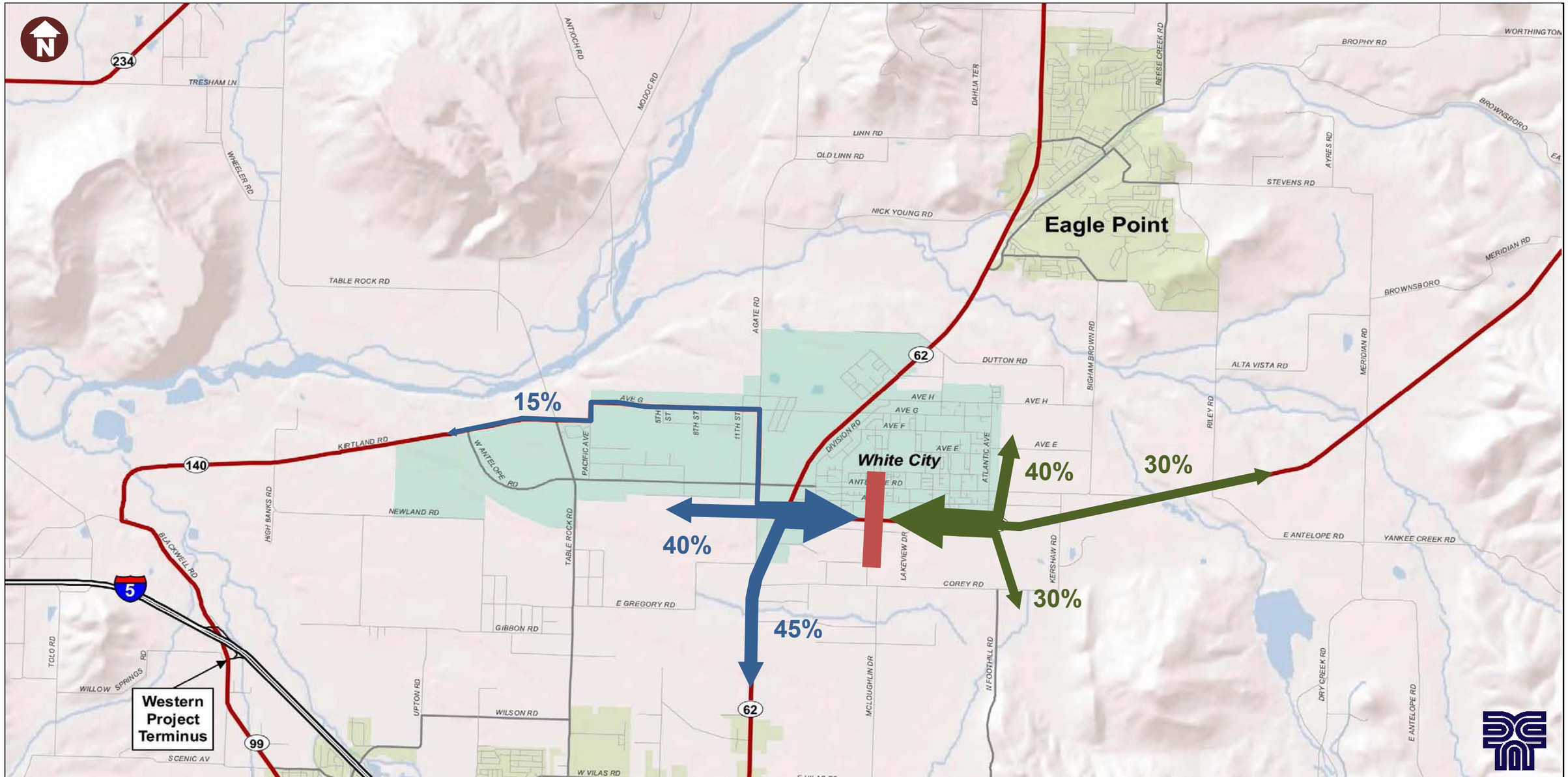
Legend

Selected Segment

Percent traffic traveling to/from selected segment

DRAFT Figure 5-2

2034 Traffic Distribution on OR 140 (Kirtland Road) west of Antelope Road



OR 140 Corridor Plan

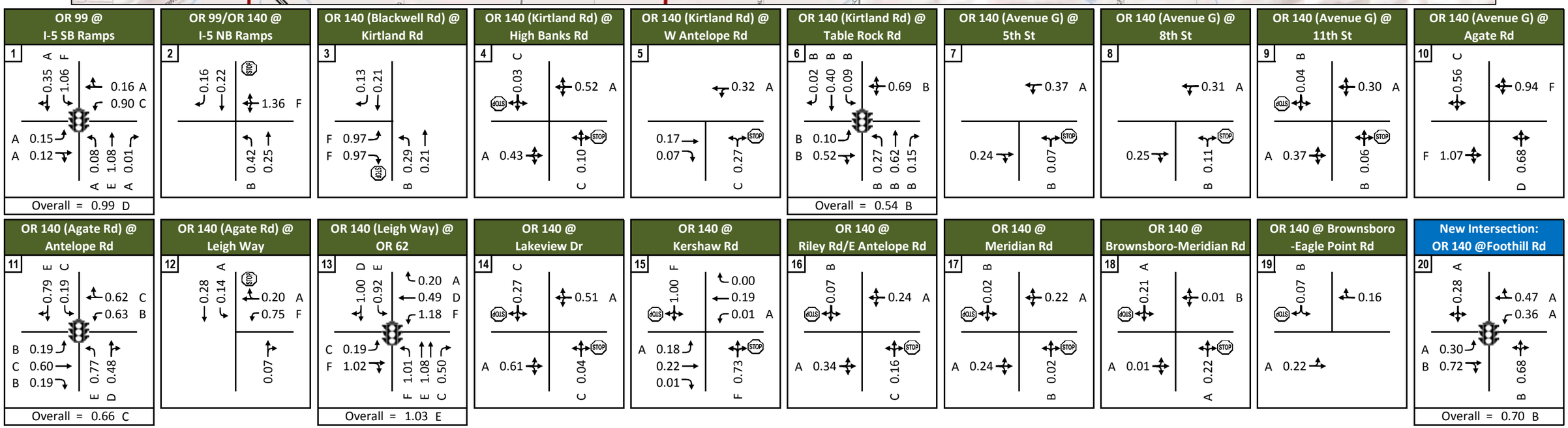
Legend

Selected Segment

Percent traffic traveling to/from selected segment

DRAFT Figure 5-3

2034 Traffic Distribution on OR 140 east of OR 62



OR 140 Corridor Plan

Legend

- # Intersection Number
- Lane Group
- 0.00 Volume-to-Capacity (V/C) Ratio
- A Level of Service (LOS)
- Traffic Signal
- STOP Sign

Figure 5-4

Future (2034) Baseline Conditions Traffic Operations

Appendix 5-A

Traffic Operations Worksheets

HCM Signalized Intersection Capacity Analysis
1: I-5 SB Ramps/Willow Springs & OR 99

10/23/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	50	45	360	5	120	30	695	15	150	190	45
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.93		1.00	0.86		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1595		1525	1178		1498	1651	1190	1511	1597	
Flt Permitted	0.67	1.00		0.69	1.00		0.61	1.00	1.00	0.23	1.00	
Satd. Flow (perm)	1155	1595		1112	1178		955	1651	1190	362	1597	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	68	53	47	379	5	126	32	732	16	158	200	47
RTOR Reduction (vph)	0	29	0	0	59	0	0	0	9	0	19	0
Lane Group Flow (vph)	68	71	0	379	72	0	32	732	7	158	228	0
Heavy Vehicles (%)	2%	2%	2%	9%	4%	28%	11%	6%	25%	10%	7%	4%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6		6	2		
Actuated Green, G (s)	16.8	16.8		16.8	16.8		18.1	18.1	18.1	18.1	18.1	
Effective Green, g (s)	16.3	16.3		16.3	16.3		17.6	17.6	17.6	17.6	17.6	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.41	0.41	0.41	0.41	0.41	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	439	606		423	448		392	677	488	149	655	
v/s Ratio Prot		0.04			0.06			c0.44			0.14	
v/s Ratio Perm	0.06			c0.34			0.03		0.01	0.44		
v/c Ratio	0.15	0.12		0.90	0.16		0.08	1.08	0.01	1.06	0.35	
Uniform Delay, d1	8.8	8.6		12.5	8.8		7.7	12.6	7.5	12.6	8.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.1		20.8	0.1		0.1	58.6	0.0	90.7	0.2	
Delay (s)	8.9	8.7		33.3	8.9		7.8	71.3	7.5	103.4	8.9	
Level of Service	A	A		C	A		A	E	A	F	A	
Approach Delay (s)		8.8			27.1			67.4			45.8	
Approach LOS		A			C			E			D	

Intersection Summary			
HCM Average Control Delay	46.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	42.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	35	10	185	470	410	0	0	350	260
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	0	37	11	195	495	432	0	0	368	274
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1892	1789	368	1789	1789	432	368			432		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1892	1789	368	1789	1789	432	368			432		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.2			2.2		
p0 queue free %	100	100	100	11	78	68	58			100		
cM capacity (veh/h)	20	47	677	41	47	613	1174			1128		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	242	495	432	368	274
Volume Left	37	495	0	0	0
Volume Right	195	0	0	0	274
cSH	178	1174	1700	1700	1700
Volume to Capacity	1.36	0.42	0.25	0.22	0.16
Queue Length 95th (ft)	358	53	0	0	0
Control Delay (s)	243.0	10.3	0.0	0.0	0.0
Lane LOS	F	B			
Approach Delay (s)	243.0	5.5		0.0	
Approach LOS	F				

Intersection Summary			
Average Delay	35.3		
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	100	205	265	340	345	205
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	105	216	279	358	363	216
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1279	363	579			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1279	363	579			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	17	68	71			
cM capacity (veh/h)	127	666	971			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	321	279	358	363	216
Volume Left	105	279	0	0	0
Volume Right	216	0	0	0	216
cSH	333	971	1700	1700	1700
Volume to Capacity	0.97	0.29	0.21	0.21	0.13
Queue Length 95th (ft)	257	30	0	0	0
Control Delay (s)	77.1	10.2	0.0	0.0	0.0
Lane LOS	F	B			
Approach Delay (s)	77.1	4.5		0.0	
Approach LOS	F				

Intersection Summary			
Average Delay	18.0		
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Kirtland Rd & High Banks Rd

10/23/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	365	35	10	445	5	20	0	10	5	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	5	384	37	11	468	5	21	0	11	5	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	474			421			911	908	403	916	924	471
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	474			421			911	908	403	916	924	471
tC, single (s)	4.3			4.6			7.2	7.0	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.7			3.6	4.5	3.4	3.5	4.0	3.3
p0 queue free %	99			99			91	100	98	98	100	99
cM capacity (veh/h)	1001			923			244	227	629	246	265	593

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	426	484	32	11
Volume Left	5	11	21	5
Volume Right	37	5	11	5
cSH	1001	923	306	347
Volume to Capacity	0.01	0.01	0.10	0.03
Queue Length 95th (ft)	0	1	9	2
Control Delay (s)	0.2	0.3	18.1	15.7
Lane LOS	A	A	C	C
Approach Delay (s)	0.2	0.3	18.1	15.7
Approach LOS			C	C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	280	105	0	355	100	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	295	111	0	374	105	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			405		668	295
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			405		668	295
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		74	99
cM capacity (veh/h)			1153		411	745

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	295	111	374	116
Volume Left	0	0	0	105
Volume Right	0	111	0	11
cSH	1700	1700	1153	428
Volume to Capacity	0.17	0.07	0.00	0.27
Queue Length 95th (ft)	0	0	0	27
Control Delay (s)	0.0	0.0	0.0	16.5
Lane LOS				C
Approach Delay (s)	0.0		0.0	16.5
Approach LOS				C

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	230	35	45	250	40	85	285	90	25	170	20
Ideal Flow (vphpl)	1785	1785	1785	1785	1785	1785	1785	1785	1785	1785	1785	1785
Total Lost time (s)	6.0	6.0			6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98			0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1570	1544			1596		1462	1716	1392	1556	1684	1214
Flt Permitted	0.55	1.00			0.91		0.60	1.00	1.00	0.58	1.00	1.00
Satd. Flow (perm)	906	1544			1468		930	1716	1392	945	1684	1214
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	32	242	37	47	263	42	89	300	95	26	179	21
RTOR Reduction (vph)	0	8	0	0	7	0	0	0	37	0	0	14
Lane Group Flow (vph)	32	271	0	0	345	0	89	300	58	26	179	7
Heavy Vehicles (%)	8%	12%	22%	5%	10%	10%	16%	4%	9%	9%	6%	25%
Turn Type	Perm			Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	15.5	15.5			15.5		14.9	12.9	12.9	13.3	12.1	12.1
Effective Green, g (s)	15.5	15.5			15.5		14.9	12.9	12.9	13.3	12.1	12.1
Actuated g/C Ratio	0.34	0.34			0.34		0.33	0.28	0.28	0.29	0.27	0.27
Clearance Time (s)	6.0	6.0			6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	2.5	2.5			2.0		1.5	2.5	2.5	1.5	2.5	2.5
Lane Grp Cap (vph)	308	525			499		327	485	394	292	447	322
v/s Ratio Prot		0.18					c0.01	c0.17		0.00	0.11	
v/s Ratio Perm	0.04				c0.23		0.08		0.04	0.02		0.01
v/c Ratio	0.10	0.52			0.69		0.27	0.62	0.15	0.09	0.40	0.02
Uniform Delay, d1	10.3	12.0			13.0		11.0	14.2	12.2	11.6	13.8	12.4
Progression Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.6			3.3		0.2	2.0	0.1	0.0	0.4	0.0
Delay (s)	10.4	12.7			16.3		11.2	16.2	12.4	11.7	14.2	12.4
Level of Service	B	B			B		B	B	B	B	B	B
Approach Delay (s)		12.5			16.3			14.5			13.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	14.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	45.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	330	15	55	295	40	55
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	347	16	58	311	42	58
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			363		782	355
vC1, stage 1 conf vol					355	
vC2, stage 2 conf vol					426	
vCu, unblocked vol			363		782	355
tC, single (s)			4.2		6.6	6.3
tC, 2 stage (s)					5.6	
tF (s)			2.3		3.6	3.4
p0 queue free %			95		92	91
cM capacity (veh/h)			1153		517	667

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	363	368	100
Volume Left	0	58	42
Volume Right	16	0	58
cSH	1700	1153	595
Volume to Capacity	0.21	0.05	0.17
Queue Length 95th (ft)	0	4	15
Control Delay (s)	0.0	1.7	12.3
Lane LOS		A	B
Approach Delay (s)	0.0	1.7	12.3
Approach LOS			B

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	380	10	5	325	25	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	400	11	5	342	26	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			411		758	405
vC1, stage 1 conf vol					405	
vC2, stage 2 conf vol					353	
vCu, unblocked vol			411		758	405
tC, single (s)			4.6		6.4	6.3
tC, 2 stage (s)					5.4	
tF (s)			2.7		3.5	3.4
p0 queue free %			99		95	97
cM capacity (veh/h)			932		564	626

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	411	347	42
Volume Left	0	5	26
Volume Right	11	0	16
cSH	1700	932	586
Volume to Capacity	0.24	0.01	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.2	11.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.2	11.6
Approach LOS			B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	395	5	5	305	25	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	416	5	5	321	26	42
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			421		750	418
vC1, stage 1 conf vol					418	
vC2, stage 2 conf vol					332	
vCu, unblocked vol			421		750	418
tC, single (s)			4.3		6.4	6.3
tC, 2 stage (s)					5.4	
tF (s)			2.4		3.5	3.4
p0 queue free %			100		95	93
cM capacity (veh/h)			1062		572	614

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	421	326	68
Volume Left	0	5	26
Volume Right	5	0	42
cSH	1700	1062	597
Volume to Capacity	0.25	0.00	0.11
Queue Length 95th (ft)	0	0	10
Control Delay (s)	0.0	0.2	11.8
Lane LOS		A	B
Approach Delay (s)	0.0	0.2	11.8
Approach LOS			B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	430	5	10	300	0	5	0	30	15	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	5	453	5	11	316	0	5	0	32	16	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	316			458			808	803	455	834	805	316
vC1, stage 1 conf vol							466	466		337	337	
vC2, stage 2 conf vol							342	337		497	468	
vCu, unblocked vol	316			458			808	803	455	834	805	316
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	100	95	97	100	99
cM capacity (veh/h)	1244			1103			492	485	605	457	481	725

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	463	326	37	21
Volume Left	5	11	5	16
Volume Right	5	0	32	5
cSH	1244	1103	586	503
Volume to Capacity	0.00	0.01	0.06	0.04
Queue Length 95th (ft)	0	1	5	3
Control Delay (s)	0.1	0.4	11.6	12.5
Lane LOS	A	A	B	B
Approach Delay (s)	0.1	0.4	11.6	12.5
Approach LOS			B	B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	105	325	45	130	230	60	30	200	50	20	155	50
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	111	342	47	137	242	63	32	211	53	21	163	53

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	500	442	295	237
Volume Left (vph)	111	137	32	21
Volume Right (vph)	47	63	53	53
Hadj (s)	0.02	0.01	-0.05	-0.08
Departure Headway (s)	7.7	7.7	8.3	8.5
Degree Utilization, x	1.07	0.94	0.68	0.56
Capacity (veh/h)	462	465	417	392
Control Delay (s)	88.8	55.7	26.8	21.8
Approach Delay (s)	88.8	55.7	26.8	21.8
Approach LOS	F	F	D	C

Intersection Summary			
Delay	55.7		
HCM Level of Service	F		
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	485	250	200	430	105	90	110	25	65	180	85
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1511	1667	1365	1458	1559		1421	1626		1630	1498	
Flt Permitted	0.42	1.00	1.00	0.28	1.00		0.21	1.00		0.54	1.00	
Satd. Flow (perm)	670	1667	1365	428	1559		315	1626		935	1498	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	68	505	260	208	448	109	94	115	26	68	188	89
RTOR Reduction (vph)	0	0	129	0	6	0	0	7	0	0	15	0
Lane Group Flow (vph)	68	505	131	208	551	0	94	134	0	68	262	0
Heavy Vehicles (%)	10%	5%	9%	14%	8%	13%	17%	5%	3%	2%	8%	18%
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	60.4	59.0	59.0	66.7	66.7		25.1	19.0		36.7	25.2	
Effective Green, g (s)	60.4	60.4	60.4	66.7	68.1		25.1	20.4		36.7	26.6	
Actuated g/C Ratio	0.50	0.50	0.50	0.56	0.57		0.21	0.17		0.31	0.22	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	5.4		4.0	5.4	
Vehicle Extension (s)	1.5	4.2	4.2	1.5	4.6		1.5	3.7		1.5	3.7	
Lane Grp Cap (vph)	360	839	687	331	885		122	276		357	332	
v/s Ratio Prot	0.01	c0.30		0.06	c0.35		c0.04	0.08		0.02	c0.18	
v/s Ratio Perm	0.09		0.10	0.29			0.12			0.04		
v/c Ratio	0.19	0.60	0.19	0.63	0.62		0.77	0.48		0.19	0.79	
Uniform Delay, d1	18.8	21.2	16.4	16.9	17.3		52.0	45.0		34.1	44.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	3.2	0.6	2.7	3.3		23.4	1.7		0.1	12.3	
Delay (s)	18.9	24.4	17.0	19.6	20.6		75.4	46.7		34.2	56.3	
Level of Service	B	C	B	B	C		E	D		C	E	
Approach Delay (s)		21.6			20.4			58.2			52.0	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM Average Control Delay	29.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	180	175	50	65	180	455
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	189	184	53	68	189	479
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	945	87			121	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	945	87			121	
tC, single (s)	6.4	6.4			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.3	
p0 queue free %	25	80			86	
cM capacity (veh/h)	251	919			1390	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	189	184	121	189	479
Volume Left	189	0	0	189	0
Volume Right	0	184	68	0	0
cSH	251	919	1700	1390	1700
Volume to Capacity	0.75	0.20	0.07	0.14	0.28
Queue Length 95th (ft)	135	19	0	12	0
Control Delay (s)	53.1	9.9	0.0	8.0	0.0
Lane LOS	F	A		A	
Approach Delay (s)	31.8		0.0	2.3	
Approach LOS	D				

Intersection Summary			
Average Delay	11.5		
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	240	205	200	180	85	220	1515	335	95	1050	95
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1502		1409	1699	1458	1599	3260	1390	1599	3188	
Flt Permitted	0.64	1.00		0.28	1.00	1.00	0.10	1.00	1.00	0.10	1.00	
Satd. Flow (perm)	1096	1502		409	1699	1458	172	3260	1390	163	3188	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	253	216	211	189	89	232	1595	353	100	1105	100
RTOR Reduction (vph)	0	26	0	0	0	67	0	0	38	0	6	0
Lane Group Flow (vph)	74	443	0	211	189	22	232	1595	315	100	1199	0
Heavy Vehicles (%)	2%	14%	2%	18%	3%	2%	4%	2%	7%	4%	3%	3%
Turn Type	pm+pt			pm+pt		Perm	pm+pt		Perm	pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		
Actuated Green, G (s)	34.8	32.8		25.5	25.5	25.5	52.2	52.2	52.2	45.2	43.2	
Effective Green, g (s)	34.8	34.8		25.5	27.5	27.5	52.2	54.2	54.2	45.2	45.2	
Actuated g/C Ratio	0.29	0.29		0.21	0.23	0.23	0.44	0.45	0.45	0.38	0.38	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	2.5	4.4	4.4	2.5	4.4	
Lane Grp Cap (vph)	399	436		179	389	334	229	1472	628	109	1201	
v/s Ratio Prot	0.03	c0.30		c0.11	0.11		0.11	c0.49		0.03	c0.38	
v/s Ratio Perm	0.03			c0.14		0.02	0.33		0.23	0.31		
v/c Ratio	0.19	1.02		1.18	0.49	0.07	1.01	1.08	0.50	0.92	1.00	
Uniform Delay, d1	32.4	42.6		45.0	40.1	36.2	34.8	32.9	23.3	54.5	37.4	
Progression Factor	1.03	1.05		1.00	1.00	1.00	1.17	0.93	0.92	0.71	0.63	
Incremental Delay, d2	0.2	47.3		123.6	0.7	0.1	46.2	44.6	1.5	36.3	17.3	
Delay (s)	33.6	91.9		168.6	40.8	36.3	87.0	75.2	23.0	75.2	40.7	
Level of Service	C	F		F	D	D	F	E	C	E	D	
Approach Delay (s)		83.9			95.1			68.0			43.3	
Approach LOS		F			F			E			D	

Intersection Summary			
HCM Average Control Delay	65.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	103.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	100	550	5	2	400	15	2	2	5	25	0	50
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	105	579	5	2	421	16	2	2	5	26	0	53
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	437			584			1278	1233	582	1232	1228	429
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	437			584			1278	1233	582	1232	1228	429
tC, single (s)	4.1			4.4			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.5			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			100			98	99	99	81	100	92
cM capacity (veh/h)	1123			854			121	160	513	140	161	626

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	689	439	9	79
Volume Left	105	2	2	26
Volume Right	5	16	5	53
cSH	1123	854	232	290
Volume to Capacity	0.09	0.00	0.04	0.27
Queue Length 95th (ft)	8	0	3	27
Control Delay (s)	2.3	0.1	21.1	22.0
Lane LOS	A	A	C	C
Approach Delay (s)	2.3	0.1	21.1	22.0
Approach LOS			C	C

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	205	350	10	10	300	15	10	85	30	35	60	80
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	216	368	11	11	316	16	11	89	32	37	63	84
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	332			379			1253	1153	368	1213	1147	316
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	332			379			1253	1153	368	1213	1147	316
tC, single (s)	4.1			4.2			7.1	6.5	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.4	3.5	4.0	3.3
p0 queue free %	82			99			87	44	95	50	61	88
cM capacity (veh/h)	1222			1137			80	161	666	74	162	725

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	216	368	11	11	316	16	132	184
Volume Left	216	0	0	11	0	0	11	37
Volume Right	0	0	11	0	0	16	32	84
cSH	1222	1700	1700	1137	1700	1700	179	183
Volume to Capacity	0.18	0.22	0.01	0.01	0.19	0.01	0.73	1.00
Queue Length 95th (ft)	16	0	0	1	0	0	116	209
Control Delay (s)	8.6	0.0	0.0	8.2	0.0	0.0	66.5	119.6
Lane LOS	A			A			F	F
Approach Delay (s)	3.1			0.3			66.5	119.6
Approach LOS							F	F

Intersection Summary			
Average Delay	26.1		
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	40	275	100	5	260	5	35	10	5	5	10	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	42	289	105	5	274	5	37	11	5	5	11	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	279			395			734	716	342	724	766	276
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	279			395			734	716	342	724	766	276
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.4
p0 queue free %	97			100			88	97	99	98	97	98
cM capacity (veh/h)	1284			1164			311	343	700	287	321	748

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	437	284	53	32
Volume Left	42	5	37	5
Volume Right	105	5	5	16
cSH	1284	1164	336	437
Volume to Capacity	0.03	0.00	0.16	0.07
Queue Length 95th (ft)	3	0	14	6
Control Delay (s)	1.1	0.2	17.7	13.9
Lane LOS	A	A	C	B
Approach Delay (s)	1.1	0.2	17.7	13.9
Approach LOS			C	B

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	270	5	5	260	0	0	5	5	0	5	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	16	284	5	5	274	0	0	5	5	0	5	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	274			289			611	603	287	611	605	274
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	274			289			611	603	287	611	605	274
tC, single (s)	4.2			4.1			7.1	6.5	6.7	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.8	3.5	4.0	3.3
p0 queue free %	99			100			100	99	99	100	99	99
cM capacity (veh/h)	1245			1272			394	406	651	394	405	765

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	305	279	11	11
Volume Left	16	5	0	0
Volume Right	5	0	5	5
cSH	1245	1272	500	530
Volume to Capacity	0.01	0.00	0.02	0.02
Queue Length 95th (ft)	1	0	2	2
Control Delay (s)	0.5	0.2	12.3	11.9
Lane LOS	A	A	B	B
Approach Delay (s)	0.5	0.2	12.3	11.9
Approach LOS			B	B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	5	5	0	0	5	265	5	0	250	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	5	5	0	0	5	279	5	0	263	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	558	561	266	563	561	282	268			284		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	558	561	266	563	561	282	268			284		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	99	100	100	100			100		
cM capacity (veh/h)	439	435	773	433	435	757	1295			1278		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	5	289	268
Volume Left	0	5	5	0
Volume Right	5	0	5	5
cSH	773	433	1295	1278
Volume to Capacity	0.01	0.01	0.00	0.00
Queue Length 95th (ft)	1	1	0	0
Control Delay (s)	9.7	13.4	0.2	0.0
Lane LOS	A	B	A	
Approach Delay (s)	9.7	13.4	0.2	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	31.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	15	250	245	20	25	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	16	263	258	21	26	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	279				563	268
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	279				563	268
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				95	99
cM capacity (veh/h)	1284				481	770

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	279	279	37
Volume Left	16	0	26
Volume Right	0	21	11
cSH	1284	1700	539
Volume to Capacity	0.01	0.16	0.07
Queue Length 95th (ft)	1	0	5
Control Delay (s)	0.6	0.0	12.2
Lane LOS	A		B
Approach Delay (s)	0.6	0.0	12.2
Approach LOS			B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection Sign configuration not allowed in HCM analysis.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	400	80	75	310	5	75	195	155	10	150	25
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	1.00			0.95			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1630	1673		1630	1712			1617			1680	
Flt Permitted	0.51	1.00		0.32	1.00			0.91			0.97	
Satd. Flow (perm)	869	1673		544	1712			1491			1638	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	421	84	79	326	5	79	205	163	11	158	26
RTOR Reduction (vph)	0	12	0	0	1	0	0	38	0	0	10	0
Lane Group Flow (vph)	105	493	0	79	330	0	0	409	0	0	185	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	17.3	17.3		17.3	17.3			17.2			17.2	
Effective Green, g (s)	17.3	17.3		17.3	17.3			17.2			17.2	
Actuated g/C Ratio	0.41	0.41		0.41	0.41			0.40			0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			2.5			2.5	
Lane Grp Cap (vph)	354	681		221	697			603			663	
v/s Ratio Prot		c0.29			0.19							
v/s Ratio Perm	0.12			0.15				c0.27			0.11	
v/c Ratio	0.30	0.72		0.36	0.47			0.68			0.28	
Uniform Delay, d1	8.5	10.6		8.7	9.3			10.4			8.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.3	3.6		0.7	0.4			2.8			0.2	
Delay (s)	8.8	14.2		9.5	9.6			13.1			8.7	
Level of Service	A	B		A	A			B			A	
Approach Delay (s)		13.2			9.6			13.1			8.7	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM Average Control Delay	11.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	42.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	235	350	50	140	280	120	200	1150	370	70	950	255
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1568	1733	1352	1646	1651		1409	3260	1444	1662	3228	1458
Flt Permitted	0.23	1.00	1.00	0.48	1.00		0.10	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	386	1733	1352	829	1651		152	3260	1444	189	3228	1458
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	270	402	57	161	322	138	230	1322	425	80	1092	293
RTOR Reduction (vph)	0	0	37	0	13	0	0	0	128	0	0	107
Lane Group Flow (vph)	270	402	20	161	447	0	230	1322	297	80	1092	186
Heavy Vehicles (%)	6%	1%	10%	1%	0%	4%	18%	2%	3%	0%	3%	2%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	32.1	32.1	32.1	32.0	30.0		54.0	52.0	52.0	40.0	40.0	40.0
Effective Green, g (s)	32.1	34.1	34.1	32.0	32.0		54.0	54.0	54.0	40.0	42.0	42.0
Actuated g/C Ratio	0.27	0.28	0.28	0.27	0.27		0.45	0.45	0.45	0.33	0.35	0.35
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	251	492	384	309	440		226	1467	650	100	1130	510
v/s Ratio Prot	c0.13	0.23		0.06	c0.27		0.13	c0.41		0.02	c0.34	
v/s Ratio Perm	0.15		0.02	0.08			c0.33		0.21	0.25		0.13
v/c Ratio	1.08	0.82	0.05	0.52	1.02		1.02	0.90	0.46	0.80	0.97	0.36
Uniform Delay, d1	40.3	40.0	31.2	40.1	44.0		45.1	30.5	22.8	38.7	38.3	29.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.48	0.26	0.01	0.66	0.70	0.47
Incremental Delay, d2	78.4	10.1	0.1	1.6	46.9		45.0	4.6	1.1	21.6	13.3	1.1
Delay (s)	118.7	50.2	31.3	41.7	90.9		66.8	12.7	1.4	47.0	40.2	14.8
Level of Service	F	D	C	D	F		E	B	A	D	D	B
Approach Delay (s)		74.1			78.1			16.5			35.5	
Approach LOS		E			E			B			D	

Intersection Summary			
HCM Average Control Delay	39.1	HCM Level of Service	D
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	250	125	175	85	70	95	70	1330	105	45	1000	225
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.91		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1629	1485		1661	1469		1433	3209		1599	3143	
Flt Permitted	0.34	1.00		0.55	1.00		0.07	1.00		0.07	1.00	
Satd. Flow (perm)	586	1485		968	1469		100	3209		117	3143	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	287	144	201	98	80	109	80	1529	121	52	1149	259
RTOR Reduction (vph)	0	48	0	0	45	0	0	4	0	0	14	0
Lane Group Flow (vph)	287	297	0	98	144	0	80	1646	0	52	1394	0
Confl. Peds. (#/hr)	2		2	2		2			2			2
Heavy Vehicles (%)	2%	2%	10%	0%	5%	10%	16%	2%	6%	4%	2%	4%
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	28.7	28.7		19.6	17.6		68.3	60.5		62.5	57.6	
Effective Green, g (s)	28.7	30.7		19.6	19.6		68.3	62.5		62.5	59.6	
Actuated g/C Ratio	0.24	0.26		0.16	0.16		0.57	0.52		0.52	0.50	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	2.5	2.5		2.5	3.0		3.0	5.3		3.0	5.3	
Lane Grp Cap (vph)	288	380		192	240		144	1671		121	1561	
v/s Ratio Prot	c0.14	0.20		0.03	c0.10		c0.04	c0.51		0.02	0.44	
v/s Ratio Perm	c0.10			0.06			0.28			0.21		
v/c Ratio	1.00	0.78		0.51	0.60		0.56	0.98		0.43	0.89	
Uniform Delay, d1	43.4	41.5		46.7	46.6		21.3	28.3		24.2	27.3	
Progression Factor	1.00	1.00		1.00	1.00		1.94	0.67		1.00	1.00	
Incremental Delay, d2	51.7	9.6		1.7	4.0		1.7	10.0		2.4	8.2	
Delay (s)	95.1	51.2		48.4	50.6		43.0	29.1		26.6	35.5	
Level of Service	F	D		D	D		D	C		C	D	
Approach Delay (s)		71.1			49.8			29.8			35.2	
Approach LOS		E			D			C			D	

Intersection Summary			
HCM Average Control Delay	39.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	1435	45	0	1015	855	750
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	6.0		5.0	5.0	3.0
Lane Util. Factor	*0.98	1.00		0.95	0.95	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3286	1530		3353	3320	1500
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3286	1530		3353	3320	1500
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1511	47	0	1068	900	789
RTOR Reduction (vph)	0	17	0	0	0	0
Lane Group Flow (vph)	1511	30	0	1068	900	789
Heavy Vehicles (%)	2%	0%	0%	2%	3%	2%
Turn Type		Perm				Free
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	61.2	61.2		46.8	46.8	120.0
Effective Green, g (s)	62.2	61.2		47.8	47.8	120.0
Actuated g/C Ratio	0.52	0.51		0.40	0.40	1.00
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.7	4.7		4.7	4.7	
Lane Grp Cap (vph)	1703	780		1336	1322	1500
v/s Ratio Prot	c0.46			c0.32	0.27	
v/s Ratio Perm		0.02				0.53
v/c Ratio	0.89	0.04		0.80	0.68	0.53
Uniform Delay, d1	25.8	14.7		31.9	29.8	0.0
Progression Factor	1.00	1.00		1.00	1.19	1.00
Incremental Delay, d2	6.4	0.0		5.1	1.1	0.5
Delay (s)	32.2	14.7		37.0	36.4	0.5
Level of Service	C	B		D	D	A
Approach Delay (s)	31.6			37.0	19.7	
Approach LOS	C			D	B	

Intersection Summary			
HCM Average Control Delay	28.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

1: I-5 SB Ramps/Willow Springs & OR 99 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.3	0.1	0.1	5.0	0.0	0.8	3.7	106.8	2.2	10.6	1.3	0.2
Delay / Veh (s)	18.2	11.9	4.2	49.8	2.1	22.8	549.4	600.7	459.7	265.9	25.9	18.7

1: I-5 SB Ramps/Willow Springs & OR 99 Performance by movement

Movement	All
Total Delay (hr)	131.2
Delay / Veh (s)	268.0

2: I-5 NB Ramp & Blackwell Rd Performance by movement

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.2	0.1	0.8	1.5	0.8	0.9	0.7	5.1
Delay / Veh (s)	32.5	26.4	16.3	12.5	7.3	8.8	10.3	10.9

3: Blackwell Rd & Kirtland Rd Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	1.0	1.3	1.0	0.7	1.3	0.7	6.1
Delay / Veh (s)	36.8	22.1	15.1	7.7	13.8	13.6	15.3

4: Kirtland Rd & High Banks Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Total Delay (hr)	0.0	1.1	0.1	0.0	1.4	0.0	0.0	0.0	0.0	0.0	2.7
Delay / Veh (s)	9.9	9.8	9.3	13.4	10.7	9.4	7.7	4.8	7.3	3.5	10.1

5: Kirtland Rd & W Antelope Rd Performance by movement

Movement	EBT	EBR	WBT	NBL	NBR	All
Total Delay (hr)	1.0	0.3	0.6	0.2	0.0	2.2
Delay / Veh (s)	12.8	12.1	6.3	9.0	5.1	9.4

6: Kirtland & Table Rock Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.2	1.0	0.1	0.2	1.1	0.1	0.5	3.1	0.6	0.1	1.5	0.1
Delay / Veh (s)	19.4	15.7	8.8	17.4	16.2	8.5	21.4	40.4	21.1	20.3	30.1	15.8

6: Kirtland & Table Rock Performance by movement

Movement	All
Total Delay (hr)	8.5
Delay / Veh (s)	23.6

7: Kirtland Rd & Pacific Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Total Delay (hr)	0.5	0.0	0.1	0.3	0.1	0.1	1.1
Delay / Veh (s)	5.3	4.5	5.3	4.0	8.6	5.6	5.0

8: Ave G & 5th St Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Total Delay (hr)	0.4	0.0	0.0	0.1	0.1	0.0	0.6
Delay / Veh (s)	3.3	2.0	3.0	1.1	6.5	4.6	2.5

9: Ave G & 8th St Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Total Delay (hr)	0.2	0.0	0.0	0.1	0.0	0.0	0.4
Delay / Veh (s)	2.2	1.2	2.8	0.7	6.3	4.5	1.8

10: Ave G & 11th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBR	All
Total Delay (hr)	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.8
Delay / Veh (s)	2.8	2.7	1.7	5.5	4.0	7.9	4.7	6.6	3.6	3.4

11: Ave G & Agate Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	1.1	3.7	0.5	1.0	2.1	0.5	0.1	1.2	0.2	0.1	0.7	0.2
Delay / Veh (s)	38.5	41.5	37.9	28.7	30.2	28.6	16.2	19.3	16.1	12.1	15.0	10.4

11: Ave G & Agate Rd Performance by movement

Movement	All
Total Delay (hr)	11.3
Delay / Veh (s)	28.2

12: Antelope Rd & Agate Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.8	3.5	0.5	2.5	3.0	0.6	1.7	1.5	0.2	1.1	3.6	1.4
Delay / Veh (s)	39.9	26.2	7.2	44.2	25.0	20.9	73.8	42.5	25.9	60.1	63.1	57.5

12: Antelope Rd & Agate Rd Performance by movement

Movement	All
Total Delay (hr)	20.3
Delay / Veh (s)	34.4

13: OR 140 & Agate Rd Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	0.9	0.1	0.3	0.0	0.0	0.2	0.5	2.0
Delay / Veh (s)	19.1	2.1	7.8	0.9	0.4	4.9	3.5	6.0

14: OR 140 & OR 62 (Storage extended for TWLTL) Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	13.1	42.3	39.9	13.7	7.9	2.8	30.0	147.3	31.1	5.0	20.7	2.0
Delay / Veh (s)	1023.9	841.3	892.1	264.7	149.3	122.5	544.9	401.5	389.2	209.6	75.0	82.7

14: OR 140 & OR 62 (Storage extended for TWLTL) Performance by movement

Movement	All
Total Delay (hr)	355.8
Delay / Veh (s)	335.3

15: OR 140 & Lakeview Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	All
Total Delay (hr)	0.2	1.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.1	0.1	2.3
Delay / Veh (s)	10.4	9.9	9.4	5.8	5.1	4.3	8.3	7.4	4.1	12.0	5.8	7.7

16: OR 140 & Kershaw Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.2	0.2	0.0	0.0	0.9	0.1	0.0	0.4	0.1	0.2	0.3	0.3
Delay / Veh (s)	4.8	1.8	1.7	11.1	10.2	9.8	17.2	18.8	10.4	16.8	20.3	12.1

16: OR 140 & Kershaw Rd Performance by movement

Movement	All
Total Delay (hr)	2.7
Delay / Veh (s)	8.5

17: OR 140 & Riley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.1	0.6	0.2	0.0	0.9	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Delay / Veh (s)	10.7	9.0	7.8	12.4	11.3	7.7	6.6	9.5	3.2	5.9	11.4	3.8

17: OR 140 & Riley Rd Performance by movement

Movement	All
Total Delay (hr)	2.0
Delay / Veh (s)	9.5

18: OR 140 & Meridian Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT	SBR	All
Total Delay (hr)	0.0	0.6	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.6
Delay / Veh (s)	8.2	7.9	8.9	13.9	12.8	8.5	3.5	7.9	3.7	10.3

19: Brownsboro-Meridian Rd & OR 140 Performance by movement

Movement	EBR	WBL	NBL	NBT	NBR	SBT	SBR	All
Total Delay (hr)	0.0	0.0	0.0	1.1	0.0	0.1	0.0	1.3
Delay / Veh (s)	2.8	4.5	9.5	14.5	5.9	1.7	1.0	7.8

20: OR 140 & Brownsboro Hwy Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Total Delay (hr)	0.0	0.3	0.1	0.0	0.0	0.0	0.5
Delay / Veh (s)	6.0	4.3	1.2	0.9	4.9	3.3	2.8

23: I-5 SB Ramps/Willow Springs & Performance by movement

Movement	EBT	EBR	WBT	All
Total Delay (hr)	0.0	0.1	0.9	1.0
Delay / Veh (s)	1.5	1.5	6.3	4.9

165: OR 140 & Foothill Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.5	1.8	0.3	0.5	1.3	0.0	0.4	1.1	0.6	0.0	0.5	0.0
Delay / Veh (s)	22.9	17.9	14.3	24.1	13.3	10.1	19.3	18.9	13.5	20.0	11.0	5.4

165: OR 140 & Foothill Performance by movement

Movement	All
Total Delay (hr)	6.9
Delay / Veh (s)	16.1

166: Antelope Rd (Storage extended for TWLTL) & OR 62 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	25.3	22.4	2.6	13.6	34.5	12.9	4.0	12.3	3.9	7.8	38.7	9.0
Delay / Veh (s)	415.1	251.1	211.5	384.9	472.5	443.1	82.3	44.2	41.2	420.6	153.7	138.1

166: Antelope Rd (Storage extended for TWLTL) & OR 62 Performance by movement

Movement	All
Total Delay (hr)	187.0
Delay / Veh (s)	177.1

167: Avenue G & OR 62 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	27.3	13.1	15.9	1.4	1.3	0.2	0.6	9.1	0.8	0.4	7.1	1.6
Delay / Veh (s)	427.1	423.6	347.5	58.4	64.5	6.5	33.2	28.5	29.3	32.8	25.6	25.2

167: Avenue G & OR 62 Performance by movement

Movement	All
Total Delay (hr)	78.6
Delay / Veh (s)	85.0

Total Network Performance

Total Delay (hr)	858.8
Delay / Veh (s)	258.7

Intersection: 1: I-5 SB Ramps/Willow Springs & OR 99

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	TR
Maximum Queue (ft)	76	78	325	217	444	801	768	530	717
Average Queue (ft)	32	31	215	63	61	756	435	336	211
95th Queue (ft)	65	63	343	164	277	778	995	609	776
Link Distance (ft)		713	298	298		729	729		1480
Upstream Blk Time (%)			10	0		73	4		1
Queuing Penalty (veh)			23	0		0	0		2
Storage Bay Dist (ft)	150				300			475	
Storage Blk Time (%)						57		16	1
Queuing Penalty (veh)						17		36	2

Intersection: 2: I-5 NB Ramp & Blackwell Rd

Movement	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	T	T	R
Maximum Queue (ft)	204	87	165	3	43	27
Average Queue (ft)	57	48	74	0	3	1
95th Queue (ft)	134	66	135	2	31	19
Link Distance (ft)	1082			1480	6176	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		25	850			250
Storage Blk Time (%)	20	26				
Queuing Penalty (veh)	38	12				

Intersection: 3: Blackwell Rd & Kirtland Rd

Movement	EB	EB	NB	SB	SB
Directions Served	L	R	L	T	R
Maximum Queue (ft)	371	87	206	6	53
Average Queue (ft)	103	64	76	0	5
95th Queue (ft)	258	92	152	6	29
Link Distance (ft)	652			8289	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		50	250		250
Storage Blk Time (%)	21	10	0		
Queuing Penalty (veh)	43	10	1		

Intersection: 4: Kirtland Rd & High Banks Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LR	LR
Maximum Queue (ft)	28	109	76	28
Average Queue (ft)	1	6	20	7
95th Queue (ft)	15	42	54	25
Link Distance (ft)	8289	8497	551	888
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Kirtland Rd & W Antelope Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	120
Average Queue (ft)	46
95th Queue (ft)	92
Link Distance (ft)	534
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Kirtland & Table Rock

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	R	L	T	R
Maximum Queue (ft)	74	183	182	312	496	75	52	244	79
Average Queue (ft)	23	84	98	55	171	50	15	93	28
95th Queue (ft)	60	163	161	162	375	70	41	188	70
Link Distance (ft)		3858	1451		2557			1256	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	160			230		30	300		30
Storage Blk Time (%)		1			52	2		47	0
Queuing Penalty (veh)		0			91	8		21	1

Intersection: 7: Kirtland Rd & Pacific Ave

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	139	113
Average Queue (ft)	20	44
95th Queue (ft)	66	84
Link Distance (ft)	3323	2344
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Ave G & 5th St

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	48	66
Average Queue (ft)	2	28
95th Queue (ft)	22	57
Link Distance (ft)	1623	411
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Ave G & 8th St

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	36	78
Average Queue (ft)	2	33
95th Queue (ft)	16	61
Link Distance (ft)	1781	441
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Ave G & 11th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LR	LR
Maximum Queue (ft)	18	41	54	39
Average Queue (ft)	1	5	26	15
95th Queue (ft)	11	24	52	41
Link Distance (ft)	1781	694	288	427
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: Ave G & Agate Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	523	380	216	164
Average Queue (ft)	230	152	93	71
95th Queue (ft)	451	327	166	131
Link Distance (ft)	694	4129	3081	1159
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: Antelope Rd & Agate Rd

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	TR	L	TR
Maximum Queue (ft)	185	543	263	210	615	202	257	234	550
Average Queue (ft)	59	255	65	134	286	95	91	70	269
95th Queue (ft)	135	441	126	218	546	175	190	176	497
Link Distance (ft)		764	764		758		1288		3081
Upstream Blk Time (%)		0			0				
Queuing Penalty (veh)		0			0				
Storage Bay Dist (ft)	75			75		100		100	
Storage Blk Time (%)	5	32		33	26	16	13	3	50
Queuing Penalty (veh)	24	21		176	51	22	12	9	32

Intersection: 13: OR 140 & Agate Rd

Movement	WB	WB	SB
Directions Served	L	R	L
Maximum Queue (ft)	154	104	96
Average Queue (ft)	76	57	22
95th Queue (ft)	131	94	64
Link Distance (ft)		1062	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100		175
Storage Blk Time (%)	4	0	
Queuing Penalty (veh)	7	0	

Intersection: 14: OR 140 & OR 62 (Storage extended for TWLTL)

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	T	R	L	T	TR
Maximum Queue (ft)	227	956	360	1535	380	435	2510	2536	265	310	879	916
Average Queue (ft)	72	719	315	758	66	363	2293	2309	160	151	453	477
95th Queue (ft)	224	869	429	1839	201	518	3015	2993	346	319	892	913
Link Distance (ft)		1062		5389			2488	2488			1324	1324
Upstream Blk Time (%)		0					15	16				
Queuing Penalty (veh)		0					0	0				
Storage Bay Dist (ft)	130		225		225	300			50	200		
Storage Blk Time (%)	0	76	63	8		43	35	49	8	19	40	
Queuing Penalty (veh)	0	53	166	22		325	77	166	62	100	38	

Intersection: 15: OR 140 & Lakeview Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LR
Maximum Queue (ft)	179	32	33	71
Average Queue (ft)	35	1	8	34
95th Queue (ft)	116	18	30	61
Link Distance (ft)	5389	3400	464	781
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 16: OR 140 & Kershaw Rd

Movement	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	L	T	R	LTR	LTR
Maximum Queue (ft)	83	4	22	20	10	112	180
Average Queue (ft)	30	0	2	1	0	52	66
95th Queue (ft)	65	3	12	11	5	96	132
Link Distance (ft)		1445		6762		2471	1083
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	450		450		350		
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 17: OR 140 & Riley Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	108	39	61	62
Average Queue (ft)	10	3	25	17
95th Queue (ft)	54	25	48	41
Link Distance (ft)	6762	7344	603	1225
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 18: OR 140 & Meridian Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	64	19	40	12
Average Queue (ft)	3	1	5	2
95th Queue (ft)	30	8	21	8
Link Distance (ft)	7344	11835	3188	1987
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 19: Brownsboro-Meridian Rd & OR 140

Movement	EB	WB	NB
Directions Served	LR	LR	LTR
Maximum Queue (ft)	26	27	33
Average Queue (ft)	4	4	1
95th Queue (ft)	18	18	13
Link Distance (ft)	1151	410	11835
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 20: OR 140 & Brownsboro Hwy

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	44	64
Average Queue (ft)	3	24
95th Queue (ft)	20	50
Link Distance (ft)	2867	915
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 23: I-5 SB Ramps/Willow Springs &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	179	80
Average Queue (ft)	34	10
95th Queue (ft)	167	88
Link Distance (ft)	939	939
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 165: OR 140 & Foothill

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	135	308	159	312	296	157
Average Queue (ft)	47	125	49	107	142	63
95th Queue (ft)	98	247	107	217	234	117
Link Distance (ft)		3400		1653	1292	1189
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		150			
Storage Blk Time (%)		4	0	2		
Queuing Penalty (veh)		4	1	1		

Intersection: 166: Antelope Rd (Storage extended for TWLTL) & OR 62

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	T	R	L	T	T
Maximum Queue (ft)	481	1266	200	525	1441	324	797	767	175	224	1320	1352
Average Queue (ft)	445	1011	54	274	1333	166	296	309	117	158	981	1024
95th Queue (ft)	675	1839	164	601	1743	306	865	888	208	281	1561	1589
Link Distance (ft)		1422			1437		1324	1324			1369	1369
Upstream Blk Time (%)		25			43		0	0			11	12
Queuing Penalty (veh)		0			0		0	1			64	75
Storage Bay Dist (ft)	500		175	500		300			150	200		
Storage Blk Time (%)	45	36	0	0	65	4	6	15	3	33	40	51
Queuing Penalty (veh)	179	102	1	0	90	24	13	58	20	152	28	130

Intersection: 166: Antelope Rd (Storage extended for TWLTL) & OR 62

Movement	SB	B67	B67
Directions Served	R	T	T
Maximum Queue (ft)	175	668	670
Average Queue (ft)	111	244	250
95th Queue (ft)	224	1171	1187
Link Distance (ft)		2521	2521
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)	2		
Queuing Penalty (veh)	9		

Intersection: 167: Avenue G & OR 62

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	175	2367	124	285	189	390	406	168	518	549
Average Queue (ft)	170	1733	59	95	35	224	250	18	226	266
95th Queue (ft)	193	2733	121	212	105	364	385	78	417	480
Link Distance (ft)		4129		1969		2521	2521		1840	1840
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	150		100		200			200		
Storage Blk Time (%)	59	16	3	8	0	12			8	
Queuing Penalty (veh)	176	40	6	7	0	9			4	

Network Summary

Network wide Queuing Penalty: 2861

1: I-5 SB Ramps/Willow Springs & OR 99 Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	0.5	5.8	112.6	12.2	131.2
Delay / Veh (s)	12.2	38.3	594.5	117.7	268.0

2: I-5 NB Ramp & Blackwell Rd Performance by approach

Approach	WB	NB	SB	All
Total Delay (hr)	1.1	2.3	1.6	5.1
Delay / Veh (s)	18.8	10.0	9.4	10.9

3: Blackwell Rd & Kirtland Rd Performance by approach

Approach	EB	NB	SB	All
Total Delay (hr)	2.3	1.8	2.0	6.1
Delay / Veh (s)	26.7	10.8	13.7	15.3

4: Kirtland Rd & High Banks Rd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	1.2	1.4	0.1	0.0	2.7
Delay / Veh (s)	9.7	10.8	6.6	6.5	10.1

5: Kirtland Rd & W Antelope Rd Performance by approach

Approach	EB	WB	NB	All
Total Delay (hr)	1.3	0.6	0.3	2.2
Delay / Veh (s)	12.6	6.3	8.5	9.4

6: Kirtland & Table Rock Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	1.2	1.4	4.2	1.7	8.5
Delay / Veh (s)	15.2	15.4	32.8	27.6	23.6

7: Kirtland Rd & Pacific Ave Performance by approach

Approach	EB	WB	NB	All
Total Delay (hr)	0.5	0.4	0.2	1.1
Delay / Veh (s)	5.3	4.2	6.9	5.0

8: Ave G & 5th St Performance by approach

Approach	EB	WB	NB	All
Total Delay (hr)	0.4	0.1	0.1	0.6
Delay / Veh (s)	3.3	1.1	5.8	2.5

9: Ave G & 8th St Performance by approach

Approach	EB	WB	NB	All
Total Delay (hr)	0.2	0.1	0.1	0.4
Delay / Veh (s)	2.2	0.8	5.2	1.8

10: Ave G & 11th St Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	0.3	0.4	0.1	0.0	0.8
Delay / Veh (s)	2.7	4.0	5.2	6.1	3.4

11: Ave G & Agate Rd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	5.3	3.6	1.6	0.9	11.3
Delay / Veh (s)	40.4	29.5	18.3	13.7	28.2

12: Antelope Rd & Agate Rd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	4.8	6.1	3.3	6.1	20.3
Delay / Veh (s)	21.8	29.6	51.8	61.2	34.4

13: OR 140 & Agate Rd Performance by approach

Approach	WB	NB	SB	All
Total Delay (hr)	1.3	0.0	0.7	2.0
Delay / Veh (s)	10.0	0.7	3.9	6.0

14: OR 140 & OR 62 (Storage extended for TWLTL) Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	95.3	24.4	208.4	27.7	355.8
Delay / Veh (s)	884.0	191.5	415.0	85.6	335.3

15: OR 140 & Lakeview Dr Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	1.5	0.6	0.0	0.2	2.3
Delay / Veh (s)	10.0	5.0	5.8	7.8	7.7

16: OR 140 & Kershaw Rd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	0.4	1.0	0.6	0.8	2.7
Delay / Veh (s)	2.8	10.2	16.5	16.0	8.5

17: OR 140 & Riley Rd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	1.0	0.9	0.1	0.1	2.0
Delay / Veh (s)	8.8	11.2	6.9	6.6	9.5

18: OR 140 & Meridian Rd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	0.6	1.0	0.0	0.0	1.6
Delay / Veh (s)	8.0	12.9	5.3	5.3	10.3

19: Brownsboro-Meridian Rd & OR 140 Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	0.0	0.0	1.1	0.1	1.3
Delay / Veh (s)	2.8	4.5	14.2	1.7	7.8

20: OR 140 & Brownsboro Hwy Performance by approach

Approach	EB	WB	SB	All
Total Delay (hr)	0.3	0.1	0.0	0.5
Delay / Veh (s)	4.4	1.2	4.4	2.8

23: I-5 SB Ramps/Willow Springs & Performance by approach

Approach	EB	WB	All
Total Delay (hr)	0.1	0.9	1.0
Delay / Veh (s)	1.5	6.3	4.9

165: OR 140 & Foothill Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	2.5	1.8	2.0	0.6	6.9
Delay / Veh (s)	18.2	15.1	17.0	10.7	16.1

166: Antelope Rd (Storage extended for TWLTL) & OR 62 Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	50.3	61.0	20.1	55.6	187.0
Delay / Veh (s)	310.0	443.8	47.9	165.6	177.1

167: Avenue G & OR 62 Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	56.3	2.8	10.4	9.1	78.6
Delay / Veh (s)	400.4	40.4	28.8	25.7	85.0

Total Network Performance

Total Delay (hr)	858.8
Delay / Veh (s)	258.7

OR 140 Corridor Plan:
I-5 Exit 35 to Brownsboro–Eagle Point Road

Technical Memorandum #6
Alternatives Development and Analysis

Prepared for

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March 2013

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6. ALTERNATIVES DEVELOPMENT AND ANALYSIS

This technical memorandum presents the conceptual development of improvements to address deficiencies along the OR 140 corridor as identified through existing and future baseline analysis.

6.1. Concept Development

The alternatives analysis focused on four areas for consideration within the OR 140 corridor:

- **Highway Redesignation** – These concepts suggest potential changes in highway designation to address consistency in statewide classification or respond to system changes imposed by other projects.
- **Jackson County Reclassification** – These concepts suggest potential changes to roadway classifications for consistency between the state and county.
- **Segment Improvements** – These concepts identify potential improvements to address geometric, safety, or operational deficiencies in the OR 140 corridor that extend beyond the limits of a single intersection.
- **Intersection Improvements** – These concepts identify potential improvement to address geometric, safety, or operational deficiencies at individual intersections within the OR 140 corridor.

Under each category of concepts, two groups of improvements were developed. The first group of improvement concepts is based on the future financially-constrained transportation network assumed in the 2009-2034 Regional Transportation Plan (RTP) prepared by the Rogue Valley Metropolitan Planning Organization (RVMPO). This network includes the improvements to OR 62 resulting from funding through the Jobs in Transportation Act (JTA). The second group responds to the completion of the full corridor improvement identified in the OR 62 Corridor Solutions Environmental Impact Statement (EIS). The full corridor will impact OR 140 on its alignment along Agate Road and Leigh Way.

6.2. Alternatives Evaluation

The alternatives analysis included traffic operations, road geometries and right-of-way requirements, environmental and land use consequences, and cost opinions.

6.2.1. Traffic Operations and Safety

Traffic operations were evaluated for concepts that were identified to address operational deficiencies. The operational assessment focuses on the volume-to-capacity (v/c) ratio and

level of service (LOS) for the 2034 future condition. Operational results for the concepts were compared to the mobility standards set forth in the Highway Design Manual[1] (HDM).

At intersections where potential changes in traffic control or turn lanes were considered, the procedures in the ODOT Analysis Procedures Manual (APM) were followed. For traffic signal concepts, the ODOT preliminary traffic signal warrants[2] were evaluated. For potential turn lanes on the rural sections of the highway, the APM turn lane criteria[3] were evaluated. Existing traffic volumes were applied to determine if warrants for traffic signals or criteria for turn lanes might be met today. Year 2034 traffic volumes were also evaluated to determine potential need in the future.

The existing (2010) and future baseline (2034) traffic volumes have been attached to this memo (Figure 6-1 – Existing and Figure 6-2 – Future) for easy reference.

Some improvements are focused on addressing safety concerns or may address safety as well as traffic operations deficiencies. Crash patterns from the five-year analysis period (2005 through 2009) are discussed for those improvements that address safety.

6.2.2. Basic Roadway Geometries and Right-of-Way Requirements

Illustrations of basic roadway geometry and right-of-way needs were developed for concepts that involve infrastructure improvements. The drawings approximate roadway centerlines, edge of roadway and right of way using available base mapping.

6.2.3. Environmental and Land Use Assessment

Impacts to resources were qualitatively assessed based on the data assembled for the environmental and land use reconnaissance. The level of analysis of the study area is designed to identify those areas judged to have considerable potential for conflict.

6.2.4. Concepts Cost Opinions

Rough order of magnitude cost opinions were developed using present day dollars and are consistent with standard estimating methods. The estimates include a contingency factor but do not include right of way, utility relocation, environmental mitigation or hazardous material costs. The cost opinions are intended to help differentiate alternatives by approximating the relative costs of each project.

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[1] Table 10-1: 20 Year Design-Mobility Standards (Volume/Capacity [V/C] Ratio), Highway Design Manual, 2003, online reference: http://egov.oregon.gov/ODOT/HWY/ENGSERVICES/hwy_manuals.shtml

[2] Section 7.4 Traffic Signal Warrants, Analysis Procedures Manual, April 2006, Updated January 2011, online reference: http://www.oregon.gov/ODOT/TD/TPAU/docs/A_APM/APM.pdf

[3] Section 7.2 Turn Lane Criteria, Analysis Procedures Manual, April 2006, Updated January 2011, online reference: http://www.oregon.gov/ODOT/TD/TPAU/docs/A_APM/APM.pdf. Note: These criteria are also consistent with the criteria in Appendix F of the Highway Design Manual.

6.3. Highway Redesignation

Three potential changes in highway designation were identified to address consistency in statewide classification or respond to system changes imposed by other projects. A brief summary of the projects is presented in Table 6-1. Two of the projects are recommended for consistency of statewide designations through the corridor, the third project represents a system change needed to respond to the full corridor improvement identified in the OR 62 Corridor Solutions EIS.

Table 6-1. Summary of OR 140 Concepts – Highway Redesignation

ID	Location	General Description	Milepoints	Reason
Improvement Concepts with Tier 1 Improvements from the 2034 RTP				
HR-1	Blackwell Road/ OR 99	Extend OR 140 and statewide highway designation approximately 0.3 miles from current terminus at I-5 NB ramps across freeway to I-5 SB ramps/Willow Springs Road	-8.29 on OR 140 (HWY 270) to 0.34 on OR 99 (HWY 63)	Consistent statewide designation through the interchange
HR-2	OR 140 from I-5 to OR 62	Obtain freight designation for OR 140 west of OR 62	-8.29 to 0.00	Consistent freight designation through the I-5 interchange
Improvement Concepts with the Full OR 62 Corridor Improvements				
HR-3	OR 140 from Crater Lake Highway to Agate Road/Avenue G Intersection	Revise the current routing of OR 140 from Leigh Way and Agate Road to Crater Lake Highway and Avenue G	0.00 to –1.16	Response to OR 62 full improvements which will use Agate Road and create a cul-de-sac on Leigh Way

6.3.1. Concept HR-1: Extension of OR 140 to I-5 Southbound Ramps

OR 140, a statewide highway, currently ends at the I-5 northbound ramp terminal while the segment between the northbound and southbound ramp terminals is designated as OR 99, a district highway. To obtain a consistent statewide classification through the interchange, with associated management objectives, the segment of highway between the ramps could be reclassified as a statewide highway. Consideration should also be given to extending the OR 140 designation to the southbound ramp terminal. This improvement is illustrated in Figure 6-3.

Changes to traffic operations are discussed below. No changes to roadway geometry or right of way would be required, no impacts to environmental or land use resources would result, and no construction costs are associated with this concept.

Concept HR-1 Traffic Operations

Traffic operations would not be directly impacted by this designation since the current Oregon Highway Plan (OHP) mobility standards for a statewide highway within an MPO is a maximum

v/c ratio of 0.85[4] which is the same as the value for a ramp terminal intersecting a district highway within an MPO. The HDM mobility standards would be 0.80 for a statewide highway.

6.3.2. Concept HR-2: Extension of Freight Route Designation

Although OR 140 is designated as a statewide highway throughout the corridor study area, the freight route designation only applies to the portion of OR 140 east of OR 62. Concept HR-2 would continue the freight route designation from OR 62 to I-5. This designation would apply management objectives with a greater emphasis on freight movement than the statewide designation alone.

Changes to traffic operations are discussed below. No changes to roadway geometry or right of way would be required, no impacts to environmental or land use resources would result, and no construction costs are associated with this concept.

Concept HR-2 Traffic Operations

Although traffic operations in the corridor would not change as a result of this designation, the current OHP mobility target for a statewide highway within an MPO is a maximum v/c ratio of 0.90 while a statewide freight route allows a maximum v/c ratio of 0.85. The freight route designation would change the OHP mobility targets to 0.85 between the I-5 northbound ramp terminal and the intersection with OR 62. The HDM mobility standard would change from 0.80 to 0.75 with the freight route designation.

6.3.3. Concept HR-3: Rerouting to Crater Lake Highway and Avenue G

Construction of the full corridor improvement identified in the OR 62 Corridor Solutions EIS would impact OR 140 on its alignment along Agate Road and Leigh Way. Although two build alternatives are under consideration in the EIS, both would have the same alignment in the OR 140 corridor study area. The improvements to be constructed in Phase 1 and 2 (JTA funded) currently bring the OR 62 expressway alignment back to the existing OR 62 Crater Lake Highway alignment south of OR 140, at approximately the location where Agate Road connects to the highway. The full corridor improvement would extend these improvements northward along Agate Road, through the White City industrial area before continuing eastward along West Dutton Road and reconnecting with Crater Lake Highway. The new OR 62 expressway would overlap OR 140 along the section of Agate Road between Leigh Way and Avenue G. Leigh Way would no longer connect to Agate Road but would end in a cul-de-sac and only serve the adjacent land uses.

To address this future disconnect, the current routing of OR 140 from Leigh Way and Agate Road would need to be revised. Two potential concepts were initially considered. Both would

[4] Table 6: Maximum Volume to Capacity Ratio Targets for Peak Hour Operating Conditions, 1999 Oregon Highway Plan, OHP Policy 1F Revisions, Adopted December 21, 2011, Oregon Department of Transportation, website: http://www.oregon.gov/ODOT/TD/TP/docs/ohp11/policyadopted.pdf

route OR 140 onto Crater Lake Highway (Old OR 62) but one would route OR 140 onto Antelope Road and the other would route OR 140 onto Avenue G.

After initially considering Antelope Road as the route for OR 140, this concept was discarded. Antelope Road plays an important role in serving existing industrial development in White City between Crater Lake Highway (OR 62) and Kirtland Road. It was originally considered as one of the potential routes for OR 140 but was discarded because of the potential conflict between the management objectives of a statewide highway and the access needs of this developed industrial area. This same conflict would exist if OR 140 were eventually rerouted in response to the OR 62 Expressway extension. Furthermore, because the OR 62 expressway would not allow for any connection at Agate Road, OR 140 would need to be routed along Antelope Road to Table Rock Road or even to Kirtland Road. Therefore, this option was dropped from further consideration.

Rerouting OR 140 along Crater Lake Highway and Avenue G thus became the concept carried forward for analysis. (See Figure 6-4.) This route would take advantage of the existing five-lane cross-section of Crater Lake Highway between OR 140/Leigh Way and Avenue G but it would also use Avenue G, a two-lane roadway classified as an industrial collector in the White City Transportation System Plan (TSP). Even more than Antelope Road, this segment of Avenue G is characterized by frequent access points from both public streets and driveways. However, this segment is relatively short, approximately 0.8 miles, and access spacing on this segment could be improved with an eventual roadway upgrade, as discussed under Section 6.5. Roadway Segment Improvements, Concept RS-8: Avenue G – OR 140 Reroute Widening.

Concept HR-3 Traffic Operations

The traffic analysis for the OR 62 Corridor Solutions EIS was examined to determine if the OR 62 intersections with Avenue G and Antelope Road would have adequate capacity to accommodate rerouting OR 140 onto Crater Lake Highway and Avenue G. The EIS analysis shows that the intersection of Avenue G and Crater Lake Highway would have an overall v/c ratio under 0.60 indicating that the intersection would operate well below the mobility standard for a statewide highway. If Crater Lake Highway was used to reroute OR 140 to the intersection with Avenue G, the realignment volumes would also impact the through movements of the Antelope Road/Crater Lake Highway intersection. The analysis of Antelope Road and Crater Lake Highway shows a forecast v/c ratio near 0.90 for the intersection. Additional refinement to signal timing and coordination may be able to bring this intersection below mobility standards; however, priority could be given to the north-south movement to ensure smoother traffic flow for the rerouted OR 140 traffic.

Concept HR-3 Basic Roadway Geometries and Right-of-Way Requirements

Crater Lake Highway is a five-lane roadway which would not need upgrades to accommodate the OR 140 reroute. Potential changes to roadway geometry for Avenue G and right of way are discussed under Section 6.5. Roadway Segment Improvements, Concept RS-8: Avenue G – OR 140 Reroute Widening.

Concept HR-3 Environmental and Land Use Assessment

Potential impacts to environmental or land use resources along Avenue G are discussed under Section 6.5. Roadway Segment Improvements, Concept RS-8: Avenue G – OR 140 Reroute Widening.

Concept HR-3 Concepts Cost Opinions

Potential construction costs associated with this concept are discussed under Section 6.5. Improvements, Concept RS-8: Avenue G – OR 140 Reroute Widening.

6.4. Jackson County Reclassification

Seven potential changes in functional classification were identified to address consistency with statewide classification, respond to changes in traffic demand, or respond to system changes imposed by other projects. A brief summary of the projects is presented in Table 6-2. Five of the projects are recommended for consistency with statewide designations through the corridor, the sixth project is need today to address the large volume of southbound OR 62 traffic destined for westbound OR 140, and the seventh project represents a system change needed to respond to the full corridor improvement identified in the OR 62 Corridor Solutions EIS. Figure 6-5 indicates the location of these concepts.

Table 6-2. Summary of OR 140– Jackson County Reclassification

ID	Location	General Description	Milepoints	Reason
Improvement Concepts with Tier 1 Improvements from the 2034 RTP				
JCR-1	Blackwell Road	Reclassify from Major Collector to Arterial	-8.29 to -7.02	Consistency with statewide highway designation
JCR-2	Kirtland Road (rural section)	Reclassify from Major Collector to Arterial	-7.02 to -5.12 (White City UUC)	Consistency with statewide highway designation
JCR-3	Kirtland Road (White City section)	Reclassify from Industrial Collector to Arterial	-5.12 (White City UUC) to -2.55	Consistency with statewide highway designation
JCR-4	Avenue G (state section)	Reclassify from Industrial Collector to Arterial	-2.55 to -1.16	Consistency with statewide highway designation
JCR-5	Agate Road	Reclassify from Industrial Collector to Arterial	-1.16 to -0.20	Consistency with statewide highway designation
JCR-6	Avenue G (county section)	Reclassify from Industrial Collector to Minor Arterial	NA	Response to increasing through traffic demand
Improvement Concepts with the Full OR 62 Corridor Improvements				
JCR-7	Avenue G (county section) with rerouted OR 140	Reclassify from Industrial Collector to Arterial	NA	Response to OR 140 rerouting (Concept HR-3)

Ultimately, the RTP will also need to change the classification of the roadways listed in Table 6-2 for consistency as well. Map 5.6.1 of the RTP currently shows all of the roadways that

comprise OR 140 as either Collector or Arterial roads. The RTP would need to be changed to indicate that these roads are now a state highway.

6.4.1. Concept JCR-1: Blackwell Road Reclassification

Blackwell Road is currently classified as a Major Collector in the Jackson County TSP. Concept JCR-1 would reclassify Blackwell Road from the I-5 Interchange (Milepoint -8.29) to Kirtland Road (Milepoint -7.02) as an Arterial for consistency with the statewide highway designation associated with OR 140. (See Figure 6-5.)

This concept would have no impact to traffic operations or associated standards since state standards already apply. No changes to roadway geometry or right of way would be required, no impacts to environmental or land use resources would result, and no construction costs are associated with this concept.

The evaluation of upgrading this section of roadway to meet the functional classification is discussed in Section 6.5. Roadway Segment Improvements, Concept RS-1: Blackwell Road Improvements – Widening and Concept RS-2: Blackwell Road Improvements – Widening and Curve Realignment.

6.4.2. Concept JCR-2: Kirtland Road Reclassification (Rural Section)

Like Blackwell Road, Kirtland Road is currently classified as a Major Collector in the Jackson County TSP. Concept JCR-2 would reclassify the section of Kirtland Road from Blackwell Road (Milepoint -7.02) to the White City Urban Unincorporated (UUC) boundary (Milepoint -5.12) as an Arterial for consistency with the statewide highway designation associated with OR 140. (See Figure 6-5.)

This concept would have no impact to traffic operations or associated standards since state standards already apply. No changes to roadway geometry or right of way would be required, no impacts to environmental or land use resources would result, and no construction costs are associated with this concept.

The evaluation of upgrading this section of roadway to meet the functional classification is discussed in Section 6.5. Roadway Segment Improvements, Concept RS-3: Kirtland Road – Safety Improvements and Concept RS-4: Kirtland Road – Widening.

6.4.3. Concept JCR-3: Kirtland Road Reclassification (White City Section)

Kirtland Road is currently classified as an Industrial Collector in the Jackson County and White City TSPs. Concept JCR-3 would reclassify the section of Kirtland Road from the White City UUC boundary (Milepoint -5.12) to Avenue G (Milepoint -2.55) as an Arterial for consistency with the statewide highway designation associated with OR 140. This section includes the portion of Kirtland Road that currently remains under county jurisdiction, which together with a segment of Pacific Avenue, is under construction to smooth the curves for a more direct alignment with Avenue G. (See Figure 6-5.)

This concept would have no impact to traffic operations or associated standards since state standards already apply. No changes to roadway geometry or right of way would be required, no impacts to environmental or land use resources would result, and no construction costs are associated with this concept.

The evaluation of upgrading this section of roadway to meet the functional classification is discussed in Section 6.5. Roadway Segment Improvements, Concept RS-3: Kirtland Road – Safety Improvements and Concept RS-4: Kirtland Road – Widening.

6.4.4. Concept JCR-4: Avenue G Reclassification (State Section)

Like Kirtland Road, Avenue G is currently classified as an Industrial Collector in the Jackson County and White City TSPs. Concept JCR-4 would reclassify the section of Avenue G from the realignment of Kirtland Road/Pacific Avenue (Milepoint -2.55) to Agate Road (Milepoint -1.16) as an Arterial for consistency with the statewide highway designation associated with OR 140. (See Figure 6-5.)

This concept would have no impact to traffic operations or associated standards since state standards already apply. No changes to roadway geometry or right of way would be required, no impacts to environmental or land use resources would result, and no construction costs are associated with this concept.

The evaluation of upgrading this section of roadway to meet the functional classification is discussed in Section 6.5. Roadway Segment Improvements, Concept RS-5: Avenue G – Widening.

6.4.5. Concept JCR-5: Agate Road Reclassification

Agate Road is currently classified as an Industrial Collector in the Jackson County and White City TSPs. Concept JCR-5 would reclassify the section of Agate Road from Avenue G (Milepoint -1.16) to Leigh Way (Milepoint -0.20) as an Arterial for consistency with the statewide highway designation associated with OR 140. (See Figure 6-5.)

This concept would have no impact to traffic operations or associated standards since state standards already apply. No changes to roadway geometry or right of way would be required, no impacts to environmental or land use resources would result, and no construction costs are associated with this concept.

The evaluation of upgrading this section of roadway to meet the functional classification is discussed in Section 6.5. Roadway Segment Improvements, Concept RS-6: Agate Road – Widening.

6.4.6. Concept JCR-6: Avenue G Reclassification (County Section)

Concept JCR-6 addresses the county section of Avenue G between Agate Road and OR 62. Although this section is not part of OR 140, it serves as a direct link between OR 62 and OR 140

for traffic traveling between Eagle Point and I-5. It also carries traffic from the residential areas of White City that lie east of OR 62. These demands are both expected to become an increasing portion of the traffic mix using Avenue G between OR 62 and OR 140 (Agate Road). For consistency with the mix of traffic served by this section of roadway and anticipated growth in through traffic, a reclassification from Industrial Collector to Minor Arterial is recommended. In the Jackson County TSP, Minor Arterial (Urban) and Major Collector are grouped together. (See Figure 6-5.)

Although the reclassification would have no direct impact to traffic operations or other factors evaluated for the alternatives analysis, the change in classification would change the street design standards for the segment. However, the reclassification itself does not imply a specific roadway improvement project is planned.

The evaluation of upgrading this section of roadway to meet the functional classification is discussed in Section 6.5. Roadway Segment Improvements, Concept RS-7: Avenue G – County Section Widening

6.4.7. Concept JCR-7: Avenue G Reclassification with Rerouted OR 140

Concept JCR-7 addresses the county section of Avenue G between Agate Road and OR 62 if OR 140 is rerouted (Concept HR-3) in response to construction of the full corridor improvement identified in the OR 62 Corridor Solutions EIS. Since this section of Avenue G would also serve as OR 140 under these conditions, Concept JCR-7 would reclassify it as an Arterial for consistency with the statewide highway designation associated with OR 140. (See Figure 6-5.)

Although the reclassification would have no direct impact to traffic operations or other factors evaluated for the alternatives analysis, the change in classification would change the street design standards for the segment. No changes to roadway geometry or right of way would be required, no impacts to environmental or land use resources would result, and no construction costs are associated with this concept.

The evaluation of upgrading this section of roadway to meet the functional classification is discussed in Section 6.5. Roadway Segment Improvements, Concept RS-8: Avenue G – OR 140 Reroute Widening.

6.5. Roadway Segment Improvements

Eight potential road segment improvements were identified during the concept development process to bring OR 140 up to state standards, provide additional capacity, or address safety concerns. A brief summary of the projects is presented in Table 6-3. Several of these potential improvements have options that are considered with the concept.

Table 6-3. Summary of OR 140 Concepts – Roadway Segment Improvements

ID	Location	General Description	Milepoints	Reason
Improvement Concepts with Tier 1 Improvements from the 2034 RTP				
RS-1	Blackwell Road	Widen Blackwell Road to meet state standards	-8.17 to -7.02 widening	Safety and Capacity Consistency with statewide highway design standard
RS-2	Blackwell Road	Widen Blackwell Road to meet state standards and modify curves for higher design speed	-8.17 to -7.02 widening	Safety and Capacity Consistency with statewide highway design standard
RS-3	Kirtland Road	Add safety improvements along existing roadway	-7.02 to -2.71	Safety
RS-4	Kirtland Road	Widen Kirtland Road to meet state standards	-7.02 to -2.71	Consistency with statewide highway design standard
RS-5	Avenue G	Widen Avenue G to meet state standards	-2.55 to -1.16	Consistency with statewide highway design standard
RS-6	Agate Road	Widen Agate Road to meet state standards	-1.16 to -0.20	Consistency with statewide highway design standard
RS-7	Avenue G – Agate Road to OR 62	Widen Avenue G to Jackson County Street Design Standards	NA (County Road)	High demand traveling to OR 140 from White City and OR 62 to north
Improvement Concepts with the Full OR 62 Corridor Improvements				
RS-8	Avenue G – Agate Road to OR 62	Widen Avenue G to meet state standards	NA (County Road)	Eventual need with OR 62 Full Corridor Improvement

6.5.1. Concept RS-1: Blackwell Road Improvements – Widening

Concept RS-1 would widen Blackwell Road to meet state standards but would keep the alignment along the current centerline to minimize impacts within the existing right of way to the greatest extent possible. Blackwell Road is currently a two-lane roadway with a roadway surface of 30 to 32 feet and a right-of-way width of 60 feet. Two state cross-sections were considered for this concept:

A. **2-Lane Rural** – This cross-section includes two 12-foot travel lanes and 8-foot shoulders within an 80-foot right of way.

B. **3-Lane Rural** – This cross-section includes two 12-foot travel lanes, a 16-foot median lane, and 8-foot shoulders within a 90-foot right of way.

No urban sections were considered for Blackwell Road because of its relatively remote location compared to the City of Central Point. An urban section could eventually be developed within the right of way for either option under consideration.

Figure 6-6 illustrates the concept layout for the Blackwell Road widening with a two-lane cross-section. The three-lane cross-section was not illustrated because relative difference in roadway and right-of-way width is difficult to distinguish at this scale; however, a schematic of the three-lane cross-section is included. Impacts associated with Concept RS-1 are discussed below.

Concept RS-1 Traffic Operations and Safety

Current traffic demand on Blackwell Road exceeds 8,000 vehicles per day (vpd) and 2034 forecast demand is expected to be near 12,000 vpd. Development of the Tolo industrial area would further increase demand.

Traffic Operations:

Concept RS-1, Option A would provide a two-lane roadway on Blackwell Road. While a two-lane cross-section may be able to accommodate future demand up to 15,000 vpd, congestion would be present at that level of demand and most intersections would need left-turn lanes to provide safe and efficient operations. Even at 12,000 vpd, turn lanes would be desirable at most access points.

Concept RS-1, Option B would provide a three-lane roadway on Blackwell Road. A three-lane cross-section may be able to accommodate volumes as high as 18,000 vpd. The center median would provide space for left-turn lanes at access points and could allow for two-stage left-turn movements at some locations.

Safety:

Concept RS-1 would widen Blackwell Road to meet state standards for roadway width but would keep the alignment along the current centerline; it does not modify any of the existing curves along the roadway. There are several sections where curves “break” repeatedly rather than flowing continuously. Although the posted speed for Blackwell Road is 45 mph, many drivers travel faster than the posted speed. These curves do not provide much leeway for driver error, particularly at these higher speeds. The crash analysis indicated a history of collisions near these curves. Wider shoulders, as assumed in Option A and the center median lane assumed in Option B may not ameliorate the safety concerns.

Concept RS-1, Option A would provide some safety benefits because of the wider shoulders in the corridor. These shoulders would provide more vehicle maneuvering room, if needed and they exceed the minimum desired width for shoulder bikeways on rural roads.

Concept RS-1, Option B would provide the same safety benefits as Option A but would have several added benefits as well. The center median lane would reduce the likelihood of head on and sideswipe collisions by providing a buffer between through travel lanes. The center median lane would also provide a refuge for left-turning vehicles waiting for a gap in oncoming traffic, which can reduce the likelihood of rear end collisions.

Concept RS-1 Basic Roadway Geometries and Right-of-Way Requirements

Concept RS-1 would widen Blackwell Road to meet state standards but would keep the alignment along the current centerline to minimize impacts within the existing right of way to the greatest extent possible. Figure 6-6 illustrates the basic roadway geometry and right of way for the Blackwell Road widening with a two-lane cross-section and an 80-foot right of way. There are several sections where curves "break" repeatedly rather than flowing continuously; these have not been modified for this concept. *(Concept RS-2: Blackwell Road Improvements – Widening and Curve Realignment addresses this issue.)*

The two-lane cross-section was illustrated with an 80-foot right of way but the 40-foot paved surface could possibly be accommodated within the existing 60-foot right of way. However, the construction of any auxiliary turn lanes would be difficult to accommodate.

The three-lane cross-section was illustrated with a 90-foot right of way. While a narrower right of way could be used, the existing 60-foot right of way could not accommodate the 56-foot paved surface and the slopes needed off either shoulder. Additional right of way would need to be acquired for this option.

Concept RS-1 Environmental and Land Use Assessment

Concept RS-1 would widen Blackwell Road along its current centerline alignment. Depending on the cross-section selected, the roadway would be 8 to 24 feet wider than the existing cross-section. Although the roadway itself would be narrower than the existing right of way, at least 20 feet of additional right of way is assumed for this analysis. Both Option A and Option B would bring the roadway closer to existing structures along Blackwell Road but Option B would have more significant impacts. With either option, modifications to the alignment illustrated in Figure 6-6 could reduce impacts to structures on adjacent properties.

The continuous center left-turn lane with Option B would require a conditional use permit with alternatives analysis to meet the requirements of the Transportation Planning Rule (TPR).

The area along Blackwell Road is disturbed by existing development. Willow Creek does cross Blackwell Road and a section of the roadway appears to be within the 100-year flood plain of the creek. No other natural resources are mapped within the right of way illustrated concept.

Concept RS-1 Concepts Cost Opinions

Cost opinions were developed for each option using present day dollars and are consistent with standard estimating methods. Both cost opinions assumed that the existing roadway would only need an overlay and would not require reconstruction. The estimates for this concept with different cross-sections are:

- Concept RS-1 Option A – Blackwell Widening – Two Lanes: $1.4 million
- Concept RS-1 Option B – Blackwell Widening – Three Lanes: $3.6 million

Neither of these costs includes acquisition of additional right of way.

6.5.2. Concept RS-2: Blackwell Road Improvements – Widening and Curve Realignment

Concept RS-2 would widen Blackwell Road to meet state standards and would realign sections of the roadway to smooth curves and meet a 55 mph design speed. Similar to Concept RS-1, two state cross-sections were considered for this concept:

A. **2-Lane Rural** – This cross-section includes two 12-foot travel lanes and 8-foot shoulders within an 80-foot right of way.
B. **3-Lane Rural** – This cross-section includes two 12-foot travel lanes, a 16-foot median lane, and 8-foot shoulders within a 90-foot right of way.

No urban sections were considered for Blackwell Road because of its relatively remote location compared to the City of Central Point. An urban section could eventually be developed within the right of way for either option under consideration.

Figure 6-7 illustrates the concept layout for the Blackwell Road widening and curve realignment with a three-lane cross-section. A schematic of the two-lane cross-section is also included. Impacts associated with Concept RS-2 are discussed below.

Concept RS-2 Traffic Operations and Safety

Current traffic demand on Blackwell Road exceeds 8,000 vehicles per day (vpd) and 2034 forecast demand is expected to be near 12,000 vpd. Development of the Tolo industrial area would further increase demand.

Traffic Operations:

The traffic operations for Concept RS-2 would be the same as those for Concept RS-1 because the cross-section assumptions are the same.

Safety:

Concept RS-2 would widen Blackwell Road to meet state standards and would realign sections of the roadway to smooth curves and meet a 55 mph design speed. The spiraling curves and higher design speed should improve the safety of the roadway along those sections where curves are currently breaking and crash analysis indicates a history of collisions.

The safety benefits of the two- and three-lane cross-sections would be the same for Concept RS-2 as those described for Concept RS-1 because the cross-section assumptions are the same.

Concept RS-2 Basic Roadway Geometries and Right-of-Way Requirements

Concept RS-2 would widen Blackwell Road to meet state standards and would realign sections of the roadway to smooth curves and meet a 55 mph design speed. Figure 6-7 illustrates the basic roadway geometry and right of way for the Blackwell Road widening with a three-lane cross-section and a 90-foot right of way.

The right-of-way needs for this concept would be much more extensive than for Concept RS-1 because of the higher design speed and curve corrections. Neither roadway option could be constructed within the existing right of way; therefore, acquisition of the proposed widths, or something similar, is recommended.

Concept RS-2 Environmental and Land Use Assessment

Concept RS-2 would widen Blackwell Road and realign sections to smooth curves. The alignment illustrated in Figure 6-7 was selected to avoid impacts to existing structures; however, the roadway would require right of way acquisition from almost all adjacent properties. Option B would have more significant requirements than Option A.

The continuous center left-turn lane with Option B would require a conditional use permit with alternatives analysis to meet the requirements of the Transportation Planning Rule (TPR).

The area along Blackwell Road is disturbed by existing development. Willow Creek does cross Blackwell Road and a section of the roadway appears to be within the 100-year flood plain of the creek. No other natural resources are mapped within the right of way illustrated concept.

Concept RS-2 Concepts Cost Opinions

Cost opinions were developed for each option using present day dollars and are consistent with standard estimating methods. Because of the higher design speed and curve corrections, the alignment of Blackwell Road under this option will not consistently coincide with the existing roadway; therefore, all construction is assumed to be new work. The estimates for this concept with different cross-sections are:

- Concept RS-2 Option A – Blackwell Widening and Realignment – Two Lanes: $6.2 million
- Concept RS-2 Option B – Blackwell Widening and Realignment – Three Lanes: $8.7million

Neither of these costs includes acquisition of additional right of way or mitigation of wetland impacts.

6.5.3. Concept RS-3: Kirtland Road – Safety Improvements

In the crash analysis performed as part of the existing transportation system evaluation, nineteen crashes occurred at non-intersection locations along Kirtland Road between Blackwell Road and Table Rock Road. Visibility on this section of roadway was highlighted as a concern by several citizen and technical advisory committee members. Concept RS-3 identifies two safety improvements that could be implemented on Kirtland Road:

A. **Delineation** – Add roadway delineators from Blackwell Road to Table Rock Road.

B. **Rumble Strips** – Add rumble strips along the shoulders for the roadway from Blackwell Road to Table Rock Road.

One of these safety improvements would provide a visual enhancement while the other provides an auditory backup for drivers. These improvements could be constructed independently or together.

Concept RS-3 Traffic Operations and Safety

Traffic operations would not be affected by these improvements which are focused on safety.

Concept RS-3, Option A would provide delineators along Kirtland Road. Crash research indicates that the benefits of delineators may be offset by adding to the likelihood of a fixed object collision when a vehicle runs off the road.

Concept RS-3, Option B would provide rumble strips along the shoulders of Kirtland Road. Crash research indicates that rumble strips can provide a measurable reduction in single vehicle run-off-the-road crashes. Almost 50 percent of the 19 crashes that occurred on Kirtland Road during the five-year analysis period were this type of crash.

Concept RS-3 Basic Roadway Geometries and Right-of-Way Requirements

Neither of these options would require any changes in geometry or additional right of way acquisition.

Concept RS-3 Environmental and Land Use Assessment

Neither of these options would require construction beyond the area already disturbed by the existing roadway; however, the rumble strips do generate noise when vehicles stray over them. The increased noise would be very intermittent rather than continuous. There are two residentially-zoned parcels immediately adjacent to Kirtland Road near High Banks Road that could be affected by the increased noise. There are a few others residences about a quarter mile from Kirtland Road and Touvelle State Park to the north (more than one quarter mile) that may possibly experience some very intermittent noise as well from the rumble strips.

Concept RS-3 Concepts Cost Opinions

Cost opinions were developed for each option using present day dollars and are consistent with standard estimating methods. The projects were estimated separately but some cost savings from construction of both options concurrently could be realized. The estimates for the two options under this concept are:

- Concept RS-3 Option A – Kirtland Road Delineators: $15,000
- Concept RS-3 Option B – Kirtland Road Rumble Strips: $10,000

6.5.4. Concept RS-4: Kirtland Road – Widening

Concept RS-4 would widen Kirtland Road to meet state standards. Kirtland Road is currently a two-lane roadway with a roadway surface of 32 to 36 feet and a right-of-way width that varies from 60 feet (Approximate Milepoint -6.8 to -5.76) to 80 feet (Approximate Milepoint -5.76 to -

2.71). The new construction around the realigned Blackwell/Kirtland Road intersection already has 8–foot shoulders and approximately 85 percent of Kirtland Road already has 6-foot shoulders; only the area beginning 0.1 miles west of Table Rock Road to Pacific Avenue has 4-foot shoulders. A portion of this section is under construction by Jackson County as part of the realignment of Pacific Avenue. Given the rural nature of this roadway segment, only a two-lane cross section was considered. This cross-section includes two 12-foot travel lanes and 8-foot shoulders within an 80-foot right of way.

Figure 6-8 illustrates the concept layout for the Kirtland Road widening with a two-lane cross-section. Impacts associated with Concept RS-4 are discussed below.

Concept RS-4 Traffic Operations and Safety

Current traffic demand on Kirtland Road ranges from more than 7,000 vehicles per day (vpd) near Blackwell Road to about 4,000 vpd east of Table Rock Road. The 2034 forecast demand is expected to range from about 10,500 near Blackwell Road to over 7,000 east of Table Rock Road.

Traffic Operations:

The two-lane cross-section should be able to accommodate future demand along Kirtland Road. Some intersections may benefit from the addition of left-turn lanes to provide safe and efficient operations. Specific considerations for turn lanes are addressed in Section 6.6. Intersection Improvements.

Safety:

The two-lane cross-section would provide some minor safety benefits because of the wider shoulders in the corridor. Most of the corridor (more than 85 percent) already has shoulders that are 6 feet wide, which leaves only a short segment with 4-foot shoulders in the vicinity of the signalized intersection at Table Rock Road. The wider shoulders would provide slightly more vehicle maneuvering room, if needed and they exceed the desired width of 6 feet for shoulder bikeways on rural roads.

Concept RS-4 Basic Roadway Geometries and Right-of-Way Requirements

Concept RS-4 would widen the shoulders on Kirtland Road to meet the 8-foot state standards. Figure 6-8 illustrates the basic roadway geometry and right of way for the Blackwell Road widening with a two-lane cross-section and an 80-foot right of way.

The two-lane cross-section was illustrated with an 80-foot right of way but the 40-foot paved surface could possibly be accommodated within the existing 60-foot right of way that exists for a portion of the roadway between approximately Milepoint -6.81 and -5.76. However, the construction of any auxiliary turn lanes could be difficult to accommodate in a 60-foot right of way.

Concept RS-4 Environmental and Land Use Assessment

Concept RS-4 would widen Kirtland Road along its current centerline alignment by approximately two to four feet on either side of the road. Although no structures would be directly impacted, the roadway would be slightly closer to them than under current conditions.

Kirtland Road crosses a number of creeks and canals, including Bear Creek and Whetstone Creek. Flooding near the existing Whetstone crossing has been an issue noted by some project participants. Hydraulic analysis of the crossing will be necessary if this concept is recommended in the plan to determine if bridge replacement will be necessary.

Kirtland Road also runs through a number of areas with a wetlands classification of palustrine, emergent that may contain high quality vernal pools. Impacts to these resources should be avoided; mitigation and permitting will be necessary if impacts cannot be avoided.

Concept RS-4 Concepts Cost Opinions

Cost opinions were developed for each option using present day dollars and are consistent with standard estimating methods. The cost opinion assumed that the existing roadway would not need an overlay. The estimate for this concept is:

- Concept RS-4 – Kirtland Widening – Two Lanes: $2.4 million

This cost does not include acquisition of additional right of way, Whetstone Creek bridge replacement, or mitigation for wetland impacts.

6.5.5. Concept RS-5: Avenue G – Widening

Concept RS-5 would widen Avenue G to meet state standards. Avenue G is currently a two-lane roadway with a roadway surface of 36 to 37 feet and a right-of-way width of 100 feet. Three state cross-sections were considered for this concept:

A. **2-Lane Rural** – This cross-section includes two 12-foot travel lanes and 8-foot shoulders within the existing 100-foot right of way.
B. **3-Lane Rural** – This cross-section includes two 12-foot travel lanes, a 16-foot median lane, and 8-foot shoulders within the existing 100-foot right of way.
C. **3-Lane Urban** – This cross-section includes two 12-foot travel lanes, a 14-foot median lane, 6-foot bike lanes, and 6-foot sidewalks within the existing 100-foot right of way. *Note: A multi-use path with a landscape buffer could be substituted for bike lanes and sidewalks in the urban section.*

The Jackson County cross-section for an urban minor arterial/major collector could also be considered for this section but was not specifically evaluated. This cross-section would be the same as the 3-lane urban section for the state but includes a 7-foot planting strip between the curb and sidewalk.

Figure 6-9 illustrates the concept layout for the Avenue G widening with a three-lane rural cross-section. The other two cross-sections were not illustrated because relative difference in roadway and right-of-way width is difficult to distinguish at this scale; however, a schematic of each cross-section is included. Impacts associated with Concept RS-5 are discussed below.

Concept RS-5 Traffic Operations and Safety

Current traffic demand on Avenue G is estimated at about 4,500 vehicles per day (vpd) and 2034 forecast demand is expected to be near 8,000 vpd. Development of the adjacent industrial area would contribute to this growth.

Traffic Operations:

Concept RS-5, Option A would provide a two-lane rural roadway on Avenue G. The two-lane cross-section would be able to accommodate future demand though some left-turn lanes may be needed to provide safe and efficient operations.

Concept RS-5, Option B would provide a three-lane rural roadway on Avenue G. A three-lane cross-section would be able to accommodate future demand and the center median would provide space for left-turn lanes at any access point. It could also allow for two-stage left-turn movements at some locations.

Concept RS-5, Option C would provide a three-lane urban roadway on Avenue G. Like the rural cross-section, the center median would provide space for left-turn lanes at any access point. The urban section provides bike lanes, curbs, and sidewalks rather than a shoulder shared by bicycles and pedestrians. These amenities would not change traffic operations for vehicles but would improve the pedestrian environment considerably.

Safety:

Concept RS-5, Option A would provide some minimal safety benefits because the shoulders in the corridor would be slightly (1 to 2 feet) wider than currently constructed.

Concept RS-5, Option B would have the added benefit of the center median. The center median lane would reduce the likelihood of head on and sideswipe collisions by providing a buffer between through travel lanes. The center median lane would also provide a refuge for left-turning vehicles waiting for a gap in oncoming traffic, which can reduce the likelihood of rear end collisions.

Concept RS-5, Option C would augment the three-lane cross-section with curbs and sidewalks which would enhance the safety of pedestrians in the corridor.

Concept RS-5 Basic Roadway Geometries and Right-of-Way Requirements

Concept RS-5 would widen Avenue G to meet state standards within the existing right of way. Figure 6-9 illustrates the basic roadway geometry and right of way for the Avenue G widening with a three-lane rural cross-section within the existing 100-foot right of way.

Geometric improvements at specific intersections are discussed in Section 6.6. Intersection Improvements.

Concept RS-5 Environmental and Land Use Assessment

Concept RS-5 would widen Avenue G along its current centerline alignment within the existing right of way. Depending on the cross-section selected, the roadway would be 4 to 26 feet wider than the existing cross-section. This area is surrounded by industrial uses that would experience minimal adverse effects from the wider roadway. Some economic benefit for adjacent properties could be derived from a higher capacity roadway with turn lanes.

The area along Avenue G is disturbed by existing development. No natural resources are mapped within the right of way illustrated for the concept.

Concept RS-5 Concepts Cost Opinions

Cost opinions were developed for each option using present day dollars and are consistent with standard estimating methods. All three cost opinions assumed that the existing roadway would only need an overlay and would not require reconstruction. The estimates for this concept with different cross-sections are:

- Concept RS-5 Option A – Avenue G Widening – Rural Two Lanes: $1.3 million
- Concept RS-5 Option B – Avenue G Widening – Rural Three Lanes: $4.4 million
- Concept RS-5 Option C – Avenue G Widening – Urban Three Lanes: $7.6 million

The Jackson County cross-section for an urban minor arterial/major collector would be the same section as Option C but would include a 7-foot planting strip between the curb and sidewalks which is not anticipated to measurably increase the cost.

6.5.6. Concept RS-6: Agate Road – Widening

Concept RS-6 would widen Agate Road to meet state standards. Agate Road is currently a two-lane roadway with a roadway surface of 32 to 40 feet and a right-of-way width of 100 feet. Two state cross-sections were considered for this concept:

A. **3-Lane Rural** – This cross-section includes two 12-foot travel lanes, a 16-foot median lane, and 8-foot shoulders within the existing 100-foot right of way.
B. **3-Lane Urban** – This cross-section includes two 12-foot travel lanes, a 14-foot median lane, 6-foot bike lanes, and 6-foot sidewalks within the existing 100-foot right of way.

The Jackson County cross-section for an urban minor arterial/major collector could also be considered for this section but was not specifically evaluated. This cross-section would be the same as the 3-lane urban section for the state but includes a 7-foot planting strip between the curb and sidewalk.

Figure 6-10 illustrates the concept layout for the Agate Road widening with a three-lane rural cross-section. The other cross-section was not illustrated because relative difference in roadway and right-of-way width is difficult to distinguish at this scale; however, a schematic of the urban cross-section is included. Impacts associated with Concept RS-6 are discussed below.

Concept RS-6 Traffic Operations and Safety

Current traffic demand on Agate Road is estimated at about 4,500 vehicles per day (vpd) and 2034 forecast demand is expected to be near 8,000 vpd. Development of the adjacent industrial area would contribute to this growth. This forecast does not include the full corridor improvement for OR 62.

Traffic Operations:

Concept RS-6, Option A would provide a three-lane rural roadway on Agate Road. A three-lane cross-section would be able to accommodate future demand and the center median would provide space for left-turn lanes at any access points. It could also allow for two-stage left-turn movements at some locations.

Concept RS-6, Option B would provide a three-lane urban roadway on Agate Road. Like the rural cross-section, the center median would provide space for left-turn lanes and any access point. The urban section provides bike lanes, curbs, and sidewalks rather than a shoulder shared by bicycles and pedestrians. These amenities would not change traffic operations for vehicles but would improve the pedestrian environment considerably.

Safety:

Concept RS-6, Option A would include some benefit from wider shoulders and have the added benefit of the center median. The center median lane would reduce the likelihood of head on and sideswipe collisions by providing a buffer between through travel lanes. The center median lane would also provide a refuge for left-turning vehicles waiting for a gap in oncoming traffic, which can reduce the likelihood of rear end collisions.

Concept RS-6, Option B would augment the three-lane cross-section with curbs and sidewalks which would enhance the safety of pedestrians in the corridor.

Concept RS-6 Basic Roadway Geometries and Right-of-Way Requirements

Concept RS-6 would widen Agate Road to meet state standards within the existing right of way. Figure 6-10 illustrates the basic roadway geometry and right of way for the Agate Road widening with a three-lane rural cross-section within the existing 100-foot right of way. The at-grade railroad crossing would be fully replaced as part of the project.

Geometric improvements at specific intersections are discussed in Section 6.6. Intersection Improvements.

Concept RS-6 Environmental and Land Use Assessment

Concept RS-6 would widen Agate Road along its current centerline alignment within the existing right of way. Depending on the cross-section selected, the roadway would be 4 to 30 feet wider than the existing cross-section. This area is surrounded by industrial uses that would experience minimal adverse effects from the wider roadway. Some economic benefit for adjacent properties could be derived from a higher capacity roadway with turn lanes.

The area along Agate Road is disturbed by existing development. An area to the west of Agate Road and north of Antelope Road is mapped as Palustrine, Other wetlands but aerial photography shows this area is mostly disturbed.

Concept RS-6 Concepts Cost Opinions

Cost opinions were developed for each option using present day dollars and are consistent with standard estimating methods. The cost opinions assumed that the existing roadway would only need an overlay and would not require reconstruction. Both cost opinions include fully replacing the at-grade railroad crossing as part of the project. The estimates for this concept with different cross-sections are:

- Concept RS-6 Option A – Agate Road Widening – Rural Three Lanes: $3.9 million
- Concept RS-6 Option B – Agate Road Widening – Urban Three Lanes: $6.0 million

The Jackson County cross-section for an urban minor arterial/major collector would be the same section as Option B but would include a 7-foot planting strip between the curb and sidewalks which is not anticipated to measurably increase the cost.

6.5.7. Concept RS-7: Avenue G – County Section Widening

The county section of Avenue G between Agate Road and OR 62 serves as a direct link between OR 62 and OR 140 for traffic traveling between Eagle Point and I-5. It also carries traffic from the residential areas of White City that lie east of OR 62. These demands are both expected to become an increasing portion of the traffic mix using Avenue G between OR 62 and OR 140 (Agate Road).

Concept RS-7 would upgrade the county section of Avenue G between Agate Road and OR 62 to better serve anticipated demand from both through and local traffic. Avenue G is currently a two-lane roadway (industrial collector) with a roadway surface of 36 feet and a right-of-way width of 80 feet. Two county cross-sections were considered for this concept:

A. **3-Lane Industrial Collector** – This cross-section includes two 12- to 14-foot travel lanes, a 14-foot median lane, and 6-foot shoulders within the existing 80-foot right of way.
B. **Minor Arterial/Major Collector** – This cross-section includes two 12-foot travel lanes, a 14-foot median lane, 6-foot bike lanes, 7-foot planting strips, and 6-foot sidewalks within the existing 80-foot right of way.

Figure 6-11 illustrates the concept layout for the Avenue G widening with a Jackson County three-lane industrial collector cross-section. The other cross-section was not illustrated because relative difference in roadway and right-of-way width is difficult to distinguish at this scale; however, a schematic of each cross-section is included. Impacts associated with Concept RS-7 are discussed below.

Concept RS-7 Traffic Operations and Safety

Current traffic demand on Avenue G between Agate Road and OR 62 is estimated at about 4,000 vehicles per day (vpd) and 2034 forecast demand is expected to be near 7,500 vpd. Development of the adjacent industrial area would contribute to this growth.

Traffic Operations:

Concept RS-7, Option A would provide a three-lane industrial collector on Avenue G. A three-lane cross-section would be able to accommodate future demand and the center median would provide space for left-turn lanes at any access point. It could also allow for two-stage left-turn movements at some locations.

Concept RS-7, Option B would also provide a three-lane roadway on Avenue G. Like the industrial collector cross-section, the center median would provide space for left-turn lanes at any access point. The minor arterial section provides bike lanes, curbs, and sidewalks rather than a shoulder to be shared by bicycles and pedestrians. These amenities would not change traffic operations for vehicles but would improve the pedestrian environment considerably.

Safety:

Concept RS-7, Option A would have the center median lane which provide a refuge for left-turning vehicles waiting for a gap in oncoming traffic, which can reduce the likelihood of rear end collisions.

Concept RS-7, Option B would augment the three-lane cross-section with curbs and sidewalks which would enhance the safety of pedestrians in the corridor.

Concept RS-7 Basic Roadway Geometries and Right-of-Way Requirements

Concept RS-7 would upgrade the county section of Avenue G between Agate Road and OR 62 to better serve anticipated demand from both through and local traffic. Figure 6-11 illustrates the basic roadway geometry and right of way for the Avenue G widening with a three-lane industrial collector cross-section within the existing 80-foot right of way. The at-grade railroad crossing would be fully replaced as part of the project.

The minor arterial cross-section could also be accommodated within the existing right of way.

Concept RS-7 Environmental and Land Use Assessment

Concept RS-7 would widen Avenue G along its current centerline alignment within the existing right of way. Depending on the cross-section selected, the roadway would be 14 to 36 feet

wider than the existing cross-section. This area is surrounded by industrial uses that would experience minimal adverse effects from the wider roadway.

The area along Avenue G is disturbed by existing development. No natural resources are mapped within the right of way illustrated for the concept.

Concept RS-7 Concepts Cost Opinions

Cost opinions were developed for each option using present day dollars and are consistent with standard estimating methods. Both cost opinions assumed that the existing roadway would only need an overlay and would not require reconstruction. Both cost opinions include fully replacing the at-grade railroad crossing as part of the project. The estimates for this concept with different cross-sections are:

- Concept RS-7 Option A – Avenue G Widening – 3-Lane Industrial Collector: $2.6 million
- Concept RS-7 Option B – Avenue G Widening – Minor Arterial: $5.0 million

6.5.8. Concept RS-8: Avenue G – OR 140 Reroute Widening

Concept RS-8 responds to the completion of the full corridor improvement identified in the OR 62 Corridor Solutions Environmental Impact Statement (EIS). Construction of the full corridor improvement identified in the OR 62 Corridor Solutions EIS would impact OR 140 on its alignment along Agate Road and Leigh Way. The new OR 62 expressway would overlap OR 140 along the section of Agate Road between Leigh Way and Avenue G. Leigh Way would no longer connect to Agate Road but would end in a cul-de-sac and only serve the adjacent land uses. To address this future disconnect, rerouting OR 140 along Crater Lake Highway and Avenue G would be partnered with the OR 62 full corridor improvement.

Upgrades to Avenue G while it remains under Jackson County jurisdiction were discussed under Concept RS-7. If these improvements have not been implemented prior to rerouting of OR 140, then some upgrade would be needed to bring the roadway up to state standards. Avenue G is currently a two-lane roadway (industrial collector) with a roadway surface of 36 feet and a right-of-way width of 80 feet. Two state cross-sections were considered for this concept:

A. **3-Lane Rural** – This cross-section includes two 12-foot travel lanes, a 14-foot median lane, and 8-foot shoulders within the existing 80-foot right of way.
B. **3-Lane Urban** – This cross-section includes two 12-foot travel lanes, a 14-foot median lane, 6-foot bike lanes, and 6-foot sidewalks within the existing 80-foot right of way.

Figure 6-12 illustrates the concept layout for the Avenue G widening with the three-lane rural cross-section. The other cross-section was not illustrated because relative difference in roadway and right-of-way width is difficult to distinguish at this scale; however, a schematic of each cross-section is included.

Concept RS-8 Traffic Operations and Safety

Current traffic demand on Avenue G between Agate Road and OR 62 is estimated at about 4,000 vehicles per day (vpd) and 2034 forecast demand is expected to be about 7,500 vpd with the OR 62 improvements to be constructed in Phase 1 and 2 (JTA funded). Forecasting from the OR 62 Corridor Solutions EIS indicates that future traffic volumes on Avenue G may be similar or slightly lower with the full corridor improvement construction.

Traffic operations and safety would be the same for Concept RS-8 as those discussed for RS-7. A three-lane cross-section (Options A and B) would be able to accommodate future demand and the center median would provide space for left-turn lanes at any access point. It could also allow for two-stage left-turn movements at some locations. An urban section (Option B) would provide bike lanes, curbs, and sidewalks rather than a shoulder to be shared by bicycles and pedestrians. These amenities would not change traffic operations for vehicles but would improve the pedestrian environment considerably.

Concept RS-8 Basic Roadway Geometries and Right-of-Way Requirements

Concept RS-8 would upgrade Avenue G between Agate Road and OR 62 to meet state standards in response to rerouting OR 140 as part of the OR 62 full corridor improvement. Figure 6-12 illustrates the basic roadway geometry and right of way for the Avenue G widening with a three-lane rural cross-section within the existing 80-foot right of way. The at-grade railroad crossing would be fully replaced as part of the project.

Both a three-lane rural and three-lane urban standard could be accommodated within the existing 80-foot right of way.

Concept RS-8 Environmental and Land Use Assessment

Concept RS-8 would widen Avenue G along its current centerline alignment within the existing right of way. Depending on the cross-section selected, the roadway would be 14 to 36 feet wider than the existing cross-section. This area is surrounded by industrial uses that would experience minimal adverse effects from the wider roadway.

The area along Avenue G is disturbed by existing development. No natural resources are mapped within the right of way illustrated for the concept.

Concept RS-8 Concepts Cost Opinions

Cost opinions were developed for each option using present day dollars and are consistent with standard estimating methods. Both cost opinions assumed that the existing roadway would only need an overlay and would not require reconstruction. Both cost opinions include fully replacing the at-grade railroad crossing as part of the project. The estimates for this concept with different cross-sections are:

- Concept RS-8 Option A – Avenue G Widening – 3-Lane Rural: $2.6 million
- Concept RS-8 Option B – Avenue G Widening – 3-Lane Urban: $5.0 million

6.6. Intersection Improvements

Twelve potential intersection improvements were identified to improve traffic flow, provide additional capacity, or address safety concerns. A brief summary of the projects is presented in Table 6-4.

Table 6-4. Summary of OR 140 Concepts – Intersection Improvements

ID	Location	General Description	Milepoints	Reason
Improvement Concepts with Tier 1 Improvements from the 2034 RTP				
I-1	Blackwell Road & Kirtland Road	Install traffic signal when warranted	-7.02	Capacity
I-2	Kirtland Road & High Banks Road	Add left-turn lanes on Kirtland Road	-5.37	Safety
I-3	Kirtland Road & West Antelope Road	Add westbound left-turn lane on Kirtland Road	-3.74	Safety and Future Transit Service
I-4	Avenue G & Agate Road	Realign intersection to give priority to OR 140 traffic flow	-1.16	Priority for highway movements
I-5	Avenue G & Agate Road	Channelize eastbound right turn and install traffic signal	-1.16	Improved flow for highway movements and capacity
I-6	Agate Road & Leigh Way	Realign intersection to give priority to OR 140 traffic flow	0.20	Improved flow for highway movements
I-7	Agate Road & Leigh Way	Channelize westbound right turn and modify traffic control	0.20	Improved flow for highway movements
I-8	OR 140 & Lakeview Drive	Add left-turn lanes on OR 140	1.03	Safety
I-9	OR 140 & Riley Road	Add left-turn lanes on OR 140	3.59	Safety
I-10	OR 140 & Meridian Road	Add left-turn lanes on OR 140	5.03	Safety
I-11	OR 140 & Brownsboro-Meridian Road	Add left-turn lanes on OR 140	7.41	Safety
I-12	OR 140 & Brownsboro-Eagle Point Road	Add left-turn lanes on OR 140	7.98	Safety

6.6.1. Concept I-1: Blackwell Road & Kirtland Road Traffic Signal

The Blackwell Road/Kirtland Road intersection is currently STOP-controlled on the eastbound (Blackwell Road) approach with free-flowing movements on the northbound (Blackwell Road) and southbound (Kirtland Road) approaches. Traffic operations analysis indicates that the eastbound left-turn movement currently experiences some congestion during peak conditions. The extent of that congestion depends on how drivers execute the left-turn movement. Some drivers turn left directly into the northbound travel lane while others may be using the center median refuge to execute a “two-stage” left turn. A two-stage turn is made when the eastbound driver at the STOP sign seeks a gap in the southbound traffic and turns left into the median, waits for a gap in the northbound traffic , then pulls into the northbound travel lane. For clarity, Figure 6-13 illustrates this movement.

If drivers do not take advantage of the center median refuge, the existing v/c ratio for the eastbound approach is estimated at 0.77; however, if the two-stage left turn is included in the calculation, the v/c ratio could be as low as 0.40. For the 2034 future condition, the v/c ratio is estimated at 1.12 with no median usage, and 0.45 with the two-stage left-turn movement. A survey of driver behavior at this location has not been conducted, so the number of left turns that are executed in the two-stage method is not available.

Not all drivers who could take advantage of the two-stage left-turn may choose to do so because the median is not a typical two-way, center left-turn lane but rather is an area created to accommodate a raised median between travel lanes at the railroad crossing. The median remains wide, although not raised, between the railroad crossing and the intersection. The striping is not typical of a two-way, center left-turn lane either where the outside line are solid and the inside lines are dashed. Although the median is not cross-hatched, both lines on either side of the lane are solid stripes, which many drivers may interpret as a prohibition. The storage area between the end of the raised median at the railroad tracks and Blackwell Road is approximately 250 feet.

Concept I-1 would install a traffic signal at the Blackwell Road/Kirtland Road intersection if persistent congestion is present (i.e., drivers do not execute the two-stage left turn) and traffic volumes meet signal warrants.

Concept I-1 Traffic Operations and Safety

Analysis using ODOT's preliminary traffic signal warrants[5] indicates that existing traffic volumes are not sufficient to warrant a traffic signal but 2034 future traffic volumes would meet Case B: Interruption of Continuous Traffic Flow. Traffic operations based on 2034 volumes with a new signal and no geometric changes indicate an overall intersection v/c ratio of 0.62.

Because traffic signals increase the number of vehicles stopping at an intersection, signalized intersections frequently have higher crash rates than unsignalized intersections although the type and severity of the crashes differs. Thus, persistent congestion indicated by longer delays and queuing should be present and traffic volumes should meet signal warrants before a traffic signal is installed.

Concept I-1 Basic Roadway Geometries and Right-of-Way Requirements

Concept I-1 assumes that no geometric improvements would be needed and that only the traffic signal would be installed with this improvement. All improvements associated with the signal could be installed within existing right of way.

Consideration should be given to restriping the median lane to indicate availability for use in making the two-stage left-turn movement; however, ODOT striping policy must be followed.

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[5] Section 7.4 Traffic Signal Warrants, Analysis Procedures Manual, April 2006, Updated January 2011, online reference: http://www.oregon.gov/ODOT/TD/TPAU/docs/A_APM/APM.pdf

Concept I-1 Environmental and Land Use Assessment

One access point serving Knife River Materials to the north and the MJ Market to the south is located approximately 200 feet west of the Blackwell Road/Kirtland Road intersection. If persistent congestion is present at the STOP sign, access to these driveways may be affected. Installation of a traffic signal in response to long delays on Blackwell Road could also result in some queues that would extend back to these driveways.

No environmental resource impacts are associated with this improvement.

Concept I-1 Concepts Cost Opinions

A general cost assumption $0.5 million was assumed for traffic signals.

6.6.2. Concept I-2 – Kirtland Road & High Banks Road Left-Turn Lanes

The Kirtland Road/High Banks Road intersection is currently STOP-controlled on the northbound/southbound (High Banks Road) approaches with free-flowing movements in the eastbound/westbound directions (OR 140/Kirtland Road). Kirtland Road has no left-turn lanes but both the eastbound and westbound approaches have right-turn tapers to facilitate deceleration and turns. Permitted speed on Kirtland Road is 55 mph.

Concept I-2 would add eastbound and westbound left-turn lanes on Kirtland Road at High Banks Road to provide a refuge for vehicles turning left from the highway to the side street. This concept is illustrated in Figure 6-14.

Concept I-2 Traffic Operations and Safety

Preliminary analysis using ODOT's turn lane criteria[6] indicates that existing traffic volumes are not sufficient to warrant left turn lanes for either the eastbound or westbound approach. Future traffic volume estimates do not indicate that criteria would be met within the planning horizon.

One crash was reported at the High Banks Road intersection during the 5-year crash analysis period. The crash was a rear end collision that occurred when a westbound through vehicle crashed into a vehicle stopped to make a left turn onto High Banks Road; no injuries occurred. A separate left-turn lane would reduce the likelihood of this type of collision.

Concept I-2 Basic Roadway Geometries and Right-of-Way Requirements

Concept I-2 would add eastbound and westbound left-turn lanes on Kirtland Road at High Banks Road to provide a refuge for vehicles turning left from the highway to the side street. Widening

[6] Section 7.2 Turn Lane Criteria, Analysis Procedures Manual, April 2006, Updated January 2011, online reference: http://www.oregon.gov/ODOT/TD/TPAU/docs/A_APM/APM.pdf. Note: These criteria are also consistent with the criteria in Appendix F of the Highway Design Manual.

to accommodate the left-turn lanes is assumed to occur equally on both sides of the roadway. This concept is illustrated in Figure 6-14.

It appears that widening could be accommodated within the existing right of way assuming that the roadway centerline coincides with the right-of-way centerline.

Concept I-2 Environmental and Land Use Assessment

There are several access points on the south side of Kirtland Road that lie within the improvement area and could require minor reconstruction to accommodate the roadway widening.

The southeast quadrant of the Kirtland Road/High Banks Road intersection has a wetlands classification of palustrine, emergent and may contain high quality vernal pools. Impacts to wetlands should be avoided; mitigation and permitting will be necessary if impacts cannot be avoided. Wetland delineation would need to be conducted for this concept.

Concept I-2 Concepts Cost Opinions

Cost opinions were developed for this concept using present day dollars and are consistent with standard estimating methods. The estimate for this concept is:

- Concept I-2 – Kirtland Road/High Banks Road Left-Turn Lanes: $1.5 million

This cost does not include acquisition of additional right of way or mitigation for wetlands impacts.

6.6.3. Concept I-3: Kirtland Road & West Antelope Road Left-Turn Lane

The Kirtland Road/West Antelope Road intersection is a “T” intersection currently STOP-controlled on the northbound (West Antelope Road) approach with free-flowing movements in the eastbound/westbound directions (OR 140/Kirtland Road). Kirtland Road has no westbound left-turn lane but does have an eastbound right-turn lane. Permitted speed on Kirtland Road is 55 mph.

Concept I-3 would add a westbound left-turn lane on Kirtland Road at West Antelope Road to provide a refuge for vehicles turning left from the highway to the side street. This concept is illustrated in Figure 6-15.

Concept I-3 Traffic Operations and Safety

Only seven vehicles making the westbound left-turn movement were counted in a four-hour period which is not sufficient to warrant a left-turn lane. However, the Rogue Valley Transit District (RVTD) is considering expanding service in the White City area and may include a loop that would involve westbound vehicles turning left from Kirtland Road to West Antelope Road.

No crashes were reported at the West Antelope Road intersection during the 5-year crash analysis period.

Concept I-3 Basic Roadway Geometries and Right-of-Way Requirements

Concept I-3 would add a westbound left-turn lane on Kirtland Road at West Antelope Road to provide a refuge for vehicles turning left from the highway to the side street. This concept is illustrated in Figure 6-15.

It appears that widening could be accommodated within the existing right of way assuming that the roadway centerline coincides with the right-of-way centerline.

Concept I-3 Environmental and Land Use Assessment

There are several access points to the Medford City Water Reclamation facility on the north side of Kirtland Road. These access points lie within the improvement area and could require minor reconstruction to accommodate the roadway widening.

No environmental resource impacts are associated with this improvement.

Concept I-3 Concepts Cost Opinions

Cost opinions were developed for this concept using present day dollars and are consistent with standard estimating methods. The estimate for this concept is:

- Concept I-3 – Kirtland Road/West Antelope Road Left-Turn Lane: $1.2 million

This cost does not include acquisition of additional right of way.

6.6.4. Concept I-4: Avenue G & Agate Road – Intersection Realignment

OR 140 makes a 90 degree turn at the four-way, STOP-controlled intersection of Avenue G and Agate Road. Eastbound traffic on OR 140 approaches the intersection on Avenue G and turns right onto southbound Agate Road to continue. Westbound traffic on OR 140 approaches the intersection traveling northbound on Agate Road and turns left onto westbound Avenue G to continue.

Concept I-4 would realign the intersection of Avenue G and Agate Road to give priority to the through movements on OR 140, as illustrated in Figure 6-16. This realignment would create two “T” intersections between Avenue G and Agate Road. OR 140 would be realigned to create a smooth curve that allows through movement between the west leg of Avenue G and the south leg of Agate Road. The east leg of Avenue G would approach the realigned OR 140 roadway at a right angle with STOP control. The second intersection would be formed by the north leg of Agate Road, which would stop at the east leg of Avenue G. This second intersection would be realigned slighted from its current location.

While this improvement addresses improved flow for highway movements and intersection movement capacity constraints with the current alignment of OR 140, this alignment may change with the full build out of the OR 62 project. Full build out of OR 62 will result in realignment of the OR 140 route (north on OR 62, west on Avenue G) and will change the

direction of flow through this intersection as shown in Concept RS-5: Avenue G – Widening and Concept RS-8: Avenue G – OR 140 Reroute Widening. Even without the full build out of OR 62 there are two other projects that may impact the capacity of this intersection Concept RS-6: Agate Road – Widening and Concept RS-7: Avenue G – County Section Widening.

Concept I-4 Traffic Operations and Safety

As shown in Figure 6-1 (Intersection 11), traffic volumes at this Avenue G/Agate Road intersection are fairly even between all four approaches. The major traffic movements are east-west on Avenue G and north-south on Agate Road. Turning volumes are considerably lower, even for the turn movements that comprise OR 140. Although the volumes on the highway are expected to grow, the east-west and north-south through movements are expected to remain dominant. (See Figure 6-2, Intersection 11.)

These patterns are supported by the origin-destination patterns from the travel demand forecasting model. The model trends show that the majority of the traffic on this section of OR 140 (Avenue G) is coming from areas to the north (i.e., Eagle Point and OR 62) and within White City (i.e., White City east of OR 62). Long distance through traffic on OR 140 would comprise only a small portion of the overall traffic volume in the area.

With the intersection realignment in Concept I-4, less that 10 percent of the traffic would be traveling through on OR 140 and more than 90 percent of the traffic at the intersection would be turning. Preliminary analysis of this intersection configuration indicates that the eastbound left-turn movement would have a forecast v/c ratio greater than 1.0.

The realignment may also have safety concerns because the two intersections would be less than 200 feet apart with some queuing between.

Concept I-4 Basic Roadway Geometries and Right-of-Way Requirements

Concept I-4 would realign the intersection of Avenue G and Agate Road to give priority to the through movements on OR 140, as illustrated in Figure 6-16.

The realignment would require additional right of way in the southwest quadrant of the intersection.

Concept I-4 Environmental and Land Use Assessment

The property in the southwest quadrant of the intersection would be impacted by the realignment of the roadway; however, the building would not be affected.

Several driveways would be impacted by the realignment and could require reconstruction, rerouting to other streets, and/or closure.

No environmental resource impacts are associated with this improvement.

Concept I-4 Concepts Cost Opinions

Cost opinions were developed for this concept using present day dollars and are consistent with standard estimating methods. The estimate for this concept is:

- Concept I-4 – Avenue G/Agate Road Realignment: $1.3 million

This cost does not include acquisition of additional right of way or potential realignment of existing driveways.

6.6.5. Concept I-5: Avenue G & Agate Road – Channelization and Traffic Signal

As an alternative to Concept I-4, Concept I-5 would channelize the eastbound right-turn movement to facilitate the turn on OR 140. As illustrated in Figure 6-17, this improvement would include an eastbound right-turn lane on Avenue G, a channelizing island for the right-turn movement, and a southbound acceleration and merge lane on Agate Road. Traffic would be fully merged before the railroad crossing on Agate Road.

Analysis of the four-way STOP control at this intersection indicates that the eastbound approach of Avenue G (OR 140) would have a v/c ratio greater than 1.0 for the 2034 future baseline condition and LOS F conditions. Concept I-5 would install a traffic signal at the Avenue G/Agate Road intersection if persistent congestion is present and traffic volumes meet signal warrants.

While this improvement addresses improved flow for highway movements and intersection movement capacity constraints with the current alignment of OR 140, this alignment may change with the full build out of the OR 62 project. Full build out of OR 62 will result in realignment of the OR 140 route (north on OR 62, west on Avenue G) and will change the direction of flow through this intersection as shown in Concept RS-5: Avenue G – Widening and Concept RS-8: Avenue G – OR 140 Reroute Widening. Even without the full build out of OR 62 there are two other projects that may impact the capacity of this intersection Concept RS-6: Agate Road – Widening and Concept RS-7: Avenue G – County Section Widening.

Concept I-5 Traffic Operations and Safety

As shown in Figure 6-17, Concept I-5 would increase the turning radius for eastbound traffic traveling on OR 140 from Avenue G to Agate Road. The increased turning radius would allow both passenger vehicles and trucks to make the right turn at higher speeds that the existing corner. By providing an acceleration and merge lane, the right-turning traffic would not need to stop at Agate Road.

With the channelization and merge lane but no change in traffic control (i.e., four-way STOP remains), the v/c ratio for the eastbound right turn would decrease from more than 1.0 to 0.93, which would exceed the HDM mobility standard of 0.80 identified for statewide highways. Overall, the intersection would operate at LOS E.

With the channelization/merge lane improvement and a traffic signal, the overall v/c ratio for the intersection would decrease to 0.67 and an overall intersection LOS B.

Analysis using ODOT's preliminary traffic signal warrants[7] indicates that existing traffic volumes are not sufficient to warrant a traffic signal but 2034 future traffic volumes would meet Case A: Minimum Vehicular Volume. Persistent congestion indicated by longer delays and queuing should be present and traffic volumes should meet signal warrants before a traffic signal is installed.

Concept I-5 Basic Roadway Geometries and Right-of-Way Requirements

Concept I-5 would channelize the eastbound right-turn movement to facilitate the turn on OR 140. As illustrated in Figure 6-17, this improvement would include an eastbound right-turn lane on Avenue G, a channelizing island for the right-turn movement, and a southbound acceleration and merge lane on Agate Road. The cross-section used in this illustration is a rural facility with a 14-foot travel lane and 8-foot shoulder.

The realignment would require additional right of way in the southwest quadrant of the intersection. All improvements associated with the signal could be installed within existing right of way.

Concept I-5 Environmental and Land Use Assessment

The property in the southwest quadrant of the intersection would be impacted by the realignment of the roadway; however, the building would not be affected. The driveway to this property on the west side of Agate Road would be located within the acceleration lane.

No environmental resource impacts are associated with this improvement.

Concept I-5 Concepts Cost Opinions

Cost opinions were developed for this concept using present day dollars and are consistent with standard estimating methods. The estimate for this concept is:

- Concept I-5 – Avenue G/Agate Road Channelization: $0.6 million (rural cross-section)
- Concept I-5 – Avenue G/Agate Road Traffic Signal: $0.5 million

The cost opinion for this improvement was prepared for a 2-lane rural cross-section with shoulders instead of curb and sidewalk. If an urban standard were to be used, the cost could double.

This cost does not include acquisition of additional right of way.

[7] Section 7.4 Traffic Signal Warrants, Analysis Procedures Manual, April 2006, Updated January 2011, online reference: http://www.oregon.gov/ODOT/TD/TPAU/docs/A_APM/APM.pdf

6.6.6. Concept I-6: Agate Road & Leigh Way – Intersection Realignment

OR 140 makes a 90 degree turn at the intersection of Agate Road and Leigh Way. Eastbound traffic on OR 140 approaches the intersection traveling southbound on Agate Road and turns left onto eastbound Leigh Way to continue. Westbound traffic on OR 140 approaches the intersection on Leigh Way and turns right onto northbound Agate Road to continue.

Concept I-6 would realign the intersection of Agate Road and Leigh Way to give priority to the through movements on OR 140, as illustrated in Figure 6-18. OR 140 would be realigned to create a smooth curve that allows through movement between the north leg of Agate Road and the east leg of Leigh Way. The south leg of Agate Road would approach the realigned OR 140 roadway at a right angle with STOP control.

Concept I-6 Traffic Operations and Safety

As shown in Figure 6-1 (Intersection 13), traffic volumes at this Agate Road/Leigh Way intersection currently favor the north-south movement. However, with the improvements on OR 62, the volumes are expected to shift and future volumes at the intersection are expected to favor the movement along OR 140. (See Figure 6-2, Intersection 13.) The realigned intersection would facilitate freight movement within the OR 140 corridor.

Preliminary analysis of this intersection configuration indicates that the northbound stopped approach on Agate Road would have a 2034 forecast v/c ratio of 0.19 with LOS B operations.

Coordination between implementation of this concept and the OR 62 Phase 1 and 2 (JTA) improvements should be considered. Under current conditions, the north-south movement has the heaviest traffic volumes. The intersection realignment of Concept I-6 would stop more vehicles than the current configuration, which could potentially result in more rear end collisions. However, once the OR 62 improvements are finished, traffic patterns would shift and the realignment would then serve the highest volume movements.

Concept I-6 Basic Roadway Geometries and Right-of-Way Requirements

Concept I-6 would realign the intersection of Agate Road and Leigh Way to give priority to the through movements on OR 140, as illustrated in Figure 6-18. The cross-section used in this illustration is a 3-lane urban facility with a design speed of 45 mph.

The realignment would require additional right of way in the northeast quadrant of the intersection. Some power lines may lie within the required right of way.

Concept I-6 Environmental and Land Use Assessment

The property in the northeast quadrant of the intersection would be impacted by the realignment of the roadway. Some power lines on that property may lie within the required right of way.

No environmental resource impacts are associated with this improvement.

Concept I-6 Concepts Cost Opinions

Cost opinions were developed for this concept using present day dollars and are consistent with standard estimating methods. The estimate for this concept is:

- Concept I-6 –Agate Road/Leigh Way Realignment: $5.4 million

This cost does not include acquisition of additional right of way or relocation of power lines.

6.6.7. Concept I-7: Agate Road & Leigh Way – Channelization and Traffic Control

As an alternative to Concept I-6, Concept I-7 would channelize the eastbound right-turn movement to facilitate the turn on OR 140. As illustrated in Figure 6-19, this improvement would include a westbound right-turn lane on Leigh Way and a channelizing island for the right-turn movement. Traffic control would be modified to stop the northbound approach on Agate Road. The westbound left turn on Leigh Way would also be stopped but the right turn would flow freely. The southbound approach on Agate Road would also flow freely.

Concept I-7 Traffic Operations and Safety

As shown in Figure 6-19, Concept I-7 would increase the turning radius for westbound traffic traveling on OR 140 from Leigh Way to Agate Road. The increased turning radius would allow both passenger vehicles and trucks to make the right turn at higher speeds that the existing corner. By modifying the traffic control to stop northbound traffic, the right-turning traffic from Leigh Way would not need to stop at Agate Road.

Analysis of the current STOP control at this intersection indicates that the westbound approach of Leigh Way (OR 140) would have a 2034 future v/c ratio of 0.36 and LOS C conditions. The modified traffic control cannot be analyzed but volumes are expected to remain at a level where mobility standards could be met.

Because the traffic control proposed in this concept is non-standard, some drivers may be confused by which approaches are expected to stop and who has the right of travel. This could lead to turning or angle conflicts.

Concept I-7 Basic Roadway Geometries and Right-of-Way Requirements

Concept I-7 would channelize the westbound right-turn movement to facilitate the turn on OR 140. As illustrated in Figure 6-19, this improvement would include a westbound right-turn lane on Leigh Way and a channelizing island for the right-turn movement. Traffic control would be modified to stop the northbound approach on Agate Road. The westbound left turn on Leigh Way would also be stopped but the right turn would flow freely. The southbound approach on Agate Road would also flow freely. The improvements associated with the right turn lane would provide a 14-foot travel lane and 8-foot shoulder.

The realignment would require additional right of way in the northeast quadrant of the intersection.

Concept I-7 Environmental and Land Use Assessment

The property in the northeast quadrant of the intersection would be impacted by the realignment of the roadway. The power lines on that property would be avoided with this concept.

No environmental resource impacts are associated with this improvement.

Concept I-7 Concepts Cost Opinions

Cost opinions were developed for this concept using present day dollars and are consistent with standard estimating methods. The estimate for this concept is:

- Concept I-7 – Avenue G/Agate Road Channelization: $0.5 million

The cost opinion for this improvement was prepared for a cross-section with shoulders instead of curb and sidewalk. If an urban standard were to be used, the cost could double.

This cost does not include acquisition of additional right of way.

6.6.8. Concept I-8: OR 140 & Lakeview Drive Left-Turn Lanes

The OR 140/Lakeview Drive intersection is currently STOP-controlled on the northbound/ southbound (Lakeview Drive) approaches with free-flowing movements in the eastbound/westbound directions (OR 140). OR 140 currently has no left-turn lanes but both the eastbound and westbound approaches have right-turn tapers to facilitate deceleration and turns. Posted speed on OR 140 is 55 mph.

Concept I-8 would add eastbound and westbound left-turn lanes on OR 140 at Lakeview Drive to provide a refuge for vehicles turning left from the highway to the side street. This concept is illustrated in Figure 6-20.

Concept I-8 Traffic Operations and Safety

Preliminary analysis using ODOT's turn lane criteria indicates that existing traffic volumes are sufficient to warrant left turn lanes for the eastbound approach.

Two crashes were reported at the Lakeview Drive intersection during the 5-year crash analysis period. One crash involved a motor home turning left from OR 140 onto Lakeview Drive that cut the corner and hit the front end of a vehicle stopped on Lakeview Drive. This type of collision would not be avoided by the addition of left-turn lanes. The second crash involved a turning collision between two eastbound vehicles, one turning left and one traveling straight. The error code indicated improper passing. This type of collision could be avoided by the addition of left-turn lanes.

Concept I-8 Basic Roadway Geometries and Right-of-Way Requirements

Concept I-8 would add eastbound and westbound left-turn lanes on OR 140 at Lakeview Drive to provide a refuge for vehicles turning left from the highway to the side street. Widening to accommodate the left-turn lanes is assumed to occur equally on both sides of the roadway. This concept is illustrated in Figure 6-20.

It appears that widening could be accommodated within the existing right of way.

Concept I-8 Environmental and Land Use Assessment

Although areas around this concept have been disturbed by development, natural resource mapping indicates that there may be some wetlands classified as palustrine, emergent that could contain high quality vernal pools. Impacts to wetlands should be avoided; mitigation and permitting will be necessary if impacts cannot be avoided. Wetland delineation would need to be conducted for this concept.

Concept I-8 Concepts Cost Opinions

Cost opinions were developed for this concept using present day dollars and are consistent with standard estimating methods. The estimate for this concept is:

- Concept I-8 – OR 140/Lakeview Drive Left-Turn Lanes: $1.2 million

This cost does not include acquisition of additional right of way or mitigation for wetlands impacts.

6.6.9. Concept I-9: OR 140 & Riley Road Left-Turn Lanes

The OR 140/Riley Road intersection is currently STOP-controlled on the northbound/ southbound (Riley Road/East Antelope Road) approaches with free-flowing movements in the eastbound/westbound directions (OR 140). OR 140 currently has no left-turn lanes but both the eastbound and westbound approaches have right-turn tapers to facilitate deceleration and turns. Posted speed on OR 140 is 55 mph.

Concept I-9 would add eastbound and westbound left-turn lanes on OR 140 at Riley Road to provide a refuge for vehicles turning left from the highway to the side street. This concept is illustrated in Figure 6-21.

Concept I-9 Traffic Operations and Safety

Preliminary analysis using ODOT's turn lane criteria indicates that existing traffic volumes are sufficient to warrant left turn lanes for the eastbound approach.

Six crashes were reported at the Riley Road intersection during the 5-year crash analysis period. Two crashes were rear end collisions and at least one involved a vehicle stopped in the travel lane to make a left turn. A separate left-turn lane would reduce the likelihood of this type of

collision. The other crashes were turning or angle crashes which may not be avoided by the addition of the left-turn lanes.

Concept I-9 Basic Roadway Geometries and Right-of-Way Requirements

Concept I-9 would add eastbound and westbound left-turn lanes on OR 140 at Riley Road to provide a refuge for vehicles turning left from the highway to the side street. Widening to accommodate the left-turn lanes is assumed to occur equally on both sides of the roadway. This concept is illustrated in Figure 6-21.

It appears that widening could be accommodated within the existing right of way.

Concept I-9 Environmental and Land Use Assessment

Although some areas around this concept have been disturbed by development, natural resource mapping indicates that there may be some wetlands classified as palustrine, emergent that could contain high quality vernal pools. Impacts to wetlands should be avoided; mitigation and permitting will be necessary if impacts cannot be avoided. Wetland delineation would need to be conducted for this concept.

Concept I-9 Concepts Cost Opinions

Cost opinions were developed for this concept using present day dollars and are consistent with standard estimating methods. The estimate for this concept is:

- Concept I-9 – OR 140/Riley Road Left-Turn Lanes: $1.2 million

This cost does not include acquisition of additional right of way or mitigation for wetlands impacts.

6.6.10. Concept I-10: OR 140 & Meridian Road Left-Turn Lanes

The OR 140/Meridian Road intersection is currently STOP-controlled on the northbound/ southbound (Meridian Road) approaches with free-flowing movements in the eastbound/westbound directions (OR 140). OR 140 currently has no left-turn lanes. The westbound approach has a right-turn taper to facilitate deceleration and turns while the eastbound approach has a 10-foot shoulder. Posted speed on OR 140 is 55 mph.

Concept I-10 would add eastbound and westbound left-turn lanes on OR 140 at Meridian Road to provide a refuge for vehicles turning left from the highway to the side street. This concept is illustrated in Figure 6-22.

Concept I-10 Traffic Operations and Safety

Preliminary analysis using ODOT's turn lane criteria indicates that existing traffic volumes are not sufficient to warrant left turn lanes for either the eastbound or westbound approach. Future traffic volume estimates do not indicate that criteria would be met within the planning horizon.

Five crashes were reported at the Meridian Road intersection during the 5-year crash analysis period. Two crashes were rear end collisions that involved a vehicle stopped in the travel lane to make a left turn. A separate left-turn lane would reduce the likelihood of this type of collision. Another crash involved a left-turning vehicle and improper overtaking. A separate left-turn lane would also reduce the likelihood of this type of collision. The other crashes were fixed object or angle crashes which may not be avoided by the addition of the left-turn lanes.

Concept I-10 Basic Roadway Geometries and Right-of-Way Requirements

Concept I-10 would add eastbound and westbound left-turn lanes on OR 140 at Meridian Road to provide a refuge for vehicles turning left from the highway to the side street. Widening to accommodate the left-turn lanes is assumed to occur equally on both sides of the roadway. This concept is illustrated in Figure 6-22.

It appears that widening could be accommodated within the existing right of way but there is a bridge over Antelope Creek located approximately 100 feet west of Meridian Road. This structure has a paved width of 44 feet. The structure could accommodate three travel lanes as shown in the figure but shoulders would be limited to less than three feet crossing the structure.

Concept I-10 Environmental and Land Use Assessment

The improvement would cross Antelope Creek west of Meridian Road. Antelope Creek is identified as existing habitat for Coho Salmon. The cost opinion assumes that this structure would not be modified from its current configuration. However, impacts associated with work in the vicinity of the creek should be avoided. Additional resource delineation would need to be conducted for this concept.

Concept I-10 Concepts Cost Opinions

Cost opinions were developed for this concept using present day dollars and are consistent with standard estimating methods. The estimate for this concept is:

- Concept I-10 – OR 140/Meridian Road Left-Turn Lanes: $1.3 million

This cost does not include bridge widening, acquisition of additional right of way, or mitigation for creek impacts.

6.6.11. Concept I-11: OR 140 & Brownsboro-Meridian Road Left-Turn Lanes

The OR 140/Brownsboro-Meridian Road intersection is currently STOP-controlled on the Brownsboro-Meridian Road approaches with free-flowing movements in the eastbound/westbound directions (OR 140). OR 140 currently has no left-turn lanes. The westbound approach has a passing lane and turns while the eastbound approach has a 10-foot shoulder. Posted speed on OR 140 is 55 mph.

Concept I-11 would add eastbound and westbound left-turn lanes on OR 140 at Brownsboro-Meridian Road to provide a refuge for vehicles turning left from the highway to the side street. This concept is illustrated in Figure 6-23.

Concept I-11 Traffic Operations and Safety

Preliminary analysis using ODOT's turn lane criteria indicates that existing traffic volumes are not sufficient to warrant left turn lanes for either the eastbound or westbound approach. Future traffic volume estimates do not indicate that criteria would be met within the planning horizon.

No crashes were reported at the Brownsboro-Meridian Road intersection during the 5-year crash analysis period.

Concept I-11 Basic Roadway Geometries and Right-of-Way Requirements

Concept I-11 would add eastbound and westbound left-turn lanes on OR 140 at Brownsboro-Meridian Road to provide a refuge for vehicles turning left from the highway to the side street. Widening to accommodate the left-turn lanes is assumed to occur equally on both sides of the roadway. This concept is illustrated in Figure 6-23.

It appears that widening could be accommodated within the existing right of way.

Concept I-11 Environmental and Land Use Assessment

No natural resources are mapped in this area. No land uses would be impacted since the concept appears constructible within existing right of way.

Concept I-11 Concepts Cost Opinions

Cost opinions were developed for this concept using present day dollars and are consistent with standard estimating methods. The estimate for this concept is:

- Concept I-11 – OR 140/Brownsboro-Meridian Road Left-Turn Lanes: $1.7 million

This cost does not include acquisition of additional right of way.

6.6.12. Concept I-12: OR 140 & Brownsboro-Eagle Point Road Left-Turn Lanes

The OR 140/Brownsboro-Eagle Point Road intersection is currently STOP-controlled on the southbound Brownsboro-Eagle Point Road approach with free-flowing movements in the eastbound/westbound directions (OR 140). OR 140 has no eastbound left-turn lane. The westbound approach has a 10-foot shoulder. Posted speed on OR 140 is 55 mph.

Concept I-12 would add an eastbound left-turn lane on OR 140 at Brownsboro-Eagle Point Road to provide a refuge for vehicles turning left from the highway to the side street. This concept is illustrated in Figure 6-24. A westbound left-turn lane is also shown for the access point to the south.

Concept I-12 Traffic Operations and Safety

Preliminary analysis using ODOT's turn lane criteria indicates that existing traffic volumes are not sufficient to warrant left turn lanes. Future traffic volume estimates do not indicate that criteria would be met within the planning horizon.

Two crashes were reported at the Brownsboro-Eagle Point Road intersection during the 5-year crash analysis period. Both of these crashes involved a single-vehicle collision with a fixed object. A left-turn lane would be unlike to mitigate the circumstances of these crashes.

Concept I-12 Basic Roadway Geometries and Right-of-Way Requirements

Concept I-12 would add eastbound and westbound left-turn lanes on OR 140 at Brownsboro-Eagle Point Road to provide a refuge for vehicles turning left from the highway to the side street or driveway. Widening to accommodate the left-turn lanes is assumed to occur equally on both sides of the roadway. This concept is illustrated in Figure 6-24.

It appears that widening could be accommodated within the existing right of way.

Concept I-12 Environmental and Land Use Assessment

Little Butte Creek bridge lies 0.23 miles west of the Brownsboro-Eagle Point Road intersection and is listed as existing habitat for Chinook Salmon. All of the improvements associated with this concept would occur east of the bridge. No natural resources are mapped in this area. No land uses would be impacted since the concept appears constructible within existing right of way.

Concept I-12 Concepts Cost Opinions

Cost opinions were developed for this concept using present day dollars and are consistent with standard estimating methods. The estimate for this concept is:

- Concept I-12 – OR 140/Brownsboro-Eagle Point Road Left-Turn Lanes: $1.3 million

This cost does not include bridge widening or acquisition of additional right of way.

6.7. Evaluation Matrix

The information presented in this memo is also summarized in the attached matrix for comparison of alternatives.

Attachments:

Evaluation Matrix

Figure 6-1. 2010 Existing Design Hour Volumes
Figure 6-2. 2034 Future Baseline Design Hour Volumes
Figure 6-3. Concept HR-1 – Extension of OR 140 to I-5 Southbound Ramps

Figure 6-4. Concept HR-3 – Rerouting to Crater Lake Highway and Avenue G
Figure 6-5. Concept JSR-1 through JSR-7 – Jackson County Reclassification
Figure 6-6. Concept RS-1 – Blackwell Road Improvements – Widening
Figure 6-7. Concept RS-2 – Blackwell Road Improvements – Widening and Curve Realignment
Figure 6-8. Concept RS-4 – Kirtland Road – Widening
Figure 6-9. Concept RS-5 – Avenue G – Widening
Figure 6-10. Concept RS-6 – Agate Road – Widening
Figure 6-11. Concept RS-7 – Avenue G – County Section Widening
Figure 6-12. Concept RS-8 – Avenue G – OR 140 Reroute
Figure 6-13. Blackwell Road & Kirtland Road Intersection Configuration
Figure 6-14. Concept I-2 – Kirtland Road & High Banks Road Intersection Improvements
Figure 6-15. Concept I-3 – Kirtland Road & West Antelope Road Intersection Improvements
Figure 6-16. Concept I-4 – Avenue G & Agate Road Intersection Realignment
Figure 6-17. Concept I-5 – Avenue G & Agate Road Channelization
Figure 6-18. Concept I-6 – Agate Road & Leigh Way Intersection Realignment
Figure 6-19. Concept I-7 – Agate Road & Leigh Way Channelization and Traffic Control
Figure 6-20. Concept I-8 –OR 140 & Lakeview Drive Intersection Improvements
Figure 6-21. Concept I-9 – OR 140 & Riley Road Intersection Improvements
Figure 6-22. Concept I-10 – OR 140 & Meridian Road Intersection Realignment
Figure 6-23. Concept I-11 – OR 140 & Brownsboro-Meridian Intersection Improvements
Figure 6-24. Concept I-12 – OR 140 & Brownsboro-Eagle Point Intersection Improvements

OR 140 Improvement Concepts – Summary Evaluation Matrix

ID	Location	General Description	Milepoints	Purpose	Traffic Operations and Safety[1,2,3]	Basic Roadway Geometry and Right of Way[4]	Environmental and Land Use[5]	Cost Opinion[6]	Related Concepts
HIGHWAY REDESIGNATION									
Improvement Concepts with Tier 1 Improvements from the 2034 RTP									
HR-1	Blackwell Road/ OR 99	Extend OR 140 and statewide highway designation from current terminus at I-5 NB ramps to I-5 SB ramps (see Figure 6-3)	-8.29 on OR 140 and 0.34 on OR 99	Consistent statewide designation through the interchange	▪ Applies statewide management objectives ▪ OHP mobility standards remain at 0.85 ▪ HDM mobility standards remain at 0.80	NA	NA	NA	Concept HR-2
HR-2	OR 140 from I-5 to OR 62	Obtain freight designation for OR 140 west of OR 62	-8.29 on OR 140 to 0.00 on OR 140	Consistent freight designation through to the I-5 interchange	▪ Applies management objectives with a greater emphasis on freight movement ▪ OHP mobility standards change to 0.80 ▪ HDM mobility standards change to 0.75	NA	NA	NA	Concept HR-1 Concept I-1 to I-5
Improvement Concepts with the Full OR 62 Corridor Improvements									
HR-3	OR 140 from Crater Lake Highway to Agate Road/Avenue G Intersection	Revise the current routing of OR 140 from Leigh Way and Agate Road to Crater Lake Highway and Avenue G (see Figure 6-4)	0.00 to -1.16	Response to OR 62 full improvements which will use Agate Road and create a cul-de-sac on Leigh Way	▪ Analysis shows v/c ratio below 0.6 for Ave G & Crater Lake Highway ▪ Analysis shows v/c ratio near 0.9 for Antelope Road & Crater Lake Highway - priority needed for north-south movement to ensure smoother traffic flow for the rerouted OR 140 traffic.	▪ Crater Lake Highway is 5-lane roadway & would not need upgrades for OR 140 reroute ▪ Potential changes to roadway geometry for Ave G and right of way under Concept RS-8	NA	NA	Concept RS-8
JACKSON COUNTY RECLASSIFICATION									
Improvement Concepts with Tier 1 Improvements from the 2034 RTP									
JCR-1	Blackwell Road	Reclassify from Major Collector to Arterial (see Figure 6-5)	-8.29 to -7.02	Consistency with statewide highway designation	▪ No impact – state standards apply	NA	NA	NA	Concept HR-2 Concept RS-1 Concept RS-2 Concept I-1
JCR-2	Kirtland Road – rural section	Reclassify from Major Collector to Arterial (see Figure 6-5)	-7.02 to -5.12 (White City UUC)	Consistency with statewide highway designation	▪ No impact – state standards apply	NA	NA	NA	Concept HR-2 Concept RS-3&4 Concept I-1&2
JCR-3	Kirtland Road – White City section	Reclassify from Industrial Collector to Arterial (see Figure 6-5)	-5.12 (White City UUC) to -2.55	Consistency with statewide highway designation	▪ No impact – state standards apply	NA	NA	NA	Concept HR-2 Concept RS-3&4 Concept I-2&3
JCR-4	Avenue G (state section)	Reclassify from Industrial Collector to Arterial (see Figure 6-5)	-2.55 to -1.16	Consistency with statewide highway designation	▪ No impact – state standards apply	NA	NA	NA	Concept HR-2 Concept RS-5 Concept I-4&5
JCR-5	Agate Road	Reclassify from Industrial Collector to Arterial (see Figure 6-5)	-1.16 to -0.20	Consistency with statewide highway designation	▪ No impact – state standards apply	NA	NA	NA	Concept HR-2 Concept RS-6 Concept I-4 to I-7
JCR-6	Avenue G (county section)	Reclassify from Industrial Collector to Minor Arterial (see Figure 6-5)	NA	Response to increasing through traffic demand	▪ Street design standard would change from industrial collector with 14' travel lanes and 6' shoulders to minor arterial with 12' travel lanes, 14' median, 6' bike lanes, 7' planting strip, and 6' sidewalks	NA	NA	NA	Concept RS-7 Concept I-4&5
Improvement Concepts with the Full OR 62 Corridor Improvements									
JCR-7	Avenue G (county section)– rerouted OR 140	Reclassify from Industrial Collector to Arterial (see Figure 6-5)	NA	Response to OR 140 rerouting (Concept HR-3)	▪ No impact – state standards apply	NA	NA	NA	Concept HR-3 Concept RS-8

OR 140 Improvement Concepts – Summary Evaluation Matrix

ID	Location	General Description	Milepoints	Purpose	Traffic Operations and Safety[1,2,3]	Basic Roadway Geometry and Right of Way[4]	Environmental and Land Use[5]	Cost Opinion[6]	Related Concepts
ROADWAY SEGMENT IMPROVEMENTS									
Improvement Concepts with Tier 1 Improvements from the 2034 RTP									
RS-1	Blackwell Road	Widen Blackwell Road to meet state standards (see Figure 6-6) ▪ Option A: 2-lane rural section ▪ Option B: 3-lane rural section	-8.17 to -7.22 (est.) – Blackwell/Kirtland intersection improvement	Safety and Capacity Consistency with statewide highway design standard	▪ Current ADT > 8,000 ▪ Forecast ADT <12,000 ▪ Option A: Some congestion without left-turn lanes at most access points. ▪ Option B: Center median provides space for left-turn lanes and could allow two-stage left-turn ▪ Option A: Some safety benefits from wider shoulders ▪ Option B: Some safety benefits from wider shoulders and center median provides buffer between travel lanes and refuge for left-turning vehicles ▪ Alignment does not address safety concerns with breaking curves	▪ Existing roadway width is 30' to 32' in 60' ROW ▪ Keeps alignment along current centerline ▪ Does not modify breaking curves ▪ Option A: 2-lane rural section (12' travel lanes, 8' shoulders, 80' ROW) ▪ Option B: 3-lane rural section (12' travel lanes, 14' median, 8' shoulders, 90' ROW) ▪ ROW requirements could potentially be reduced	▪ Option A: Up to 20' additional ROW needed ▪ Option B: Up to 30' additional ROW needed ▪ Roadway closer to existing structures – Option B more impact from wider cross-section ▪ Modest realignment from existing centerline could reduce impacts ▪ Option B would require TPR analysis ▪ Roadway crosses Willow Creek	▪ Option A: $1.4 million ▪ Option B: $3.6 million ▪ No ROW costs included ▪ Assumes overlay of existing	Concept HR-2 Concept JCR-1 Concept RS-2 Concept I-1
RS-2	Blackwell Road	Widen Blackwell Road to meet state standards and modify curves for higher design speed (see Figure 6-7) ▪ Option A: 2-lane rural section ▪ Option B: 3-lane rural section	-8.17 to -7.21 (est.) – Blackwell/Kirtland intersection improvement	Safety and Capacity Consistency with statewide highway design standard	▪ Traffic operations same as RS-1 ▪ Safety benefits same as RS-1 but Spiraling curves and higher design speed improve safety of roadway where curves are currently breaking and crash analysis indicates a history of collisions.	▪ Realign sections of roadway to smooth curves and meet 55 mph design speed ▪ Could not be constructed within existing ROW	▪ More ROW than RS-1 from realignment ▪ Option B more impact from wider cross-section & TPR analysis required ▪ Roadway avoids structures ▪ Roadway crosses Willow Creek	▪ Option A: $6.2 million ▪ Option B: $8.7 million ▪ No ROW costs included ▪ Assumes overlay of existing	Concept HR-2 Concept JCR-1 Concept RS-1 Concept I-1
RS-3	Kirtland Road	Add safety improvements along existing roadway ▪ Option A: Add delineators ▪ Option B: Add rumble strips	-7.02 to -2.71	Safety	▪ 19 crashes on Kirtland Road during five-year analysis period – 9 were single vehicle, fixed object collisions ▪ Traffic operations not affected by these improvements ▪ Option A: Crash research indicates benefits of delineators may be offset by increased likelihood of a fixed object collisions ▪ Option B: Crash research indicates rumble strips can provide measurable reduction in single vehicle run-off-the-road crashes	▪ No geometry or additional right of way acquisition	▪ No impacts from delineators ▪ Rumble strips generate intermittent noise when vehicles stray over them – some nearby residences could be impacted & Touvelle State Park lies to the north (> ¼ mile)	▪ Option A: $15,000 ▪ Option B: $10,000	Concept HR-2 Concept JCR-2&3 Concept RS-4 Concept I-1 to I-3
RS-4	Kirtland Road	Widen Kirtland Road to meet state standards (see Figure 6-8) ▪ 2-lane rural section only	-7.02 to -2.71	Consistency with statewide highway design standard	▪ Current ADT >7,000 near Blackwell to ~4,000 near Table Rock ▪ Forecast ADT ~10,500 near Blackwell to >7,000 near Table Rock ▪ 2-lane cross-section can accommodate future demand ▪ 2' to 4' shoulder widening provides slightly more vehicle maneuvering room	▪ Existing roadway width is 32' to 36' in 60' to 80'ROW ▪ Keeps alignment along current centerline ▪ 2-lane rural section (12' travel lanes, 8' shoulders, 80' ROW) ▪ ROW requirements could potentially be reduced	▪ Several creeks and canals crossed including Bear Creek and Whetstone Creek ▪ Flooding near existing culverts has been an issue ▪ Some adjacent wetlands classification of palustrine, emergent that may contain high quality vernal pools ▪ Hydraulic analysis may be necessary	▪ $2.4 million ▪ No ROW costs included ▪ No wetland mitigation costs included ▪ No Whetstone bridge replacement ▪ No work on recent overlay	Concept HR-2 Concept JCR-2&3 Concept RS-3 Concept I-1 to I-3

OR 140 Improvement Concepts – Summary Evaluation Matrix

ID	Location	General Description	Milepoints	Purpose	Traffic Operations and Safety[1,2,3]	Basic Roadway Geometry and Right of Way[4]	Environmental and Land Use[5]	Cost Opinion[6]	Related Concepts
RS-5	Avenue G (state section)	Widen Avenue G to meet state standards (see Figure 6-9) ▪ Option A: 2-lane rural section ▪ Option B: 3-lane rural section ▪ Option C: 3-lane urban section	-2.55 to -1.16	Consistency with statewide highway design standard	▪ Current ADT ~4500 ▪ Forecast ADT <8,000 ▪ Option A: Serves demand but some left-turn lanes may be needed ▪ Option B: Center median provides space for left-turn lanes and could allow two-stage left-turn ▪ Option C: Has center lane and adds sidewalks for pedestrians ▪ Option A: Minimal safety benefit from slightly (1' to 2') wider shoulder ▪ Option B: Center median provides buffer between travel lanes and refuge for left-turning vehicles ▪ Option C: Center median benefits plus sidewalks for pedestrians	▪ Existing roadway width is 36' to 37' in 100' ROW ▪ Option A: 2-lane rural section (12' travel lanes, 8' shoulders, 80' ROW) ▪ Option B: 3-lane rural section (12' travel lanes, 14' median, 8' shoulders, 90' ROW) ▪ Option C: 3-lane urban section (12' travel lanes, 14' median, 6' bike lanes, 6' sidewalks, 64' ROW) *Note: A multi-use path with buffer could be substituted for bike lanes and sidewalks in urban section.*	▪ Roadway widening within ROW ▪ Area zoned industrial ▪ Some economic benefit for adjacent properties from a higher capacity roadway with turn lanes ▪ No natural resources mapped within ROW	▪ Option A: $1.3 million ▪ Option B: $4.4 million ▪ Option C: $7.6 million ▪ Assumes overlay of existing	Concept HR-2 Concept JCR-4 Concept RS-7&8 Concept I-4&5
RS-6	Agate Road	Widen Agate Road to meet state standards (see Figure 6-10) ▪ Option A: 3-lane rural section ▪ Option B: 3-lane urban section	-1.16 to -0.20	Consistency with statewide highway design standard	▪ Current ADT ~4,500 ▪ Forecast ADT <8,000 ▪ Option A: Center median provides space for left-turn lanes and could allow two-stage left-turn ▪ Option B: Has center lane and adds sidewalks for pedestrians ▪ Option A: Center median provides buffer between travel lanes and refuge for left-turning vehicles ▪ Option B: Center median benefits plus sidewalks for pedestrians	▪ Existing roadway width is 32' to 40' in 100' ROW ▪ Option A: 3-lane rural section (12' travel lanes, 14' median, 8' shoulders, 90' ROW) ▪ Option B: 3-lane urban section (12' travel lanes, 14' median, 6' bike lanes, 6' sidewalks, 64' ROW)	▪ Roadway widening within ROW ▪ Area zoned industrial ▪ Some economic benefit for adjacent properties from a higher capacity roadway with turn lanes ▪ No natural resources mapped within ROW	▪ Option A: $3.9 million ▪ Option B: $6.0 million ▪ Assumes overlay of existing ▪ Includes fully replacing at-grade railroad crossing	Concept HR-2 Concept JCR-5 Concept I-6&7
RS-7	Avenue G – Agate Road to OR 62 (county section)	Widen Avenue G to Jackson County Street Design Standards (see Figure 6-11) ▪ Option A: 3-lane industrial collection ▪ Option B: minor arterial	NA (County Road)	High demand traveling to OR 140 from White City and OR 62 to north	▪ Current ADT ~4,000 ▪ Forecast ADT <7,500 ▪ Option A: Center median provides space for left-turn lanes and could allow two-stage left-turn ▪ Option B: Has center lane and adds sidewalks for pedestrians ▪ Option A: Center median provides buffer between travel lanes and refuge for left-turning vehicles ▪ Option B: Center median benefits plus sidewalks for pedestrians	▪ Existing is ~36' in 80' ROW ▪ Option A: 3-lane industrial (14' travel lanes, 14' median, 6' shoulders, 80' ROW) ▪ Option B: minor arterial (12' travel lanes, 14' median, 6' bike lanes, 7' planting strip, 6' sidewalks, 80' ROW)	▪ Roadway widening within ROW ▪ Area zoned industrial ▪ Some economic benefit for adjacent properties from a higher capacity roadway with turn lanes ▪ No natural resourced mapped within ROW	▪ Option A: $2.6 million ▪ Option B: $5.0 million ▪ No ROW costs included ▪ Assumes overlay of existing ▪ Includes fully replacing at-grade railroad crossing	Concept JCR-6 Concept RS-5& 8 Concept I-4&5
Improvement Concepts with the Full OR 62 Corridor Improvements									
RS-8	Avenue G – Agate Road to OR 62 (OR 140 reroute)	Widen Avenue G to meet state standards (see Figure 6-12) ▪ Option A: 3-lane rural section ▪ Option B: 3-lane urban section	NA (County Road)	Eventual need with OR 62 Full Corridor Improvement	▪ Current ADT ~4,000 ▪ Forecast ADT ~7,500 ▪ Option A: Center median provides space for left-turn lanes and could allow two-stage left-turn ▪ Option B: Has center lane and adds sidewalks for pedestrians ▪ Option A: Center median provides buffer between travel lanes and refuge for left-turning vehicles ▪ Option B: Center median benefits plus sidewalks for pedestrians	▪ Existing roadway width is ~36' in 80' ROW ▪ Option A: 3-lane rural (12' travel lanes, 14' median, 8' shoulders, 80' ROW) ▪ Option B: 3-lane urban (12' travel lanes, 14' median, 6' bike lanes, 6' sidewalks, 80' ROW)	▪ Roadway widening within ROW ▪ Area zoned industrial ▪ Some economic benefit for adjacent properties from a higher capacity roadway with turn lanes ▪ No natural resources mapped within ROW	▪ Option A: $2.6 million ▪ Option B: $5.0 million ▪ Assumes overlay of existing ▪ Includes fully replacing at-grade railroad crossing	Concept HR-3 Concept JCR-7 Concept RS-5&7 Concept I-4&5

OR 140 Improvement Concepts – Summary Evaluation Matrix

ID	Location	General Description	Milepoints	Purpose	Traffic Operations and Safety[1,2,3]	Basic Roadway Geometry and Right of Way[4]	Environmental and Land Use[5]	Cost Opinion[6]	Related Concepts
INTERSECTION IMPROVEMENTS									
Improvement Concepts with Tier 1 Improvements from the 2034 RTP									
I-1	Blackwell Road & Kirtland Road	Install traffic signal when warranted	-7.02	Capacity	▪ Currently STOP-controlled ▪ Opportunity for 2-stage left turn (see Figure 6-13) ▪ Current v/c = 0.77 with no 2-stage left turn but potentially v/c = 0.40 with optimal use of 2-stage left turn ▪ Forecast v/c = 1.12 with no 2-stage left turn but potentially v/c = 0.45 with optimal use of 2-stage left turn ▪ Currently signal warrants not met ▪ Forecast volumes would meet signal warrants ▪ Forecast v/c= 0.62 with traffic signal ▪ Traffic signals frequently have higher crash rates than STOP signs although the type and severity of the crashes differs ▪ Persistent congestion should be present & traffic volumes should meet warrants before a traffic signal is installed.	▪ No geometric improvements with traffic signal ▪ Installed within ROW ▪ Consideration for restriping the median lane to indicate availability for making the two-stage left turns ▪ ODOT striping policy must be followed.	▪ Nearby access points within influence of queues ▪ No natural resources impacts	▪ $0.5 million	Concept HR-2 Concept JCR-1 Concept RS-3&4
I-2	Kirtland Road & High Banks Road	Add left-turn lanes on Kirtland Road at High Banks Road (see Figure 6-14)	-5.37	Safety	▪ Left-turn lane criteria not met for current or future volumes ▪ Left-turn lane provides refuge for left-turning vehicles ▪ 1 rear end collision related to left-turning vehicle in through travel lane during 5-year analysis period	▪ Adds eastbound and westbound left-turn lanes ▪ Widening assumed to occur equally on both sides ▪ Widening accommodated within existing ROW	▪ Modifications to some existing driveways ▪ Southeast quadrant has wetlands classification of palustrine, emergent that may contain high quality vernal pools	▪ $1.5 million ▪ No ROW costs included ▪ No wetland mitigation costs included	Concept HR-2 Concept JCR-2&3 Concept RS-4
I-3	Kirtland Road & West Antelope Road	Add westbound left-turn lane on Kirtland Road at West Antelope Road (see Figure 6-15)	-3.74	Safety and Future Transit Service	▪ Left-turn lane criteria not met for current or future volumes ▪ No crashes during 5-year analysis period ▪ Supports RVTD service expansion to include a loop on Kirtland Road to West Antelope Road.	▪ Adds westbound left-turn lane at "T" intersection ▪ Widening assumed to occur equally on both sides ▪ Widening accommodated within existing ROW	▪ Modifications to some existing driveways ▪ No natural resources mapped within ROW	▪ $1.2 million ▪ No ROW costs included	Concept HR-2 Concept JCR-2&3 Concept RS-4
I-4	Avenue G & Agate Road	Realign intersection to give priority to OR 140 traffic flow (see Figure 6-16)	-1.16	Priority for highway movements	▪ Current Ave G eastbound v/c = 0.37 ▪ Future Ave G eastbound v/c = 1.03 with no improvements ▪ Current and future traffic patterns show dominant north-south and east-west through movements ▪ Realignment would not favor highest volume movements ▪ Some v/c ratios > 1.0 with realignment ▪ Conflicts with OR 140 reroute to Ave G for OR 62 full corridor ▪ Safety concerns with two intersections within 200'	▪ Intersection realigned to create OR 140 through movement between Ave G (west) and Agate (south) with right-angle STOP control for Ave G (east) ▪ Second intersection formed by Agate (north) STOP control at Ave G (east) ▪ Additional ROW needed in southwest quadrant	▪ Property in the southwest quadrant impacted but building not affected ▪ Driveways could require reconstruction, rerouting to other streets, and/or closure ▪ No natural resource impacts	▪ $1.3 million ▪ No ROW costs included ▪ No driveway reconstruction	Concept HR-2 Concept JCR-4 Concept JCR-6&7 Concept RS-5 to RS-8 Concept I-5

OR 140 Improvement Concepts – Summary Evaluation Matrix

ID	Location	General Description	Milepoints	Purpose	Traffic Operations and Safety[1,2,3]	Basic Roadway Geometry and Right of Way[4]	Environmental and Land Use[5]	Cost Opinion[6]	Related Concepts
I-5	Avenue G & Agate Road	Channelize eastbound right turn and install traffic signal (see Figure 6-17)	-1.16	Improved flow for highway movements and capacity	▪ Current and future traffic patterns and operations same as Concept I-4 ▪ Increased turning radius allows vehicles to turn right at higher speeds ▪ Acceleration and merge lane allows right-turning traffic to proceed without stopping - Future Ave G eastbound right v/c = 0.04 ▪ With 4-way stop - future Ave G eastbound through-right v/c = 0.93 ▪ With traffic signal – overall v/c = 0.67 ▪ Current traffic volumes not sufficient to meet signal warrant ▪ Future traffic volumes would meet warrants	▪ Adds eastbound right-turn lane on Ave G, channelizing island for the right-turn movement, and southbound acceleration and merge lane on Agate ▪ Additional ROW needed in southwest quadrant ▪ Traffic signal installed within existing right of way.	▪ Property in the southwest quadrant impacted but building not affected ▪ One driveway in merge lane ▪ No natural resource impacts	▪ $1.6 million for channelization & merge lane ▪ $0.5 million for traffic signal ▪ Cost opinion prepared for 2-lane rural cross-section - if urban standard used, cost could double ▪ No ROW costs included	Concept HR-2 Concept JCR-4 Concept JCR-6&7 Concept RS-5 to RS-8 Concept I-4
I-6	Agate Road & Leigh Way	Realign intersection to give priority to OR 140 traffic flow (see Figure 6-18)	0.20	Improved flow for highway movements	▪ Current traffic volumes favor north-south movement. ▪ OR 62 JTA improvements will shift future traffic patterns to favor the movement along OR 140 route ▪ Realigned intersection would facilitate freight movements ▪ Future v/c = 0.19 for northbound stopped traffic on Agate ▪ Coordination between implementation of this concept and the OR 62 Phase 1 and 2 (JTA) improvements should be considered	▪ Intersection realigned to create OR 140 through movement between Leigh (east) and Agate (north) with right-angle STOP control for Agate (south) ▪ Assumed 3-lane urban with design speed of 45 mph. ▪ Additional ROW in northeast quadrant ▪ Power lines may lie within the required ROW	▪ Property in the northeast quadrant impacted ▪ Power lines may be impacted ▪ No natural resource impacts	▪ $5.4 million for channelization & merge lane ▪ No ROW costs included ▪ No costs for power line relocation	Concept HR-2 Concept JCR-5 Concept RS-6 Concept I-7
I-7	Agate Road & Leigh Way	Channelize westbound right turn and modify traffic control (see Figure 6-19)	0.20	Improved flow for highway movements	▪ Current and future traffic patterns same as Concept I-6 ▪ Realigned intersection would improve freight movement to lesser extent than Concept I-6 ▪ Modified traffic control cannot be analyzed but intersection expected to meet mobility standards ▪ Non-standard traffic may be confusing to some drivers ▪ Potential for more turning or angle conflicts ▪ Coordination between implementation of this concept and the OR 62 Phase 1 and 2 (JTA) improvements should be considered	▪ Westbound right-turn lane on Leigh with channelizing island added - 14' travel lane and 8' shoulder ▪ Traffic control modified to stop northbound Agate and westbound left turn on Leigh but the right turn on Leigh and southbound Agate would flow freely ▪ Additional ROW in northeast quadrant	▪ Property in the northeast quadrant impacted ▪ No natural resource impacts	▪ $0.5 million ▪ No ROW costs included ▪ Cost opinion prepared for rural cross-section - if urban standard used, cost could double	Concept HR-2 Concept JCR-5 Concept RS-6 Concept I-6
I-8	OR 140 & Lakeview Drive	Add left-turn lanes on OR 140 at Lakeview Drive (see Figure 6-20)	1.03	Safety	▪ Current traffic volumes sufficient to warrant left-turn lane in eastbound direction ▪ Left-turn lane provides refuge for left-turning vehicles ▪ 1 collision related to left-turning vehicle in through travel lane during 5-year analysis period	▪ Adds eastbound and westbound left-turn lanes ▪ Widening assumed to occur equally on both sides ▪ Widening accommodated within existing ROW	▪ No land use impacts ▪ Some adjacent wetlands classification of palustrine, emergent that may contain high quality vernal pools	▪ $1.2 million ▪ No ROW costs included ▪ No wetland mitigation costs included	
I-9	OR 140 & Riley Road	Add left-turn lanes on OR 140 at Riley Road (see Figure 6-21)	3.59	Safety	▪ Current traffic volumes sufficient to warrant left-turn lane in the eastbound direction ▪ Left-turn lane provides refuge for left-turning vehicles ▪ 2 collisions related to left-turning vehicle in through travel lane during 5-year analysis period	▪ Adds eastbound and westbound left-turn lanes ▪ Widening assumed to occur equally on both sides ▪ Widening accommodated within existing ROW	▪ No land use impacts ▪ Some adjacent wetlands classification of palustrine, emergent that may contain high quality vernal pools	▪ $1.2 million ▪ No ROW costs included ▪ No wetland mitigation costs included	

OR 140 Improvement Concepts – Summary Evaluation Matrix

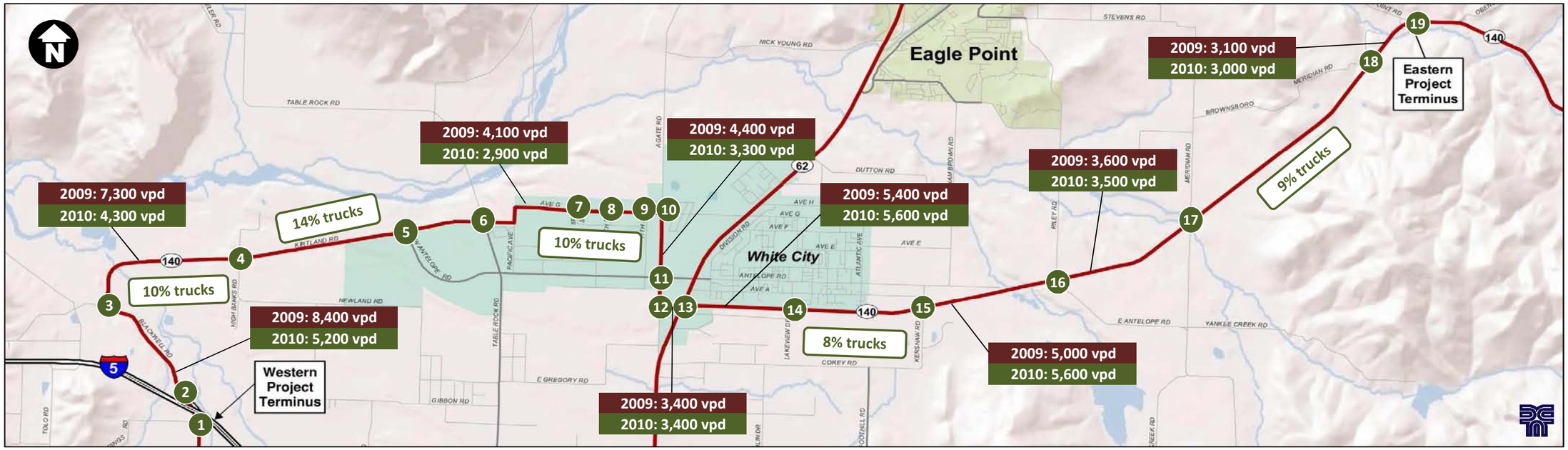
ID	Location	General Description	Milepoints	Purpose	Traffic Operations and Safety[1,2,3]	Basic Roadway Geometry and Right of Way[4]	Environmental and Land Use[5]	Cost Opinion[6]	Related Concepts
I-10	OR 140 & Meridan Road	Add left-turn lanes on OR 140 at Meridian Road (see Figure 6-22)	5.03	Safety	▪ Left-turn lane criteria not met for current or future volumes ▪ Left-turn lane provides refuge for left-turning vehicles ▪ 2 collisions related to left-turning vehicle in through travel lane during 5-year analysis period	▪ Adds eastbound and westbound left-turn lanes ▪ Widening assumed to occur equally on both sides ▪ Widening accommodated within existing ROW ▪ Bridge over Antelope Creek located ~100 feet west of Meridian has paved width of 44' - structure could accommodate 3 travel lanes but shoulders limited to less than 3'	▪ No land use impacts ▪ Antelope Creek 100' west of Meridian is existing habitat for Coho Salmon	▪ $1.3 million ▪ No ROW costs included ▪ No bridge widening included ▪ No creek mitigation costs included	
I-11	OR 140 & Brownsboro-Meridian Road	Add left-turn lanes on OR 140 at Brownsboro-Meridian Road (see Figure 6-23)	7.41	Safety	▪ Left-turn lane criteria not met for current or future volumes ▪ Left-turn lane provides refuge for left-turning vehicles ▪ No collisions during 5-year analysis period	▪ Adds eastbound and westbound left-turn lanes ▪ Widening assumed to occur equally on both sides ▪ Widening accommodated within existing ROW	▪ No land use impacts ▪ No natural resource impacts	▪ $1.7 million ▪ No ROW costs included	
I-12	OR 140 & Brownsboro-Eagle Point Road	Add left-turn lanes on OR 140 at Brownsboro-Eagle Point Road (see Figure 6-24)	7.98	Safety	▪ Left-turn lane criteria not met for current or future volumes ▪ Left-turn lane provides refuge for left-turning vehicles ▪ No collisions related to left-turning vehicles during 5-year analysis period	▪ Adds eastbound and westbound left-turn lanes ▪ Widening assumed to occur equally on both sides ▪ Widening accommodated within existing ROW	▪ No land use impacts ▪ Bridge over Little Butte Creek located ~0.23 miles west of Brownsboro-Eagle Point but all improvement east of bridge ▪ No natural resource impacts	▪ $1.3 million ▪ No ROW costs included	

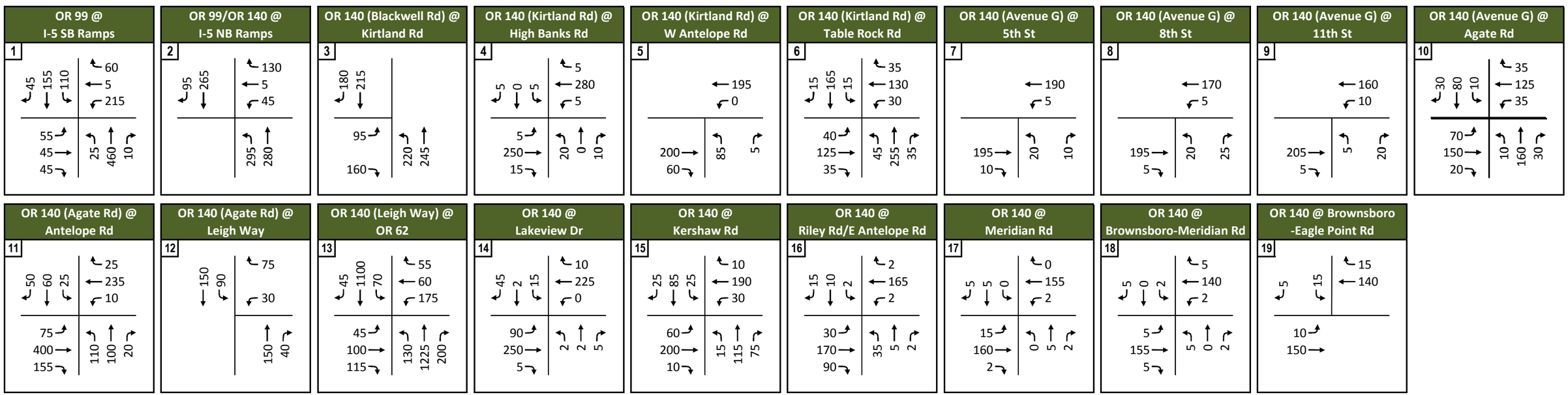
Notes:

1. Traffic operations were evaluated for concepts that were identified to address operational deficiencies. The operational assessment focuses on the volume-to-capacity (v/c) ratio and level of service (LOS) for the 2010 existing and 2034 future condition.
2. At intersections where potential changes in traffic control or turn lanes were considered, the procedures in the ODOT Analysis Procedures Manual (APM) were followed. For traffic signal concepts, the ODOT preliminary traffic signal warrants[a] were evaluated. For potential turn lanes on the rural sections of the highway, the APM turn lane criteria[b] were evaluated. Existing traffic volumes were applied to determine if warrants for traffic signals or criteria for turn lanes might be met today. Year 2034 traffic volumes were also evaluated to determine potential need in the future.
3. Some improvements are focused on addressing safety concerns or may address safety as well as traffic operations deficiencies. Crash patterns from the five-year analysis period (2005 through 2009) are discussed for those improvements that address safety.
4. Illustrations of basic roadway geometry and right-of-way needs were developed for concepts that involve infrastructure improvements. The drawings approximate roadway centerlines, edge of roadway and right of way using available base mapping.
5. Impacts to resources were qualitatively assessed based on the data assembled for the environmental and land use reconnaissance. The level of analysis of the study area is designed to identify those areas judged to have considerable potential for conflict.
6. Rough order of magnitude cost opinions were developed using present day dollars and are consistent with standard estimating methods. The estimates include a contingency factor but do not include right-of-way costs. The cost opinions are intended to help differentiate alternatives by approximating the relative costs of each project.

[a] Section 7.4 Traffic Signal Warrants, Analysis Procedures Manual, April 2006, Updated January 2011, online reference: http://www.oregon.gov/ODOT/TD/TPAU/docs/A_APM/APM.pdf

[b] Section 7.2 Turn Lane Criteria, Analysis Procedures Manual, April 2006, Updated January 2011, online reference: http://www.oregon.gov/ODOT/TD/TPAU/docs/A_APM/APM.pdf. Note: These criteria are also consistent with the criteria in Appendix F of the Highway Design Manual.





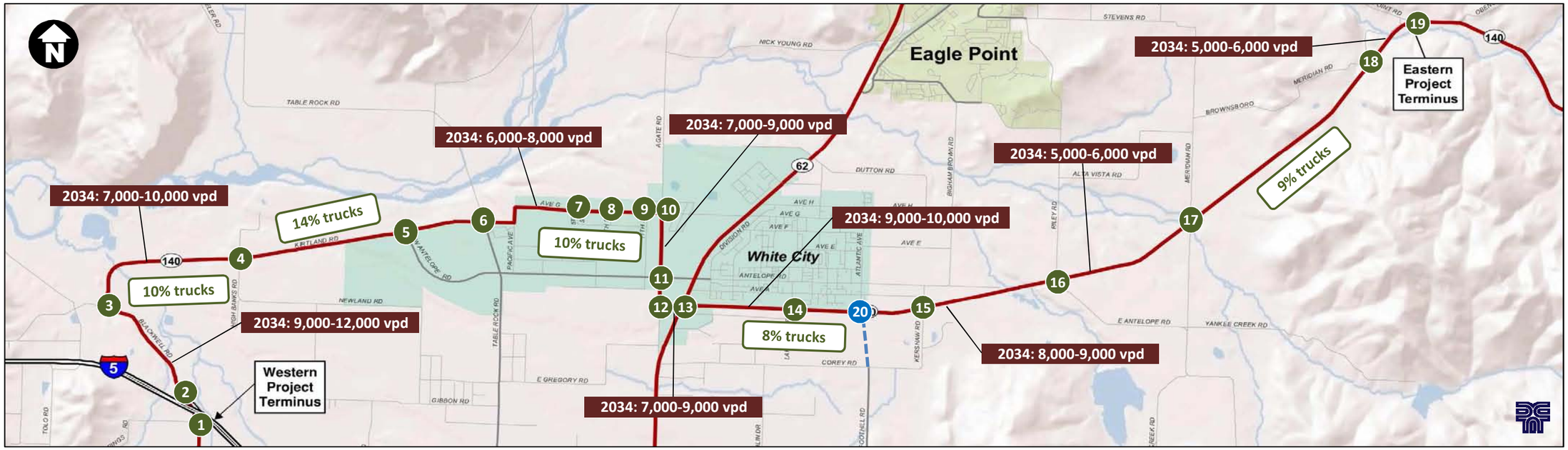
OR 140 Corridor Plan

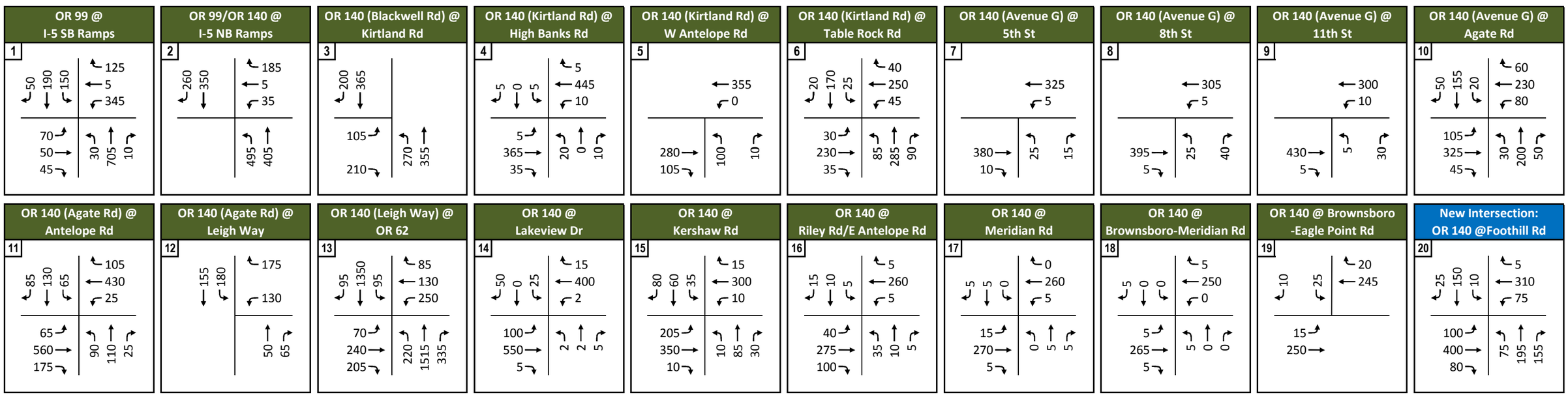
Legend

2009: #,### vpd	2009 Average Daily Traffic Volume (vehicles per day)
2010: #,### vpd	2010 Average Daily Traffic Volume (vehicles per day)
#% trucks	Truck (Single Unit and Semi-Trailer) Percentage of Total Traffic
#	Intersection Number
→	Turning Movement
###	Design Hourly Volume (PM Peak Hour)

Figure 6-1

Existing (2010) Traffic Volumes





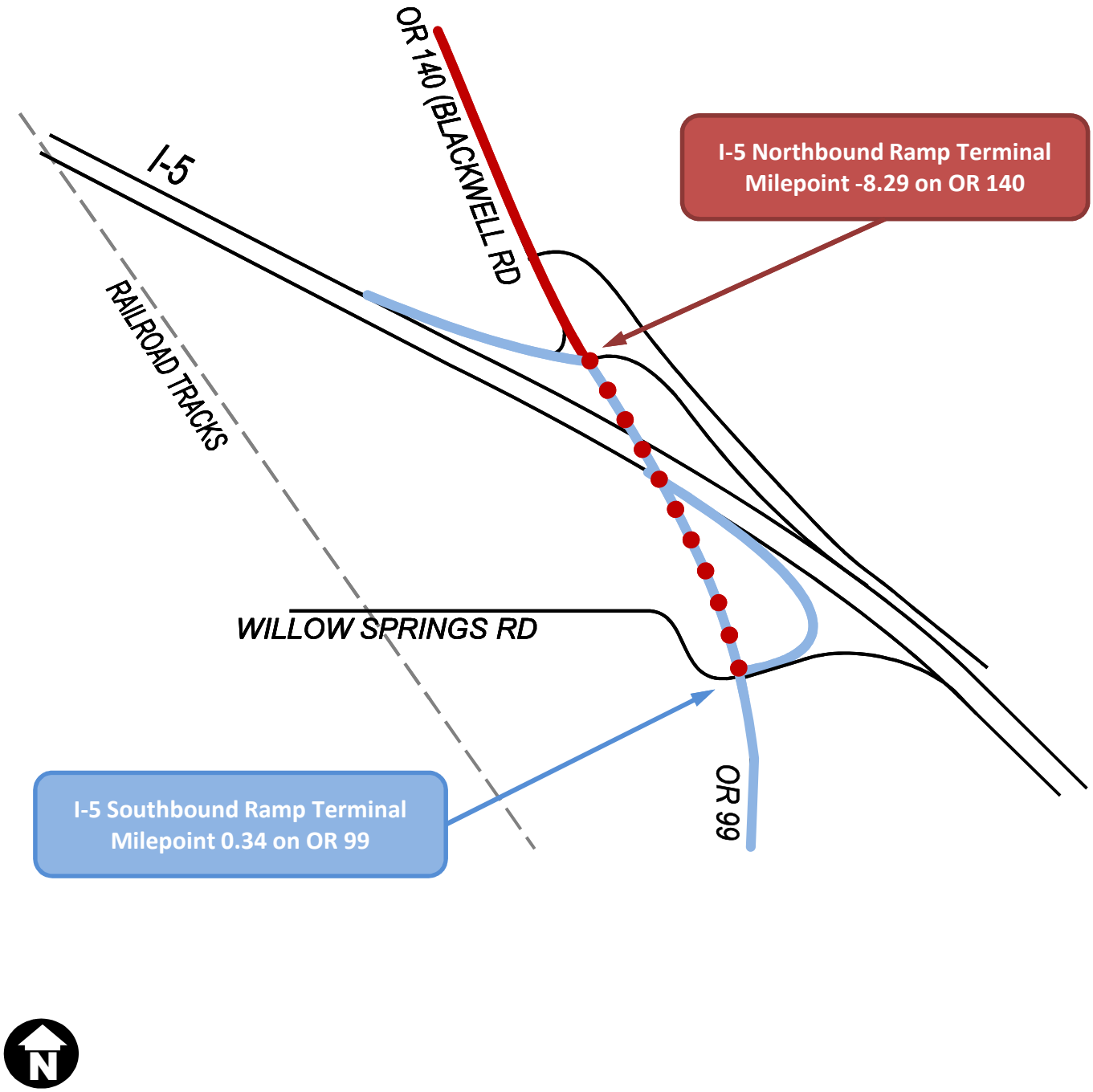
OR 140 Corridor Plan

Legend

2034: #,###-#,### vpd	2034 Forecast Range of Average Daily Traffic Volume (vehicles per day)
#% trucks	Truck (Single Unit and Semi-Trailer) Percentage of Total Traffic
#	Intersection Number
→	Turning Movement
###	Design Hourly Volume (PM Peak Hour)
- - -	Future Roadway Connection

Figure 6-2

Future (2034) Baseline Traffic Volumes



OR 140 Corridor Plan

Legend

- Current OR 140 designation (statewide classification)
- Potential OR 140 designation (statewide classification)
- Current OR 99 designation (district classification)

DRAFT Figure 6-3

Concept HR-1
Extension of OR 140 to
I-5 Southbound Ramps

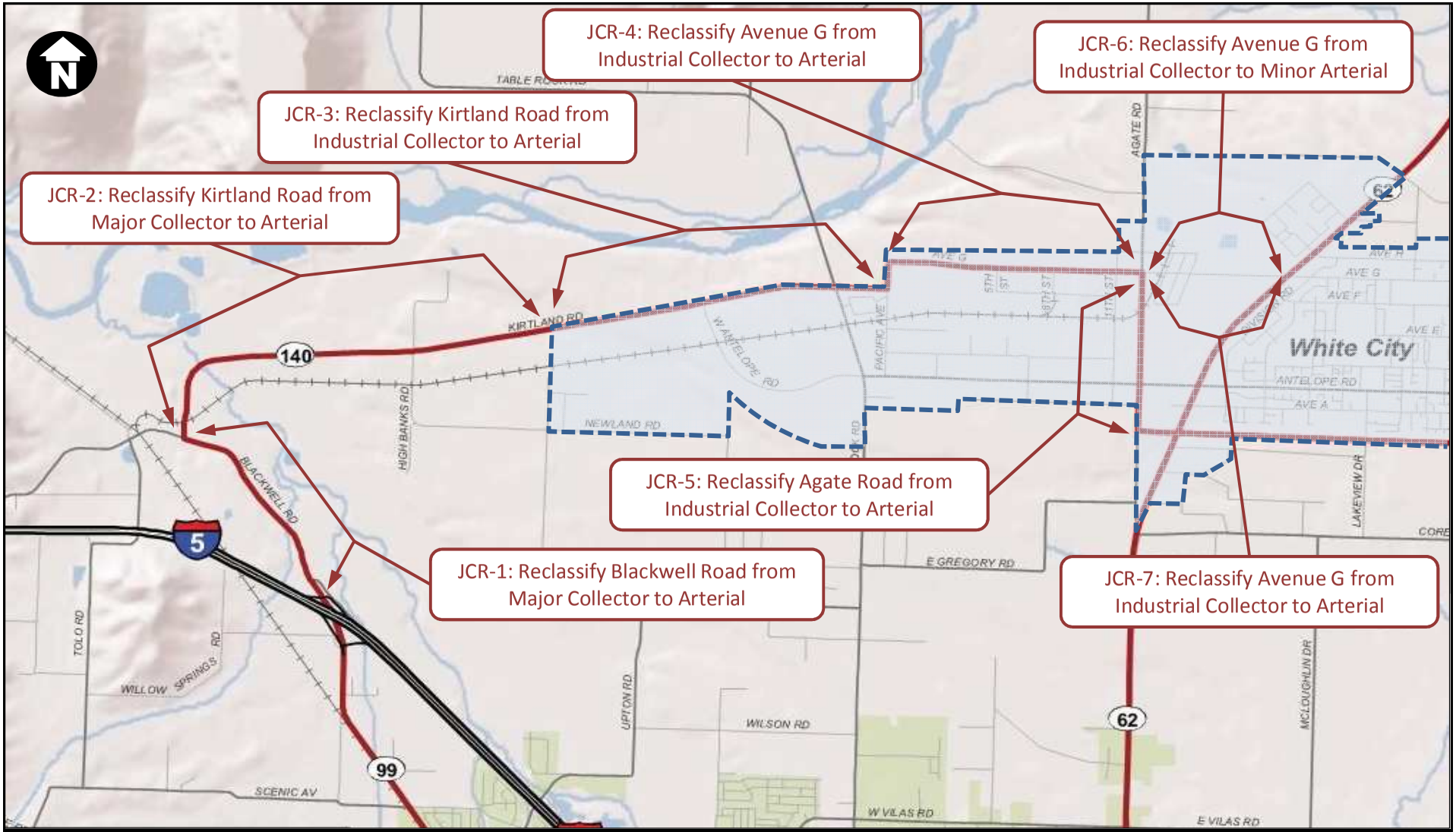
OR 140 Corridor Plan

Legend

- Current OR 140 Alignment
- Proposed OR 140 Realignment
- OR 62 Full Corridor Improvement

DRAFT Figure 6-4

Concept HR-3
Rerouting to Crater Lake Highway and Avenue G



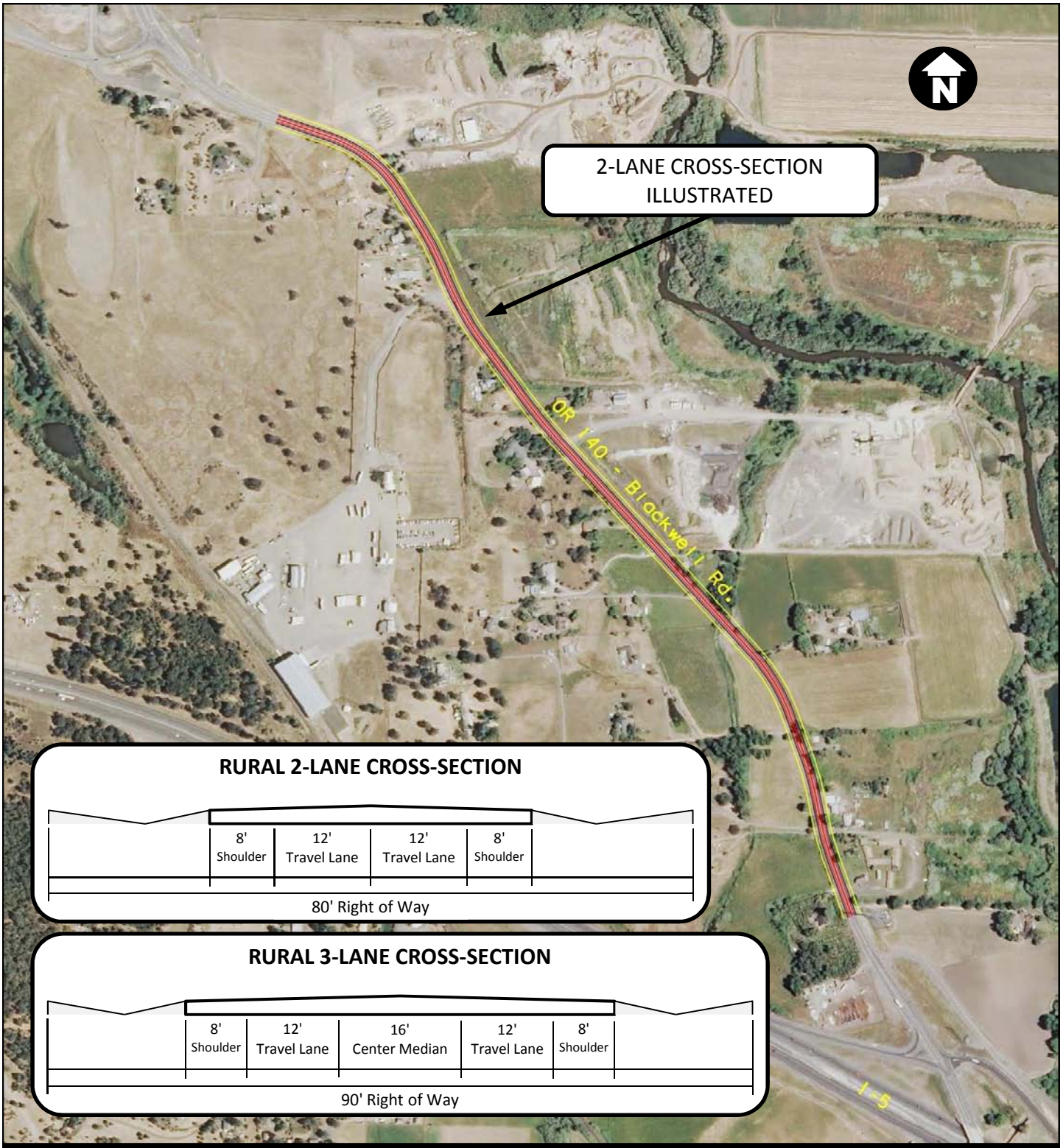
OR 140 Corridor Plan

Legend

White City Urban Unincorporated Community Boundary

DRAFT Figure 6-5

Concepts JCR-1 through JCR-7
Jackson County Reclassification



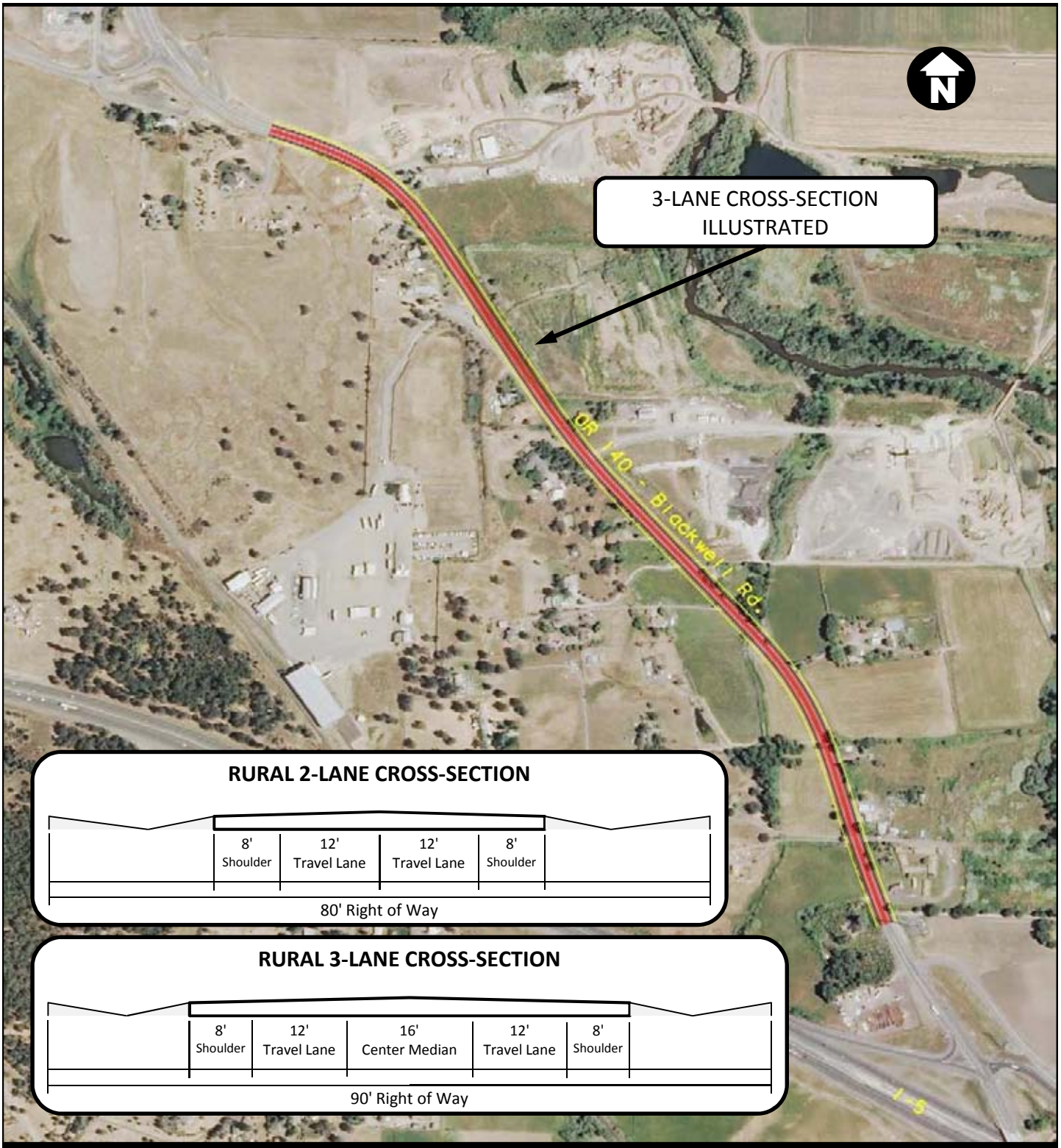
OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement
- Lane Striping

DRAFT Figure 6-6

Concept RS-1
Blackwell Road Improvements
Widening



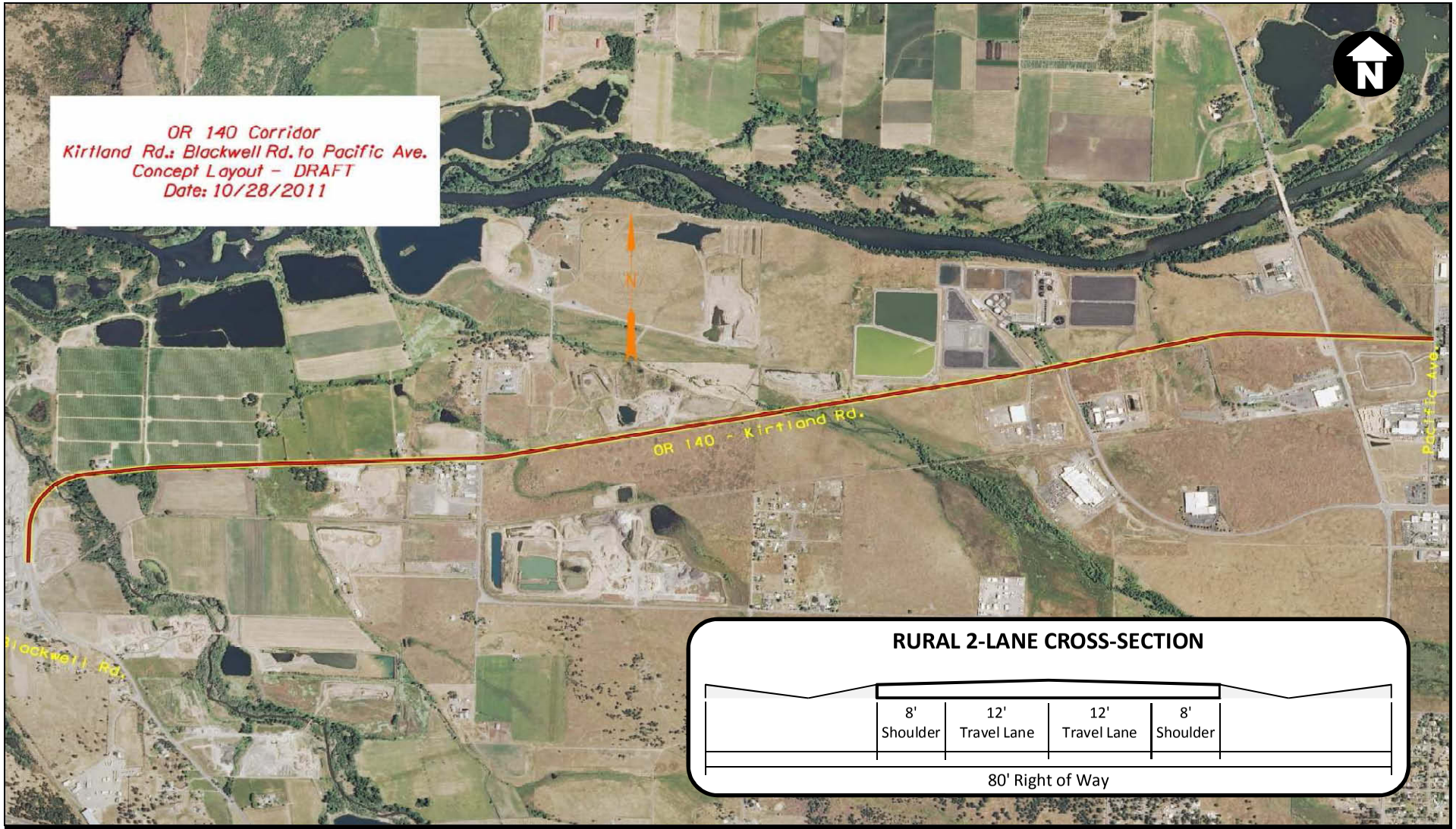
OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement
- Lane Striping

DRAFT Figure 6-7

Concept RS-2
Blackwell Road Improvements
Widening and Curve Realignment



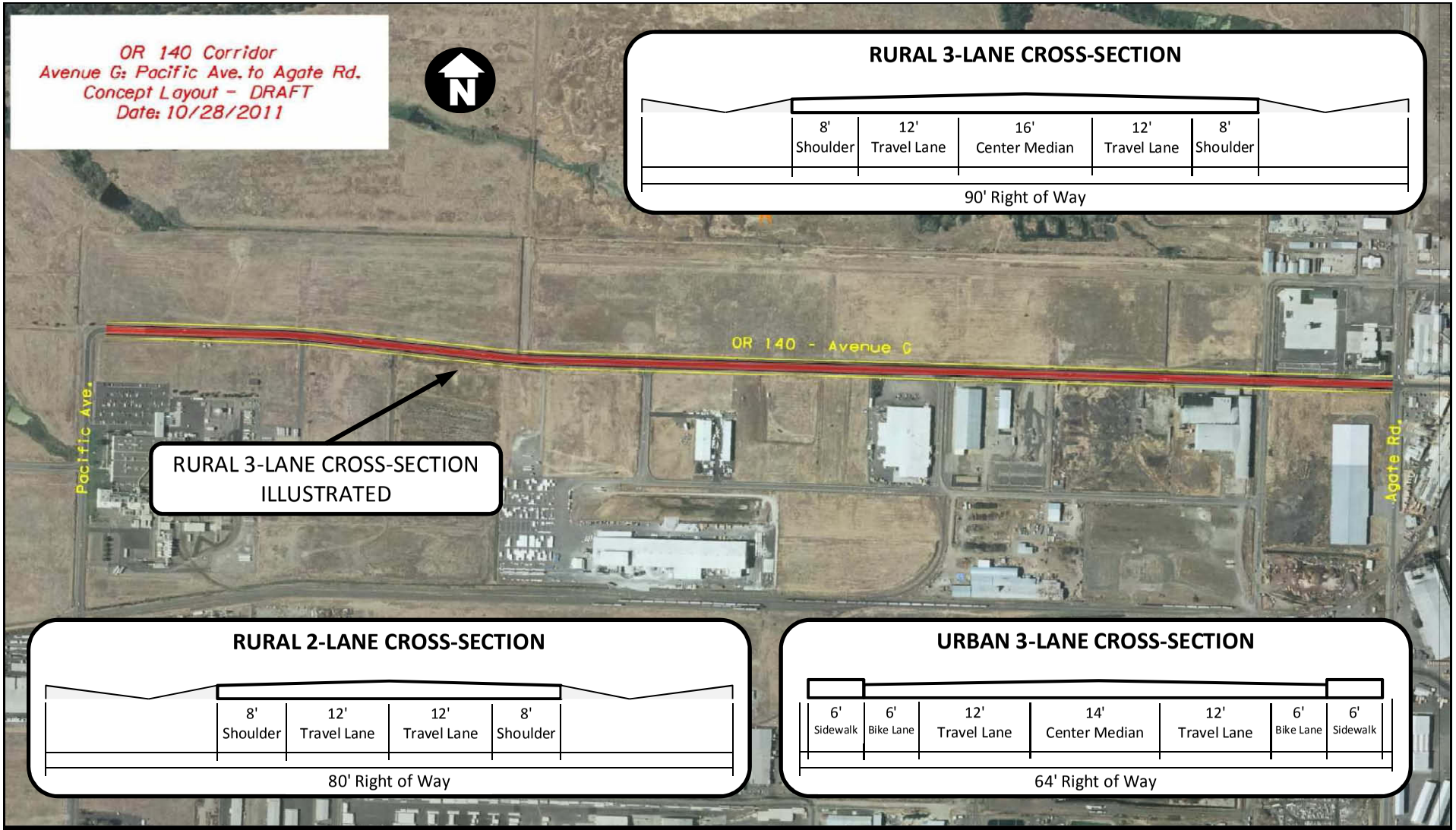
OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement
- Lane Striping

DRAFT Figure 6-8

Concept RS-4
Kirtland Road – Widening



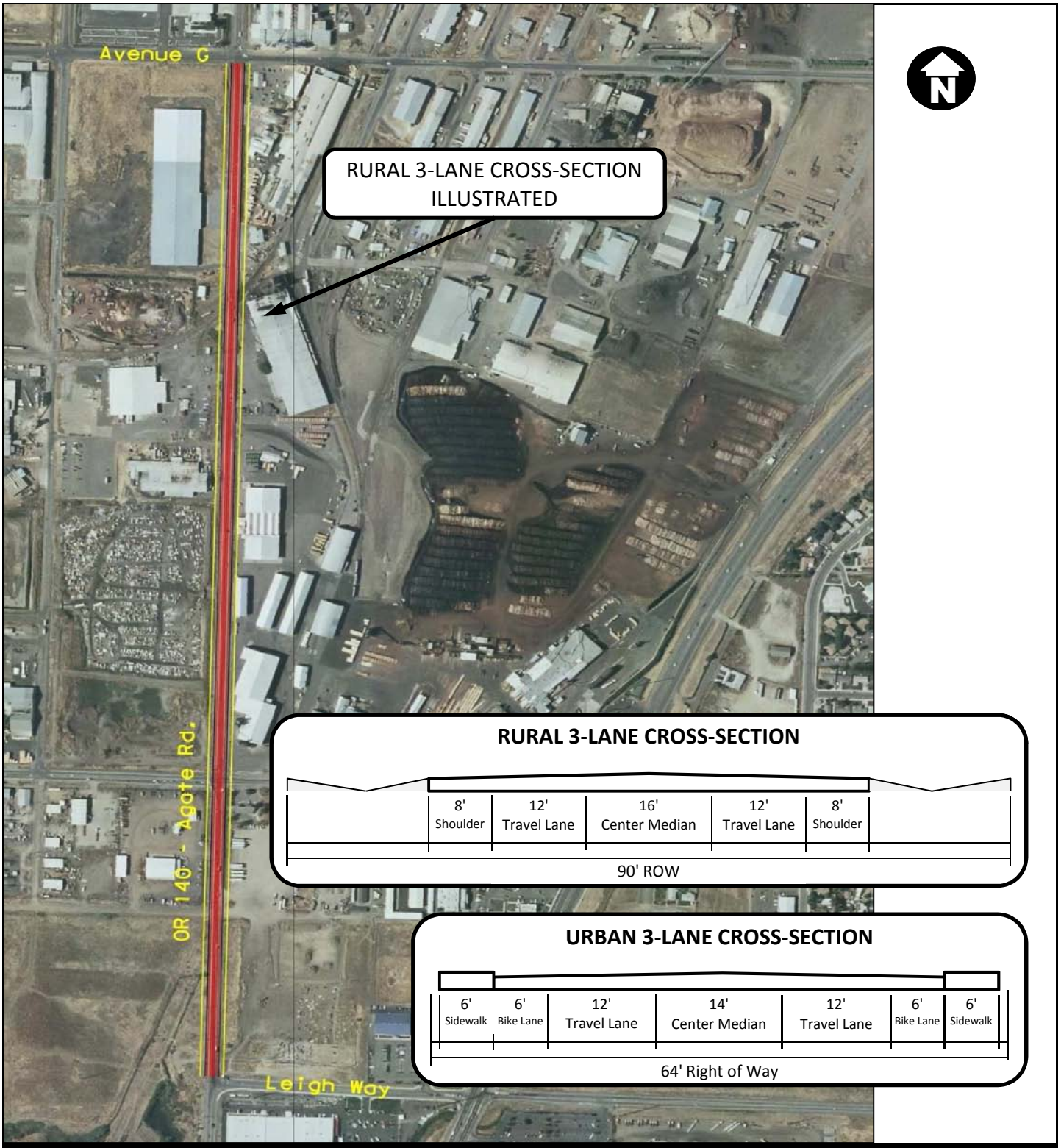
OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement
- Lane Striping

DRAFT Figure 6-9

Concept RS-5
Avenue G – Widening



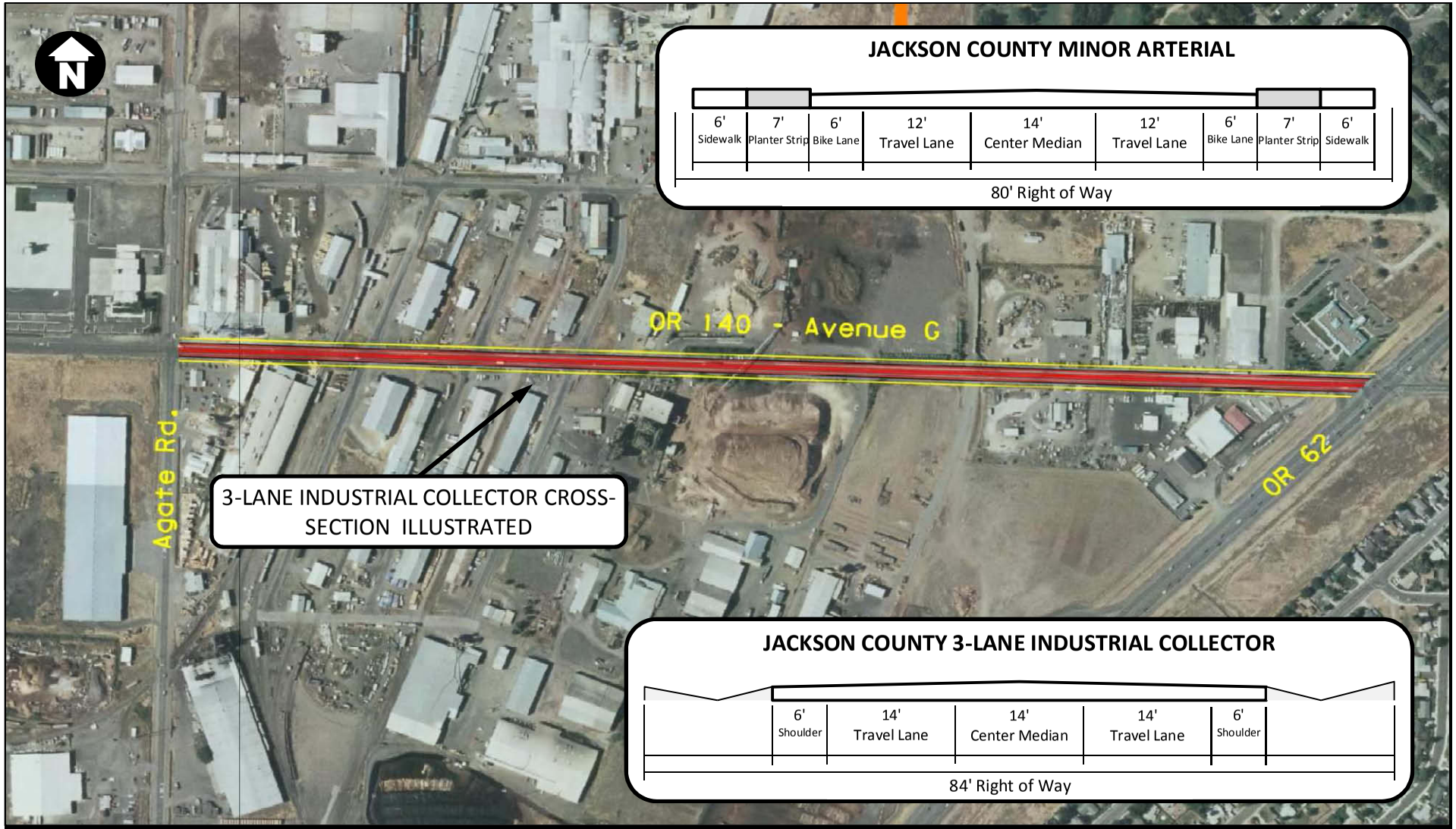
OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement
- Lane Striping

DRAFT Figure 6-10

Concept RS-6
Agate Road – Widening



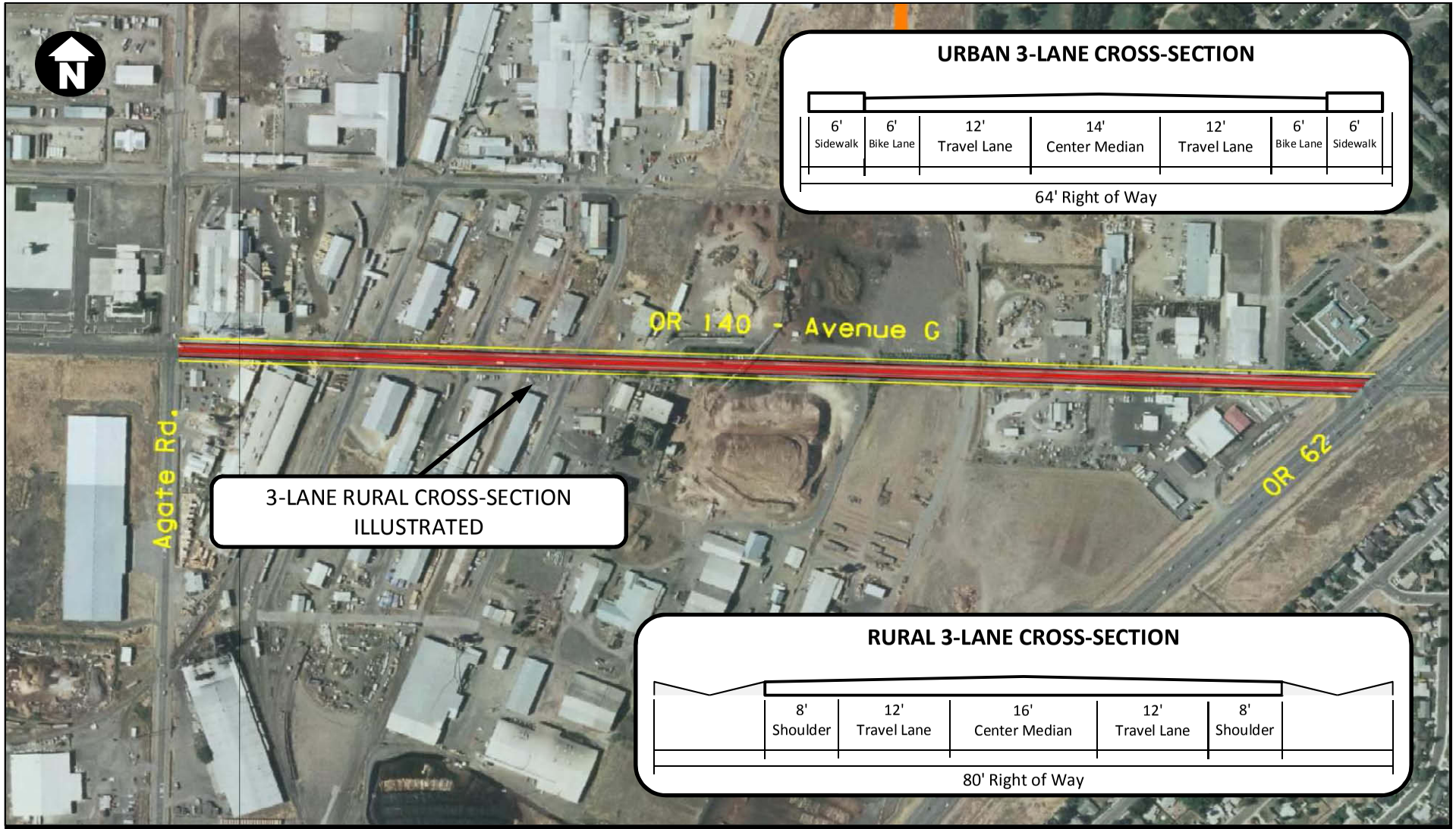
OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement
- Lane Striping

DRAFT Figure 6-11

Concept RS-7
Avenue G – County Section Widening



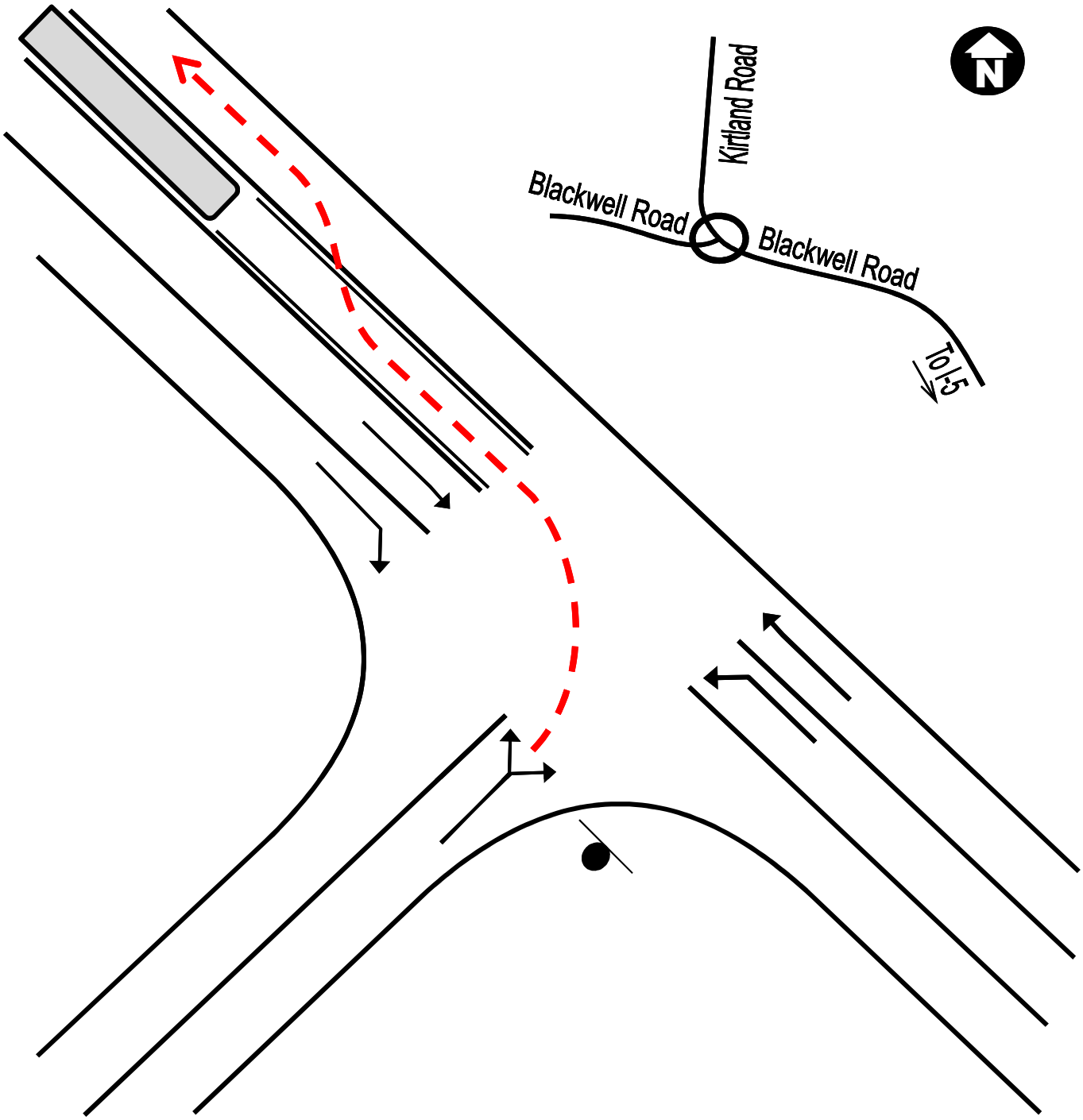
OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement
- Lane Striping

DRAFT Figure 6-12

Concept RS-8
Avenue G – OR 140 Reroute



OR 140 Corridor Plan

Legend

- STOP sign
- Turn Movement
- Two-stage Left Turn Pathway

DRAFT Figure 6-13

Blackwell Road & Kirtland Road Intersection Configuration

OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement
- Left-Turn Lane Striping
- Approximate Tax Lots

DRAFT Figure 6-14

Concept I-2
Kirtland Road & HighBanks Road
Intersection Improvements

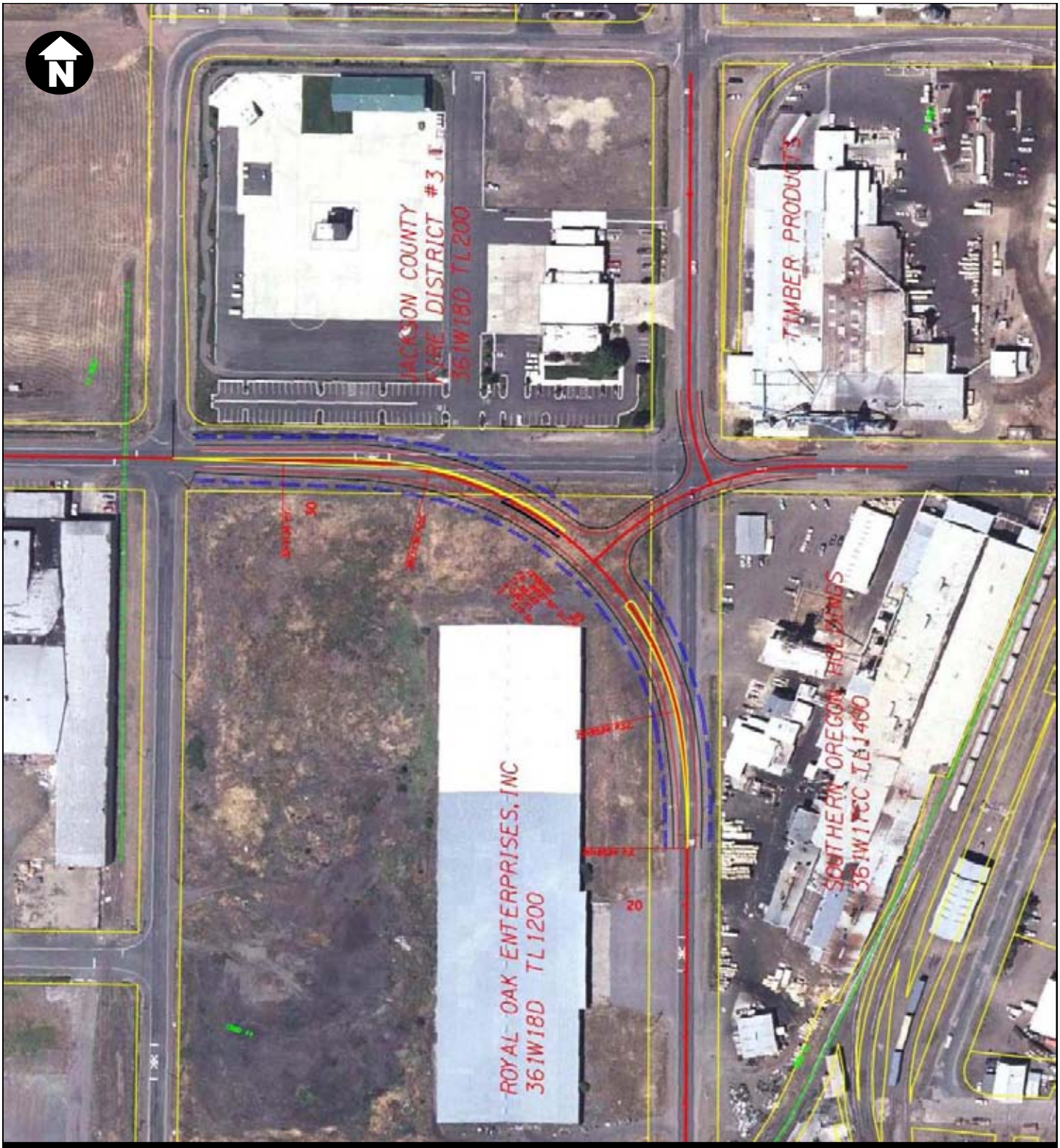
OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement
- Left-Turn Lane Striping
- Approximate Tax Lots

DRAFT Figure 6-15

Concept I-3
Kirtland Road & West Antelope Road
Intersection Improvements



OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement
- Centerline
- Left-Turn Lane Striping

DRAFT Figure 6-16

Concept I-4
Avenue G & Agate Road
Intersection Realignment

OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement
- Striping

DRAFT Figure 6-17

Concept I-5
Avenue G & Agate Road
Channelization and Traffic Signal

OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement, Sidewalk, Bike Lane
- Left-Turn Lane Striping
- Approximate Tax Lots

DRAFT Figure 6-18

Concept I-6
Agate Road & Leigh Way
Intersection Realignment

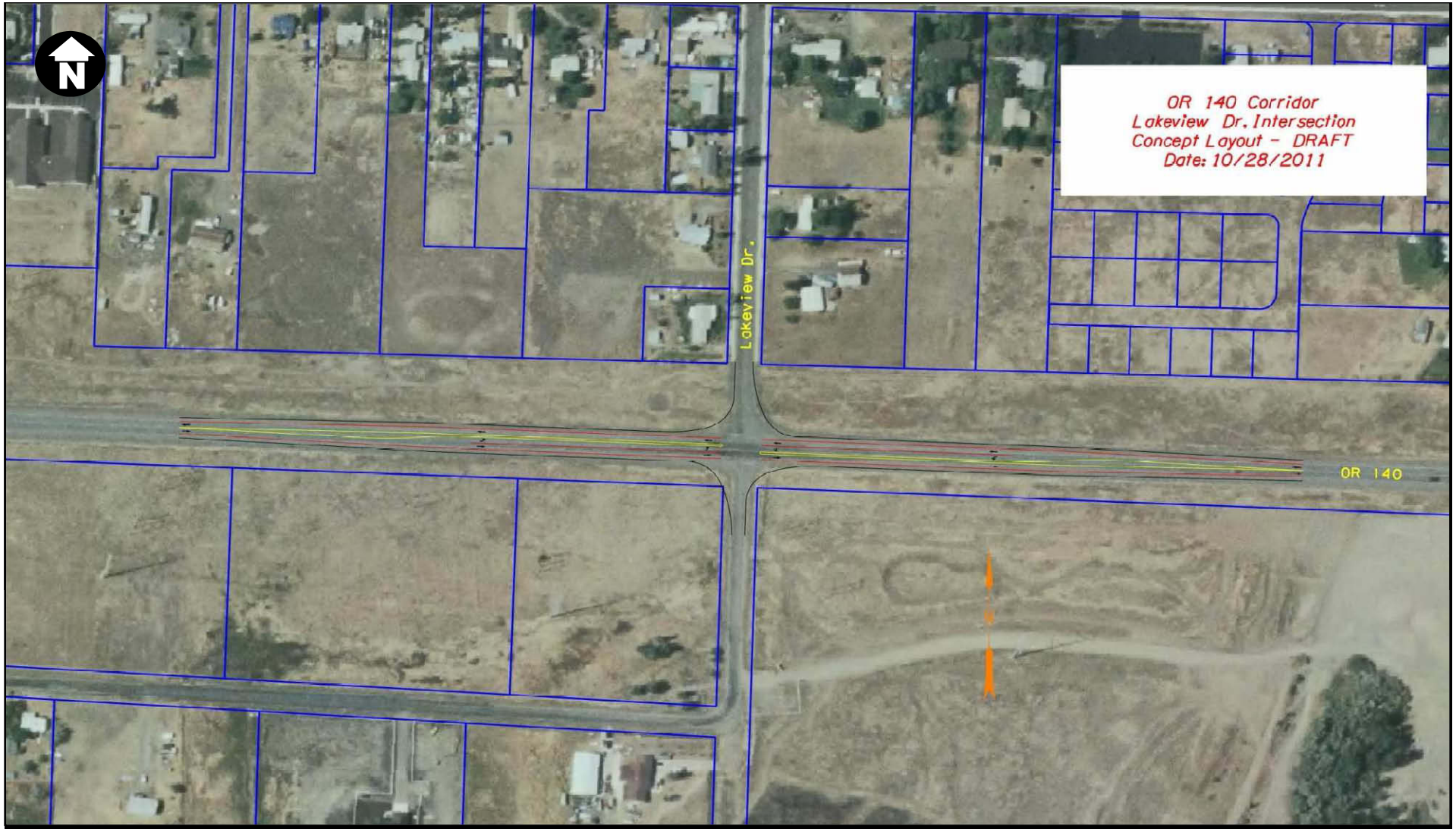
OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement
- Striping

DRAFT Figure 6-19

Concept I-7
Avenue G & Agate Road
Channelization and Traffic Control



OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement
- Left-Turn Lane Striping
- Approximate Tax Lots

DRAFT Figure 6-20

Concept I-8
OR 140 & Lakeview Drive
Intersection Improvements

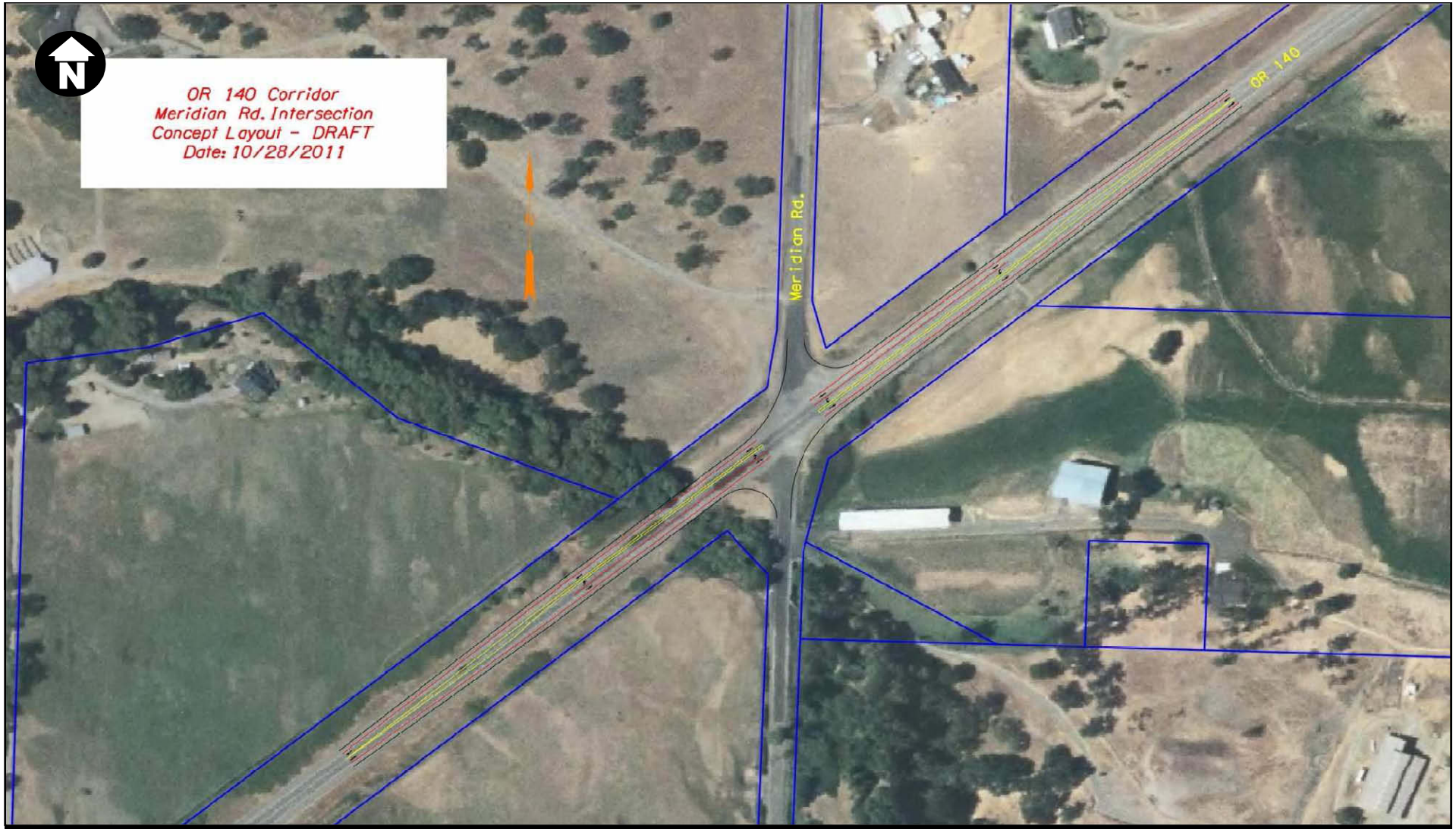
OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement
- Left-Turn Lane Striping
- Approximate Tax Lots

DRAFT Figure 6-21

Concept I-9
OR 140 & Riley Road
Intersection Improvements



OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement
- Left-Turn Lane Striping
- Approximate Tax Lots

DRAFT Figure 6-22

Concept I-10
OR 140 & Meridian Road
Intersection Improvements

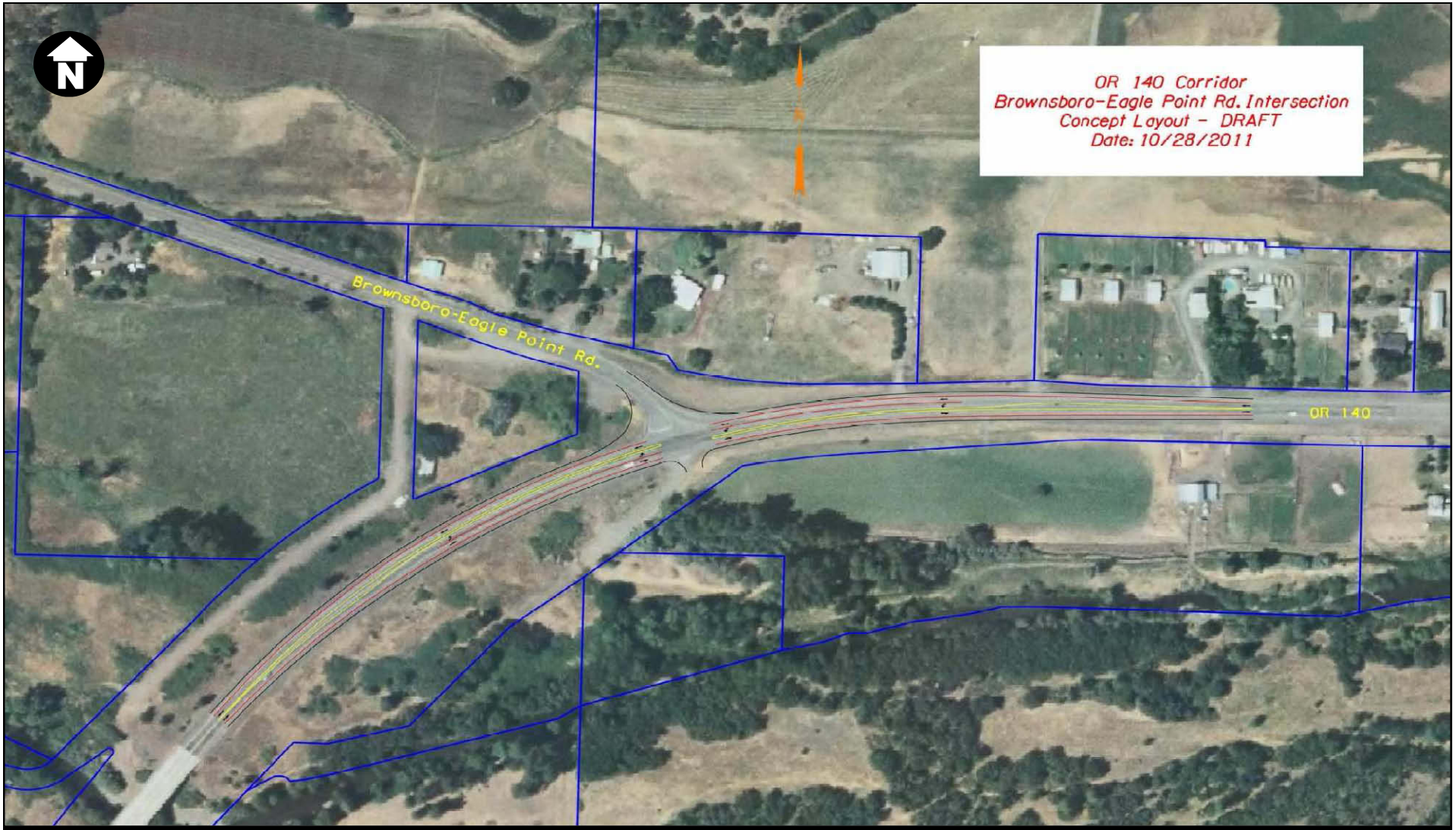
OR 140 Corridor Plan

Legend

- Right of Way Line
- Edge of Pavement
- Left-Turn Lane Striping
- Approximate Tax Lots

DRAFT Figure 6-23

Concept I-11
OR 140 & Brownsboro-Meridian Road
Intersection Improvements



OR 140 Corridor Plan

Legend

- Edge of Pavement
- Through Lane Striping
- Left-Turn Lane Striping
- Right of Way Line/Tax Lots

DRAFT Figure 6-24

Concept I-12
OR 140 & Brownsboro-Eagle Point Road
Intersection Improvements

OR 140 Corridor Plan:
I-5 Exit 35 to Brownsboro–Eagle Point Road

Technical Memorandum #7
Preferred Alternative

Prepared for

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Roseburg, Oregon 97470

Prepared by

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2100 SW River Parkway
Portland, Oregon

March 2013

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7. PREFERRED ALTERNATIVE

This technical memorandum summarizes the recommendations for the improvements that would constitute the preferred alternative for the OR 140 corridor. These recommendations are based on feedback from the Technical and Citizen Advisory Committees, comments received at the Public Open House, and input from ODOT staff.

7.1. Alternatives Considered

The alternatives analysis presented in Technical Memorandum #6 focused on four areas for consideration within the OR 140 corridor:

- Highway Redesignation
- Jackson County Road Reclassification
- Segment Improvements
- Intersection Improvements

During and following the presentations of the alternatives analysis, several other ideas were identified for consideration. These have been assessed and recommendations are presented in a new category of improvements: *Additional Improvements*. A table at the end of the memorandum summarizes the recommendations for all of the concepts considered.

7.2. Highway Redesignation

Three potential changes in highway designation were identified to address consistency in statewide classification or respond to system changes imposed by other projects. Two of the projects are recommended for consistency of statewide designations through the corridor, the third project represents a system change needed to respond to the full corridor improvement identified in the OR 62 Corridor Solutions EIS.

7.2.1. Concept HR-1 – Extension of OR 140 to I-5 Southbound Ramps

Concept HR-1 considers extending OR 140 and/or the statewide highway designation approximately 0.3 miles from the current terminus at the I-5 northbound ramp terminal across the freeway to the I-5 southbound ramp terminal. The purpose of this concept is to create a consistent statewide classification through the interchange with associated management objectives.

Discussion

One of the reasons for recommending the OR 140 statewide designation through the southbound ramp terminal was to establish mobility standards that would be consistent for both ramp terminals if this section of OR 140 was designated a freight route. Since the concept was developed, Oregon Highway Plan (OHP) mobility standards have changed. The statewide

freight route standard of 0.85 is now the same as the interstate ramp standard of 0.85. Therefore, the inconsistency between the ramp terminals is no longer an issue.

However, while the mobility standards are now currently the same, other management objectives associated with the statewide designation may warrant additional consideration of this option. OR 140 is a statewide highway while OR 99, which intersects the I-5 southbound ramp terminal, is a district highway. While the interstate may be the overarching facility that guides the decision-making at the interchange, policies that focus on the intersecting facility designation may also play into the process.

In summary, the benefits of this action include:

- A consistent designation at the I-5 Exit 35 northbound and southbound ramp terminals applies the same mobility targets, access management standards, and other highway management objectives.
- Statewide Highway classification can influence how funding for projects is allocated.

Recommendation

A variation of Concept HR-1, the extension of the OR 140 freight route designation, is recommended as a high priority element of the OR 140 plan. Rather than extending OR 140, the designation of OR 99 will be changed from district highway to statewide highway for the segment extending between the I-5 southbound and northbound ramps.

Note: OTC adoption of this statewide designation needs to occur concurrently with the OR 140 Corridor Plan adoption. No other action is needed by other agencies.

7.2.2. Concept HR-2 – Extension of Freight Route Designation

Concept HR-2 considers obtaining a freight route designation for the 8.29-mile segment of OR 140 between OR 62 and I-5. The purpose of this concept is to create a consistent freight designation for OR 140 from the Klamath Falls area through to the freeway.

Discussion

Although OR 140 is designated as a statewide highway throughout the corridor study area, the freight route designation only applies to the portion of OR 140 east of OR 62. Concept HR-2 would continue the freight route designation from OR 62 to I-5. This designation would apply management objectives with a greater emphasis on freight movement than the statewide designation alone.

The updated OHP mobility standard for a statewide highway within an MPO is a maximum v/c ratio of 0.90 while a statewide freight route allows a maximum v/c ratio of 0.85. The freight route designation would change the OHP mobility standards to 0.85 between the I-5 northbound ramp terminal and the intersection with OR 62. The current HDM mobility standard would also change from 0.80 to 0.75 with the freight route designation.

The benefits of this action include:

- It extends an existing freight route designation on a statewide highway and completes a connection between two major north-south freight route corridors.
- It provides the most direct connection between the OR 140/OR 62 intersection in White City to I-5 for travel in areas north of the Rogue Valley.
- It avoids the higher volume and potentially more congested routes of OR 62 through either Central Point or Medford.
- Freight vehicles on this new segment of OR 140 already account for 10 to 14 percent of the total daily traffic on the roadway.
- Much of the adjacent lands are zoned for industrial uses, which will generate additional freight traffic.
- A Freight Route designation applies mobility targets and other highway management objectives that focus on improved traffic flow in freight corridors.
- Freight Route designation can influence when funding for projects is allocated.

Recommendation

Concept HR-2, the extension of the OR 140 freight route designation, is recommended as a high priority element of the OR 140 plan.

Note: OTC adoption of this statewide designation needs to occur concurrently with the OR 140 Corridor Plan adoption. No other action is needed by other agencies.

7.2.3. Concept HR-3 – Rerouting to Crater Lake Highway and Avenue G

Concept HR-3 considers a long-term plan to revise the routing of OR 140 in response to the full corridor improvement identified in the OR 62 Corridor Solutions EIS which would use Agate Road and disconnect it from Leigh Way and OR 140. To address this future disconnect, the current routing of OR 140 from Leigh Way and Agate Road would be revised to route OR 140 onto Crater Lake Highway (Old OR 62) and Avenue G.

Discussion

Construction of the full corridor improvement identified in the OR 62 Corridor Solutions EIS would impact OR 140 on its alignment along Agate Road and Leigh Way. The improvements to be constructed in Phase 1 and 2 (JTA funded) currently bring the OR 62 expressway alignment back to the existing OR 62 Crater Lake Highway alignment south of OR 140, at approximately the location where Agate Road connects to the highway. The full corridor improvement would extend these improvements northward along Agate Road, through the White City industrial area before continuing eastward along West Dutton Road and reconnecting with Crater Lake Highway. The new OR 62 expressway would overlap OR 140 along the section of Agate Road

between Leigh Way and Avenue G. Leigh Way would no longer connect to Agate Road but would end in a cul-de-sac and only serve the adjacent land uses.

Recommendation

Concept HR-3, the rerouting of OR 140, is recommended as a long-term project in the OR 140 plan. However, the improvement is only necessary if OR 62 corridor improvements, beyond the JTA-funded Phases 1 and 2, are eventually completed. Thus, it should be identified as a contingency improvement rather than a planned project.

Note: No action is required by any agencies at this time. However, the OR 140 Corridor Plan will need to be reassessed when the OR 62 full corridor improvement is funded.

7.3. Jackson County Road Reclassification

Seven potential changes in functional classification were identified to address consistency with statewide classification, respond to changes in traffic demand, or respond to system changes imposed by other projects. Five of the projects were identified for consistency with statewide designations through the corridor, the sixth project is need today to address the large volume of southbound OR 62 traffic destined for westbound OR 140, and the seventh project represents a system change needed to respond to the full corridor improvement identified in the OR 62 Corridor Solutions EIS.

Ultimately, the RTP will also need to change the classification of these roadways for consistency as well. Map 5.6.1 of the RTP currently shows all of the roadways that comprise OR 140 as either Collector or Arterial roads. The RTP would need to be changed to indicate that these roads are now a state highway.

7.3.1. Concept JCR-1 – Blackwell Road Reclassification

Blackwell Road is currently classified as a Major Collector in the Jackson County TSP. Concept JCR-1 would reclassify Blackwell Road from the I-5 Interchange (Milepoint -8.29) to Kirtland Road (Milepoint -7.02) as an Arterial for consistency with the statewide highway designation associated with OR 140.

Recommendation

When Jackson County updates its TSP and the RVMPO updates the Rogue Valley RTP, the functional classification of Blackwell Road (Milepoint -8.29 to -7.02) should be upgraded for consistency with federal functional classifications for a statewide highway.

7.3.2. Concept JCR-2 – Kirtland Road Reclassification (Rural Section)

A portion of Kirtland Road is currently classified as a Major Collector in the Jackson County TSP. Concept JCR-2 would reclassify the section of Kirtland Road from Blackwell Road (Milepoint -7.02) to the White City Urban Unincorporated (UUC) boundary (Milepoint -5.12) as an Arterial for consistency with the statewide highway designation associated with OR 140.

Recommendation

When Jackson County updates its TSP and the RVMPO updates the Rogue Valley RTP, the functional classification of Kirtland Road (Milepoint -7.02 to -5.12) should be upgraded for consistency with federal functional classifications for a statewide highway.

7.3.3. Concept JCR-3 – Kirtland Road Reclassification (White City Section)

A portion of Kirtland Road is also currently classified as an Industrial Collector in the Jackson County and White City TSPs. Concept JCR-3 would reclassify the section of Kirtland Road from the White City UUC boundary (Milepoint -5.12) to Avenue G (Milepoint -2.55) as an Arterial for consistency with the statewide highway designation associated with OR 140. This section includes the portion of Kirtland Road that currently remains under county jurisdiction, which together with a segment of Pacific Avenue, is under construction to smooth the curves for a more direct alignment with Avenue G.

Recommendation

7.3.4. When Jackson County updates its TSP (and the White City TSP) and the RVMPO updates the Rogue Valley RTP, the functional classification of Kirtland Road (Milepoint -5.12 to -2.55) should be upgraded for consistency with federal functional classifications for a statewide highway. Concept JCR-4 – Avenue G Reclassification (State Section)

Like Kirtland Road, Avenue G is currently classified as an Industrial Collector in the Jackson County and White City TSPs. Concept JCR-4 would reclassify the section of Avenue G from the realignment of Kirtland Road/Pacific Avenue (Milepoint -2.55) to Agate Road (Milepoint -1.16) as an Arterial for consistency with the statewide highway designation associated with OR 140.

Recommendation

When Jackson County updates its TSP (and the White City TSP) and the RVMPO updates the Rogue Valley RTP, the functional classification of Avenue G (Milepoint -2.55 to -1.16) should be upgraded for consistency with federal functional classifications for a statewide highway.

7.3.5. Concept JCR-5 – Agate Road Reclassification

Agate Road is currently classified as an Industrial Collector in the Jackson County and White City TSPs. Concept JCR-5 would reclassify the section of Agate Road from Avenue G (Milepoint -1.16) to Leigh Way (Milepoint -0.20) as an Arterial for consistency with the statewide highway designation associated with OR 140.

Recommendation

When Jackson County updates its TSP (and the White City TSP) and the RVMPO updates the Rogue Valley RTP, the functional classification of Agate Road (Milepoint -1.16 to -0.20) should be upgraded for consistency with federal functional classifications for a statewide highway.

7.3.6. Concept JCR-6 – Avenue G Reclassification (County Section)

Concept JCR-6 considered the county section of Avenue G between Agate Road and OR 62 which is classified as an Industrial Collector in the Jackson County TSP. Although this section is not part of OR 140, it serves as a direct link between OR 62 and OR 140 for traffic traveling between Eagle Point and I-5. It also carries traffic from the residential areas of White City that lie east of OR 62. These demands are both expected to become an increasing portion of the traffic mix using Avenue G between OR 62 and OR 140 (Agate Road). For consistency with the mix of traffic served by this section of roadway and anticipated growth in through traffic, a reclassification from Industrial Collector to Minor Arterial is recommended. In the Jackson County TSP, Minor Arterial (Urban) and Major Collector are grouped together.

Recommendation

As described in Concept JCR-6, the Jackson County TSP should consider reclassifying Avenue G as a Minor Arterial. This reclassification should be considered in the short term so that any improvements to this segment of roadway would be consistent with Minor Arterial street standards.

7.3.7. Concept JCR-7 – Avenue G Reclassification with Rerouted OR 140

Concept JCR-7 addresses the county section of Avenue G between Agate Road and OR 62 if OR 140 is rerouted (Concept HR-3) in response to construction of the full corridor improvement identified in the OR 62 Corridor Solutions EIS. Since this section of Avenue G would also serve as OR 140 under these conditions, Concept JCR-7 would reclassify it as an Arterial for consistency with the statewide highway designation associated with OR 140.

Recommendation

No action is required by any agencies at this time. However, the OR 140 Corridor Plan will need to be reassessed when the OR 62 full corridor improvement is funded and both Jackson County and the RVMPO would need to address classification at that time.

7.4. Roadway Segment Improvements

Eight potential road segment improvements were identified during the concept development process to bring OR 140 up to state standards, provide additional capacity, or address safety concerns. Several of these potential improvements had options that were considered with the concept.

7.4.1. Concept RS-1 – Blackwell Road Improvements – Widening

Concept RS-1 is one of two concepts that address improvements on Blackwell Road (see also Concept RS-2 – Blackwell Road Improvements – Widening and Curve Realignment). It considers widening Blackwell Road (Milepoint -8.17 to -7.02) to meet state standards but keeping the alignment along the current centerline to minimize impacts within the existing right of way to the greatest extent possible. The purpose of this improvement is to improve safety and increase capacity along this roadway.

Discussion

Concept RS-1 is one of two concepts that were considered for this section of Blackwell Road. It would widen Blackwell Road to meet state standards for roadway width but would keep the alignment along the current centerline; it does not modify any of the existing curves along the roadway. Concept RS-2 would realign sections of the roadway to smooth curves and meet a 55 mph design speed.

Current traffic demand on Blackwell Road ranges from 8,000 to 9,000 vehicles per day (vpd). The 2034 forecast demand is expected to range from 11,000 to 12,000 vpd.

Concept RS-1 would increase capacity in the corridor and provide some safety benefits associated with the wider shoulders and a center median lane. However, it would not address the safety concerns associated with "breaking" curves along Blackwell Road. The crash analysis indicated a history of collisions near these curves.

Recommendation

Concept RS-1 is not recommended because it does not address the documented crash history associated with the corridor.

7.4.2. Concept RS-2 – Blackwell Road Improvements – Widening and Curve Realignment

Concept RS-2 considers widening Blackwell Road (Milepoint -8.17 to -7.02) to meet state standards and would realign sections of the roadway to smooth curves and meet a 55 mph design speed. Similar to Concept RS-1, the purpose of this improvement is to improve safety and increase capacity along this roadway.

Discussion

Concept RS-2 would widen Blackwell Road to meet state standards and would realign sections of the roadway to smooth curves and meet a 55 mph design speed. The spiraling curves and higher design speed should improve the safety of the roadway along those sections where curves are currently breaking and crash analysis indicates a history of collisions.

Because it would have greater safety benefits, Concept RS-2 is preferred over Concept RS-1. However, the right-of-way needs for this concept would be much more extensive than for Concept RS-1 because of the higher design speed and curve corrections.

Two roadway cross-sections were considered with Concept RS-2: A) a 2-lane rural cross-section with two 12-foot travel lanes and 8-foot shoulders within an 80-foot right of way, and B) a 3-lane rural cross-section with two 12-foot travel lanes, a 16-foot median lane, and 8-foot shoulders within a 90-foot right of way.

Forecast volumes of almost 12,000 vehicles per day (vpd) indicate that left-turn lanes would be needed at most access points; therefore, the 3-lane section is preferred over the 2-lane section.

Blackwell Road will serve the Tolo Area, the Central Point Urban Reserve Area designated CP-1B, when it develops over time. This further supports the 3-lane rural concept.

Recommendation

Concept RS-2 is recommended as an element of the OR 140 Corridor Plan. It should be constructed as a 3-lane rural cross-section with setbacks that would allow for widening to 5 lanes should development in the Tolo Area (CP-1B) require additional capacity. These setbacks would also allow for construction of right-turn deceleration lanes at higher volume access points. A design speed of 55 mph is recommended along Blackwell Road although the posted speed may remain at 45 mph. Phased implementation of this concept may be difficult because of the need to realign some sections of the roadway. This section of roadway has the highest volumes in the corridor study area and a high crash rate. For these reasons, this improvement should be a high priority.

7.4.3. Concept RS-3 – Kirtland Road – Safety Improvements

Concept RS-3 considers two safety improvements that could be implemented on Kirtland Road (Milepoint -7.02 to -2.71): A) roadway delineators, and B) rumble strips. The purpose of these improvements is to address safety concerns in the corridor.

Discussion

In the crash analysis performed as part of the existing transportation system evaluation, nineteen crashes occurred at non-intersection locations along Kirtland Road between Blackwell Road and Table Rock Road. The delineators would provide a visual enhancement while the rumble strips would provide an auditory backup for drivers. These improvements could be constructed independently or together.

Recommendation

Concept RS-3 is recommended as an element of the OR 140 Corridor Plan. Installation of delineators is already under design for a portion of this corridor. Rumble strips are recommended as a medium priority project but priority should be elevated if a pattern of single vehicle, run-off-the-road crashes continues. When installing rumble strips consideration should be given to accommodating bicycle usage on the shoulders by providing recurring short gaps in the continuous rumble strip pattern.

7.4.4. Concept RS-4 – Kirtland Road – Widening

Concept RS-4 considers widening the shoulders on Kirtland Road (Milepoint -7.02 to -2.71) to 8 feet. The purpose of the concept is to achieve consistency with the design standards for a statewide highway.

Discussion

Kirtland Road is currently a two-lane roadway with a roadway surface of 32 to 36 feet and a right-of-way width that varies from 60 feet to 80 feet. The new construction around the

realigned Blackwell/Kirtland Road intersection already has 8–foot shoulders and approximately 85 percent of Kirtland Road already has 6-foot shoulders; only the area beginning 0.1 miles west of Table Rock Road to Pacific Avenue has 4-foot shoulders. A portion of this section is under construction by Jackson County as part of the realignment of Pacific Avenue.

Current traffic demand on Kirtland Road ranges from more than 7,000 vehicles per day (vpd) near Blackwell Road to about 4,000 vpd east of Table Rock Road. The 2034 forecast demand is expected to range from about 10,500 near Blackwell Road to over 7,000 east of Table Rock Road. The two-lane cross-section should be able to accommodate future demand along Kirtland Road. Some intersections may benefit from the addition of left-turn lanes to provide safe and efficient operations; the considerations for turn lanes are addressed in *Section 7.5. Intersection Improvements*.

Kirtland Road crosses a number of creeks and canals, including Bear Creek and Whetstone Creek. Flooding near existing culverts has been an issue noted by some project participants. Kirtland Road also runs through a number of areas with a wetlands classification of palustrine, emergent that may contain high quality vernal pools.

Recommendation

Concept RS-4 is not recommended because it would provide minimal benefit to roadway users while raising a number of environmental concerns. Furthermore the safety improvements recommended under Concept RS-3 would address many of the existing safety concerns on this section of the corridor.

Flooding near existing culverts has been an issue noted by some project participants. These flooding issues should be considered when any culvert maintenance is performed in the future.

7.4.5. Concept RS-5 – Avenue G – Widening

Concept RS-5 considers upgrading Avenue G (Milepoint -2.55 to -1.16) with the purpose of meeting state standards. In addition to achieving standards, this concept also considers what improvements may be needed to safely serve future industrial development along the corridor.

Discussion

Avenue G is currently a two-lane roadway with a roadway surface of 36 to 37 feet and a right-of-way width of 100 feet. Three state cross-sections were considered for this concept: A) a 2-lane rural cross-section with two 12-foot travel lanes and 8-foot shoulders, B) a 3-lane rural cross-section with two 12-foot travel lanes, a 16-foot median lane, and 8-foot shoulders, and C) a 3-lane urban cross-section with two 12-foot travel lanes, a 14-foot median lane, 6-foot bike lanes, and 6-foot sidewalks. All three cross-sections could be accommodated within the existing 100-foot right of way.

Current traffic demand on Avenue G is estimated at about 4,500 vehicles per day (vpd) and 2034 forecast demand is expected to be near 8,000 vpd. Development of the adjacent White City industrial area would contribute to this growth.

While left-turn lanes may not be necessary under current conditions, they may be needed as the area develops and both through and local traffic volumes increase. Therefore, a 3-lane section is preferred over the 2-lane section. Furthermore, because Avenue G lies within the White City Urban Unincorporated Community (UUC) boundary, the 3-lane urban section is preferred over the rural section.

Recommendation

Concept RS-5 with a 3-lane urban section is recommended as an element of the OR 140 Corridor Plan. Phased implementation of this concept should be considered. The roadway could be widened to provide the center turn lane and wider shoulders while the adjacent lands remain largely undeveloped. The urban features, such as curb, gutter, and sidewalks (with landscape buffer) could be added as the area begins to develop. A multi-use path with a landscape buffer could be substituted for bike lanes and sidewalks in the urban section. As parcels develop along Avenue G, construction of the preferred urban improvements (sidewalks or multi-use path) at a location consistent with the future roadway alignment is recommended as part of the development approval.

7.4.6. Concept RS-6 – Agate Road – Widening

Concept RS-6 considers upgrading Agate Road (Milepoint -1.16 to –0.20) with the purpose of meeting state standards. In addition to achieving standards, this concept also considers what improvements may be needed to safely serve future industrial development along the corridor.

Discussion

Agate Road is currently a two-lane roadway with a roadway surface of 32 to 40 feet and a right-of-way width of 100 feet. Two state cross-sections were considered for this concept: A) a 3-lane rural cross-section with two 12-foot travel lanes, a 16-foot median lane, and 8-foot shoulders, and B) 3-lane urban cross-section with two 12-foot travel lanes, a 14-foot median lane, 6-foot bike lanes, and 6-foot sidewalks. Both cross-sections could be accommodated within the existing 100-foot right of way.

Current traffic demand on Agate Road is estimated at about 4,500 vehicles per day (vpd) and 2034 forecast demand is expected to be near 8,000 vpd. Development of the adjacent White City industrial area would contribute to this growth. This forecast does not include the full corridor improvement for OR 62.

While left-turn lanes may not be necessary under current conditions, they may be needed as remaining parcels develop or redevelop, and both through and local traffic volumes increase. Therefore, a 3-lane section is preferred over the 2-lane section. Furthermore, because Avenue G lies within the White City Urban Unincorporated Community (UUC) boundary, the 3-lane urban section is preferred over the rural section.

Recommendation

Concept RS-6 with a 3-lane urban section is recommended as an element of the OR 140 Corridor Plan. Phased implementation of this concept should be considered. The roadway could be widened to provide the center turn lane and wider shoulders without other elements of the urban cross-section. The urban features, such as curb, gutter, and sidewalks (with landscape buffer) could be added as volumes grow or the adjacent parcels develop or redevelop. Many of the parcels along Agate Road are already developed; however, construction of sidewalks at a location consistent with the future roadway alignment is recommended as part of the approval process for development or redevelopment.

7.4.7. Concept RS-7 – Avenue G – County Section Widening

Concept RS-7 considers upgrading the county section of Avenue G between Agate Road and OR 62 to a 3-lane cross section. The purpose of this concept is to better serve anticipated demand from both through and local traffic.

Discussion

The county section of Avenue G between Agate Road and OR 62 serves as a direct link between OR 62 and OR 140 for traffic traveling between Eagle Point and I-5. It also carries traffic from the residential areas of White City that lie east of OR 62. These demands are both expected to become an increasing portion of the traffic mix using Avenue G between OR 62 and OR 140 (Agate Road).

Avenue G is currently a two-lane roadway (industrial collector) with a roadway surface of 36 feet and a right-of-way width of 80 feet. Two county cross-sections were considered for this concept: A) 3-lane Industrial Collector with two 12- to 14-foot travel lanes, a 14-foot median lane, and 6-foot shoulders, and B) a Minor Arterial/Major Collector with two 12-foot travel lanes, a 14-foot median lane, 6-foot bike lanes, 7-foot planting strips, and 6-foot sidewalks. Both cross-sections could be accommodated within the existing 80-foot right of way.

Current traffic demand on Avenue G between Agate Road and OR 62 is estimated at about 4,000 vehicles per day (vpd) and 2034 forecast demand is expected to be near 7,500 vpd. Development of the adjacent industrial area would contribute to this growth. This forecast does not include the full corridor improvement for OR 62.

Because Avenue G lies within the White City Urban Unincorporated Community (UUC) boundary, urban features that include curbs, gutters, and sidewalks are desirable. Therefore, the Minor Arterial/Major Collector section is preferred over the Industrial Collector. Furthermore, the Minor Arterial/Major Collector section could accommodate increased traffic demand in response to construction of the full corridor improvement identified in the OR 62 Corridor Solutions EIS where this section of Avenue G would also serve as OR 140 under these conditions.

Recommendation

Concept RS-7, an upgrade to minor arterial standards, is recommended for implementation by Jackson County. However, since this section of Avenue G is not currently part of the highway, the upgrade should be addressed by Jackson County when the TSP is updated.

Note: The OR 140 Corridor Plan will need to be reassessed when the OR 62 full corridor improvement is funded.

7.4.8. Concept RS-8 – Avenue G – OR 140 Reroute Widening

Concept RS-8 responds to the completion of the full corridor improvement identified in the OR 62 Corridor Solutions Environmental Impact Statement (EIS) by upgrading Avenue G between Agate Road and OR 62 with the purpose of meeting state standards.

Discussion

Construction of the full corridor improvement identified in the OR 62 Corridor Solutions EIS would disconnect the existing OR 140 route, as discussed under other concepts. To address this future disconnect, rerouting OR 140 along Crater Lake Highway and Avenue G would be partnered with the OR 62 full corridor improvement.

As discussed for Concept RS-7, current traffic demand on Avenue G between Agate Road and OR 62 is estimated at about 4,000 vehicles per day (vpd) and 2034 forecast demand is expected to be near 7,500 vpd. Forecasting from the OR 62 Corridor Solutions EIS indicates that future traffic volumes on Avenue G may be similar with the full corridor improvement construction although it is likely that some increase in traffic could be anticipated.

Concept RS-7 with the Minor Arterial/Major Collector designation is recommended for implementation by Jackson County. This cross-section is consistent with the state 3-lane urban cross-section considered with Concept RS-8. The rural cross-section is not appropriate within White City Urban Unincorporated Community (UUC) boundary.

Recommendation

No action is required by any agencies at this time. However, the OR 140 Corridor Plan will need to be reassessed when the OR 62 full corridor improvement is funded and both Jackson County and the RVMPO would need to address classification at that time..

7.5. Intersection Improvements

Twelve potential intersection improvements were identified to improve traffic flow, provide additional capacity, or address safety concerns.

7.5.1. Concept I-1 – Blackwell Road & Kirtland Road Traffic Signal

Concept I-1 considers installing a traffic signal at the intersection of Blackwell Road and Kirtland Road. The purpose of this concept is to provide additional capacity at the intersection to accommodate future growth.

Discussion

The Blackwell Road/Kirtland Road intersection is currently STOP-controlled on the eastbound (Blackwell Road) approach with free-flowing movements on the northbound (Blackwell Road) and southbound (Kirtland Road) approaches. Traffic operations analysis indicates that the eastbound left-turn movement currently experiences some congestion during peak conditions. The extent of that congestion depends on how drivers execute the left-turn movement. Some drivers turn left directly into the northbound travel lane while others may be using the center median refuge to execute a "two-stage" left turn. A two-stage turn is made when the eastbound driver at the STOP sign seeks a gap in the southbound traffic and turns left into the median, waits for a gap in the northbound traffic , then pulls into the northbound travel lane.

If drivers do not take advantage of the center median refuge, the existing v/c ratio for the eastbound approach is estimated at 0.77; however, if the two-stage left turn is included in the calculation, the v/c ratio could be as low as 0.40. For the 2034 future condition, the v/c ratio is estimated at 1.12 with no median usage, and 0.45 with the two-stage left-turn movement. A survey of driver behavior at this location has not been conducted, so the number of left turns that are executed in the two-stage method is not available.

Recommendation

Concept I-1 is not recommended for the OR 140 Corridor Plan at this time; however, future consideration of a traffic signal may be necessary if the City of Central Point expands their urban growth boundary (UGB) to include the Tolo urban reserve area (CP-1B).

7.5.2. Concept I-2 – Kirtland Road & High Banks Road Left-Turn Lanes

Concept I-2 considers adding eastbound and westbound left-turn lanes on Kirtland Road (OR 140) at High Banks Road to provide a refuge for vehicles turning left from the highway to the side street. The purpose of this concept is to improve the safety of the intersection but it would also add some capacity.

Discussion

The Kirtland Road/High Banks Road intersection is currently STOP-controlled on the High Banks Road approaches with free-flowing movements on Kirtland Road (OR 140). Kirtland Road has no left-turn lanes but both the eastbound and westbound approaches have right-turn tapers to facilitate deceleration and turns. Permitted speed on Kirtland Road is 55 mph.

Installation of left-turn lanes would reduce the likelihood of rear end collisions that involve vehicles stopped on the highway while waiting to make a left turn onto High Banks Road. One

crash of this type was reported at the High Banks Road intersection during the 5-year crash analysis period.

Preliminary analysis using ODOT's turn lane criteria[1] indicates that neither existing nor future traffic volumes are sufficient to warrant left turn lanes for either the eastbound or westbound approach. However, expansion of existing development south of the intersection and limitations of travel on certain county roadways may result in higher traffic volumes than estimated in the regional model.

Recommendation

Concept I-2 is recommended as an element of the OR 140 Corridor Plan. Although current traffic volumes on High Banks Road are low, the concept would address existing safety concerns as well as accommodate future growth in the area. This should be considered a lower priority project unless traffic volume growth or an increase in crashes related to left turns occurs.

7.5.3. Concept I-3 – Kirtland Road & West Antelope Road Left-Turn Lane

Concept I-3 considers adding a westbound left-turn lane on Kirtland Road at West Antelope Road to provide a refuge for vehicles turning left from the highway to the side street. The purpose of this concept is to improve the safety of the intersection but it would also add some capacity.

Discussion

The Kirtland Road/West Antelope Road intersection is a "T" intersection currently STOP-controlled on the West Antelope Road approach with free-flowing movements in the Kirtland Road (OR 140). Kirtland Road has no westbound left-turn lane but does have an eastbound right-turn lane. Permitted speed on Kirtland Road is 55 mph.

Only seven vehicles making the westbound left-turn movement were counted in a four-hour period which is not sufficient to warrant a left-turn lane. However, the Rogue Valley Transit District (RVTD) is considering expanding service in the White City area and may include a loop that would involve westbound vehicles turning left from Kirtland Road to West Antelope Road.

No crashes were reported at the West Antelope Road intersection during the 5-year crash analysis period.

Recommendation

Concept I-3 is recommended as an element of the Oregon 140 Corridor Plan. Although current left-turning traffic volumes to West Antelope Road are low, the concept would address long-

[1] Section 7.2 Turn Lane Criteria, Analysis Procedures Manual, April 2006, Updated January 2011, online reference: http://www.oregon.gov/ODOT/TD/TPAU/docs/A_APM/APM.pdf. Note: These criteria are also consistent with the criteria in Appendix F of the Highway Design Manual.

term safety concerns and support RVTD service expansion. This should be considered a lower priority project unless traffic volume growth or RVTD service expansion occurs.

7.5.4. Concept I-4 – Avenue G & Agate Road – Intersection Realignment

Concept I-4 is one of two concepts that address improvements at the Avenue G and Agate Road intersection (see also Concept I-5 – Avenue G & Agate Road – Channelization and Traffic Signal). It considers realigning the intersection of Avenue G and Agate Road with purpose of giving priority to the through movements on OR 140.

Discussion

OR 140 makes a 90 degree turn at the four-way, STOP-controlled intersection of Avenue G and Agate Road. Concept I-4 would realign to create a smooth curve that allows through movement between the west leg of Avenue G and the south leg of Agate Road. The east leg of Avenue G would approach the realigned OR 140 roadway at a right angle with STOP control. The second intersection would be formed by the north leg of Agate Road, which would stop at the east leg of Avenue G. This second intersection would be realigned slightly from its current location.

This concept raises both operational and safety concerns. Although the realignment favors the through traffic movement on OR 140, this is not the dominant traffic flow through the intersections. The major traffic movements are east-west on Avenue G and north-south on Agate Road and these through movements are expected to remain dominant in the future. Preliminary analysis of this intersection configuration indicates that it would not meet state mobility standards. The realignment may also have safety concerns because the two intersections would be less than 200 feet apart with some queuing between.

Recommendation

Concept I-4 is not recommended for the OR 140 Corridor Plan. It would fail to meet state mobility standards and it raises safety concerns that are not present today.

7.5.5. Concept I-5 – Avenue G & Agate Road – Channelization and Traffic Signal

As an alternative to Concept I-4, Concept I-5 considers channelizing the eastbound right-turn movement to facilitate the turn on OR 140. It would also install a traffic signal at the Avenue G/Agate Road intersection if persistent congestion is present and traffic volumes meet signal warrants.

Discussion

Concept I-5 would include an eastbound right-turn lane on Avenue G, a channelizing island for the right-turn movement, and a southbound acceleration and merge lane on Agate Road. The increased turning radius would allow both passenger vehicles and trucks to make the right turn at higher speeds than the existing corner. Traffic would be fully merged before the railroad

crossing on Agate Road. The channelization can make it more difficult for bicycles and pedestrians at the intersection; design must address all modes of travel.

Although traffic operations would improve, analysis of the four-way STOP control at this intersection indicates that the eastbound approach of Avenue G (OR 140) would not meet mobility standards in the long term. Concept I-5 would install a traffic signal at the Avenue G/Agate Road intersection if persistent congestion is present and traffic volumes meet signal warrants.

Recommendation

Concept I-5 is recommended as an element of the Oregon 140 Corridor Plan. The right-turn lane channelization (with appropriate design feature for bicycles and pedestrians) could be implemented at any time (medium priority based on moderate traffic demand forecasts) but the traffic signal would not be installed unless traffic volume warrants were met.

7.5.6. Concept I-6 – Agate Road & Leigh Way – Intersection Realignment

Concept I-6 is one of two concepts that address improvements at the Agate Road and Leigh Way intersection (see also Concept I-7 – Agate Road & Leigh Way – Channelization and Traffic Control). It considers realigning the intersection of Agate Road and Leigh Way with purpose of giving priority to the through movements on OR 140.

Discussion

OR 140 makes a 90 degree turn at the intersection of Agate Road and Leigh Way. Concept I-6 would realign the intersection of Agate Road and Leigh Way to give priority to the through movements on OR 140. OR 140 would be realigned to create a smooth curve that allows through movement between the north leg of Agate Road and the east leg of Leigh Way. The south leg of Agate Road would approach the realigned OR 140 roadway at a right angle with STOP control.

Traffic volumes at this Agate Road/Leigh Way intersection currently favor the north-south movement. However, with the improvements on OR 62, the volumes are expected to shift and future volumes at the intersection are expected to favor the movement along OR 140. The realigned intersection would facilitate freight movement within the OR 140 corridor.

The realignment would require right of way from at least two parcels in the northeast quadrant of the intersection. Some power lines may lie within the required right of way.

Recommendation

Concept I-6 is not recommended for the OR 140 Corridor Plan. Although it would improve traffic flow along OR 140, it would do so at substantially higher cost that Concept I-7.

7.5.7. Concept I-7 – Agate Road & Leigh Way – Channelization and Traffic Control

As an alternative to Concept I-6, Concept I-7 considers channelizing the eastbound right-turn movement to facilitate the turn on OR 140 combined with changes in STOP-sign traffic control to give priority to the movements on OR 140.

Discussion

Concept I-7 would increase the turning radius and channelize the westbound right-turn movement to facilitate the turn for westbound traffic traveling on OR 140 from Leigh Way and with a northbound merge lane on Agate Road. The increased turning radius would allow both passenger vehicles and trucks to make the right turn at higher speeds than the existing corner. The channelization can make it more difficult for bicycles and pedestrians at the intersection; design must address all modes of travel.

By modifying the traffic control to stop northbound traffic, the right-turning traffic from Leigh Way would not need to stop at Agate Road. The modified traffic control cannot be analyzed but volumes are expected to remain at a level where mobility standards could be met. Because the traffic control proposed in this concept is non-standard, some drivers may be confused by which approaches are expected to stop and who has the right of travel. This could lead to turning or angle collisions.

Like Concept I-6, the improvements would require additional right of way in the northeast quadrant of the intersection but the impacts would be substantially fewer with this concept and the power lines would be avoided.

Recommendation

Concept I-7 is partially recommended as an element of the Oregon 140 Corridor Plan. The right-turn lane channelization (with appropriate design feature for bicycles and pedestrians) could be implemented at any time (medium priority based on moderate traffic demand forecasts). Changes to the intersection traffic control are not recommended.

7.5.8. Concept I-8 – OR 140 & Lakeview Drive Left-Turn Lanes

Concept I-8 considers adding eastbound and westbound left-turn lanes on OR 140 at Lakeview Drive to provide a refuge for vehicles turning left from the highway to the side street. The purpose of this concept is to improve the safety of the intersection but it would also add some capacity.

Discussion

The OR 140/Lakeview Drive intersection is currently STOP-controlled on the Lakeview Drive approaches with free-flowing movements on OR 140. There are no left-turn lanes on OR 140 at Lakeview Drive but both the eastbound and westbound approaches have right-turn tapers to facilitate deceleration and turns. Posted speed on OR 140 is 55 mph.

One crash involving improper passing of a vehicle turning left was reported at the Lakeview Drive intersection during the 5-year crash analysis period. Left-turn lanes would reduce the likelihood of this collision type in the future.

Preliminary analysis using ODOT's turn lane criteria indicates that existing traffic volumes are sufficient to warrant a left turn lane for the eastbound approach.

Recommendation

Concept I-8 is recommended as an element of the OR 140 Corridor Plan. Current traffic volumes on Lakeview Drive appear to meet warrants for installation of an eastbound turn lane and an existing crash history support this project as medium to high priority improvement.

7.5.9. Concept I-9 – OR 140 & Riley Road/E Antelope Left-Turn Lanes

Concept I-9 considers adding eastbound and westbound left-turn lanes on OR 140 at Riley Road to provide a refuge for vehicles turning left from the highway to the side street. The purpose of this concept is to improve the safety of the intersection but it would also add some capacity.

Discussion

The OR 140 intersection with Riley Road/E Antelope Road is currently STOP-controlled on the side street approaches with free-flowing movements on OR 140. OR 140 currently has no left-turn lanes at Riley Road or Antelope Road but both the eastbound and westbound approaches have wide shoulders (10 feet eastbound and 8 feet westbound) and short right-turn tapers to facilitate deceleration and turns. Posted speed on OR 140 is 55 mph.

Two crashes involving a rear end collision with a left-turning vehicle stopped in the travel lane were reported at the Riley Road/E Antelope Road intersection during the 5-year crash analysis period. Left-turn lanes would reduce the likelihood of this collision type in the future.

Preliminary analysis using ODOT's turn lane criteria indicates that existing traffic volumes are sufficient to warrant left turn lanes for the eastbound approach.

Recommendation

Concept I-9 is recommended as an element of the OR 140 Corridor Plan. Current traffic volumes at Riley Road/E Antelope Road appear to meet warrants for installation of turn lanes and an existing crash history support this project as medium to high priority improvement.

7.5.10. Concept I-10 – OR 140 & Meridian Road Left-Turn Lanes

Concept I-10 considers adding eastbound and westbound left-turn lanes on OR 140 at Meridian Road to provide a refuge for vehicles turning left from the highway to the side street. The purpose of this concept is to improve the safety of the intersection but it would also add some capacity.

Discussion

The OR 140/Meridian Road intersection is currently STOP-controlled on the Meridian Road approaches with free-flowing movements on OR 140. There are no left-turn lanes on OR 140 at Meridian Road. The westbound approach has a right-turn taper to facilitate deceleration and turns while the eastbound approach has a 10-foot shoulder. Posted speed on OR 140 is 55 mph.

Two crashes involving a rear end collision with a left-turning vehicle stopped in the travel lane and another crash involving improper overtaking of a left-turning vehicle were reported at the Meridian Road intersection during the 5-year crash analysis period. Left-turn lanes would reduce the likelihood of these collision types in the future.

Preliminary analysis using ODOT's turn lane criteria indicates that neither existing nor future traffic volumes are sufficient to warrant left turn lanes for either the eastbound or westbound approach.

Recommendation

Concept I-10 is recommended as an element of the OR 140 Corridor Plan. Although current traffic volumes on Meridian Road are low, the concept would address existing safety concerns. This should be considered a lower priority project unless traffic volume growth or an increase in crashes related to left turns occurs.

7.5.11. Concept I-11 – OR 140 & Brownsboro-Meridian Road Left-Turn Lanes

Concept I-11 considers adding eastbound and westbound left-turn lanes on OR 140 at Brownsboro-Meridian Road to provide a refuge for vehicles turning left from the highway to the side street. The purpose of this concept is to improve the safety of the intersection but it would also add some capacity.

Discussion

The OR 140/Brownsboro-Meridian Road intersection is currently STOP-controlled on the Brownsboro-Meridian Road approaches with free-flowing movements on OR 140. There are no left-turn lanes at Brownsboro-Meridian Road. The westbound approach has a passing lane while the eastbound approach has a 10-foot shoulder. Posted speed on OR 140 is 55 mph.

No crashes were reported at the Brownsboro-Meridian Road intersection during the 5-year crash analysis period.

Preliminary analysis using ODOT's turn lane criteria indicates that neither existing nor future traffic volumes are sufficient to warrant left turn lanes for either the eastbound or westbound approach.

Recommendation

Concept I-11 is recommended as an element of the OR 140 Corridor Plan. Although current traffic volumes on Brownsboro-Meridian Road are low and a review of the crash history doesn't show any recent collisions, the concept would address safety concerns. This should be considered a lower priority project unless traffic volume growth or an increase in crashes related to left turns occurs.

7.5.12. Concept I-12 – OR 140 & Brownsboro-Eagle Point Road Left-Turn Lanes

Concept I-12 considers adding eastbound and westbound left-turn lanes on OR 140 at Brownsboro-Eagle Point Road to provide a refuge for vehicles turning left from the highway to the side street or private access. The purpose of this concept is to improve the safety of the intersection but it would also add some capacity.

Discussion

The OR 140/Brownsboro-Eagle Point Road intersection is currently STOP-controlled on the Brownsboro-Eagle Point Road approach with free-flowing movements on OR 140. There is no left-turn lane on OR 140 at Brownsboro-Eagle Point Road or the private access to the south. The westbound approach has a taper and 10-foot shoulder for deceleration for right turns. Posted speed on OR 140 is 55 mph.

No crashes related to turning movements were reported at the Brownsboro-Eagle Point Road intersection during the 5-year crash analysis period.

Preliminary analysis using ODOT's turn lane criteria indicates that neither existing nor future traffic volumes are sufficient to warrant left turn lanes for the eastbound approach.

Recommendation

Concept I-12 is recommended as an element of the OR 140 Corridor Plan. Although current traffic volumes on Brownsboro-Eagle Point Road are low and a review of the crash history doesn't show any recent collisions, the concept would address safety concerns. This should be considered a lower priority project unless traffic volume growth or an increase in crashes related to left turns occurs.

7.6. Additional Improvements

During and following the presentations of the alternatives analysis, several other ideas were identified for consideration. These ideas are discussed below with recommendations for those improvements that would be included in the preferred alternative for the OR 140 corridor.

7.6.1. Concept A-1 – Right Turn Deceleration Lanes

Concept A-1 considers deceleration lanes for traffic turning right from OR 140 onto a side street. The purpose of this concept is to improve the safety on the highway by separating the slowing traffic from the through traffic.

Discussion

These criteria were evaluated at 11 of the study area intersections where a right-turn deceleration lane might be appropriate:

- Kirtland Road/High Banks Road
- Kirtland Road/W Antelope Road
- Avenue G/5th Street
- Avenue G/8th Street
- Avenue G/11th Street
- OR 140/Lakeview Drive
- OR 140/Riley Road
- OR 140/Kershaw Road
- OR 140/Meridian Road
- OR 140/Brownsboro-Meridian Road
- OR 140/Brownsboro-Eagle Point Road

Preliminary analysis using ODOT's right-turn turn lane criteria[2] indicates that existing traffic volumes are sufficient to warrant a right-turn lane at only one location: OR 140 eastbound at Riley Road/E Antelope Road.

The OR 140 intersection with Riley Road/E Antelope Road is currently STOP-controlled on the side street approaches with free-flowing movements on OR 140. OR 140 currently has no left-turn lanes at Riley Road or Antelope Road but both the eastbound and westbound approaches have wide shoulders (10 feet eastbound and 8 feet westbound) and short right-turn tapers to facilitate deceleration and turns. Posted speed on OR 140 is 55 mph.

Installation of a right-turn deceleration lane would reduce the likelihood of several types of collisions that involve vehicles slowing on the highway to make a right turn. Two crashes involving a rear end collision were reported at the Riley Road/E Antelope Road intersection during the 5-year crash analysis period. Both are related to eastbound vehicles slowing to make a turn from OR 140 onto the side street but, based on the descriptions in the crash report, both appear to be related to left-turning vehicles rather than right-turning vehicles.

Recommendation

Concept A-1, installation of right-turn deceleration lanes, is recommended at one location as an element of the OR 140 Corridor Plan. Current traffic volumes at Riley Road/E Antelope Road appear to meet warrants for installation of an eastbound right-turn lane. This project should be implemented together with the additional left-turn lanes at this intersection.

7.6.2. Concept A-2 – Right-Turn Acceleration Lanes

Concept A-2 considers acceleration lanes for traffic turning right from a side street and merging onto the highway. The intention of this concept is to improve the safety of vehicles entering the highway.

[2] Section 7.2 Turn Lane Criteria, Analysis Procedures Manual, April 2006, Updated January 2011, online reference: http://www.oregon.gov/ODOT/TD/TPAU/docs/A_APM/APM.pdf. Note: These criteria are also consistent with the criteria in Appendix F of the Highway Design Manual.

Discussion

The 2003 Highway Design Manual[3] discourages the use of acceleration lanes for at-grade intersections; however, it acknowledges that they may be appropriate under some circumstances. Criteria for a design exception to permit a right-turn acceleration lane include posted speed, operations, volume, percentage trucks, crash patterns, and access spacing.

These criteria were evaluated at 11 of the study area intersections where an acceleration lane might be appropriate:

- Kirtland Road/High Banks Road
- Kirtland Road/W Antelope Road
- Avenue G/5th Street
- Avenue G/8th Street
- Avenue G/11th Street
- OR 140/Lakeview Drive
- OR 140/Riley Road
- OR 140/Kershaw Road
- OR 140/Meridian Road
- OR 140/Brownsboro-Meridian Road
- OR 140/Brownsboro-Eagle Point Road

None of the intersections met the criteria.

Recommendation

Concept A-2 is not recommended for the OR 140 Corridor Plan.

7.6.3. Concept A-3 – Flashing Yellow Beacons

Concept A-3 considers flashing yellow beacons at unsignalized intersections. The purpose of this option is to improve the safety of vehicles entering the highway by alerting mainline drivers to the presence of intersection activity.

Discussion

Unlike installation of traffic signals, there are no warrants for flashing beacons. A history of crashes, particularly angle collisions that could be related to a lack of driver awareness, is the major factor for consideration.

A review of the five-year crash history for OR 140 indicates two unsignalized intersections with crash rates that are higher than the critical crash rate[4] calculated for the corridor: Riley Road at OR 140 (6 crashes) and Meridian Road at OR 140 (5 crashes). Installation of a left-turn lane on OR 140 at both these locations is already recommended as part of this plan. This improvement is expected to reduce the frequency of rear end and some turning collisions at these intersections but left-turn lanes are likely to have little effect on the potential for angle collisions. Each of these intersections had one or two angle collisions within the five-year

[3] Section 9.2.1 Turn Lane Criteria, Highway Design Manual, 2003, Updated June 2008, online reference: ftp://ftp.odot.state.or.us/techserv/roadway/web_drawings/HDM/Rev_E_2003Chp09.pdf.

[4] Section 4.4.2.5.Critical Rate, Highway Safety Manual, 2010,

analysis period. However, the rate of angle collisions is so low that it would be difficult to show a documentable benefit to installation of a flashing yellow beacon in addition to the turn lanes.

Recommendation

Concept A-3 is not recommended for the OR 140 Corridor Plan.

7.6.4. Concept A-4 – Additional Roadway Delineation

Concept A-4 considers additional roadway delineation throughout the corridor study area. The purpose of this option is to improve the safety of vehicles traveling along the highway.

Discussion

There are existing roadway delineators (reflectors mounted on posts) on OR 140 east of OR 62 and there are plans to add delineators along Kirtland Road between Blackwell Road and Table Rock Road. Concept RS-3 also recommends rumbles strips along Kirtland Road as well because of the higher than average crash rate in this section of the corridor.

However, additional delineations should be considered along all of the rural sections of the corridor:

- At minimum, roadway delineators and rumble strips should be added along Blackwell Road as part of the improvements identified in Concept RS-2.
- Delineators could also be added on the improved section between Table Rock Road and Avenue G and along Avenue G to Agate Road but these sections are within the White City Urban Unincorporated Community Boundary and the crash history shows only one crash where a vehicle ran off the road under icy conditions.
- On OR 140 east of OR 62, there were no crashes where a vehicle “ran off the road” between OR 62 and Kershaw Road but there were eight of these crashes at various locations between Kershaw Road and Brownsboro-Eagle Point Road. Four of these crashes were weather related and the other four were attributed to improper driving. Rumble strips could be added to augment the reflective delineators with an auditory alert when vehicles are drifting from a lane and allow for a safe recovery.

Recommendation

Concept A-4, additional roadway delineation, is recommended at several locations as an element of the OR 140 Corridor Plan. Delineation (reflective markers and rumble strips or textured paint) should be considered in the improvements along Blackwell Road (Concept RS-2). Rumble strips should also be added to OR 140 east of OR 62 as a medium- to low-priority improvement.

7.6.5. Concept A-5 – Truck Weigh Stations

Concept A-5 considers potential locations for sites that the Motor Carrier Division of ODOT could use for portable scale (weigh station) operations in the westbound direction on OR 140. There is an existing eastbound scale site located between Milepoints 2.64 and 2.79.

Discussion

Staff at Motor Carrier provided two potential locations: one in the vicinity of Milepoint 1.0 and the other in the vicinity of Milepoint 2.5 opposite the eastbound scales. Dimensions of the area needed to install the scales are between 300 and 500 feet in length with a width of 40 feet except for a short section (near the middle of the site) that would need to be 54 feet wide.

In the vicinity of Milepoint 1.0, OR 140 has more than 200 feet of right of way, much of it on the north side of the highway. The highway is 44 feet wide. OR 62 is located at Milepoint 0.0, west of this potential site, while Lakeview Drive is located at Milepoint 1.03, east of this potential site. There are no private access points or reservations of access on OR 140 on the north side of the highway between these two public roadways.

The potential scale location near Milepoint 1.0 could accommodate the dimensions associated with the portable scales site without acquiring any additional right of way. To meet ODOT's access spacing standards and minimize conflicts with vehicles turning at the intersection, the entrance to the scales would need to be located at least ¼ mile west of Lakeview Drive. There are transmission lines that cross the highway at Milepoint 0.81 that could pose a problem with developing the scales site at this location. Adjacent lands are residential some noise mitigation could be necessary. There are some mapped wetlands (palustrine, emergent) documented in this vicinity and impacts to wetlands should be avoided; mitigation and permitting will be necessary if impacts cannot be avoided.

In the vicinity of Milepoint 2.5, OR 140 has 130 feet of right of way and the highway is 44 feet wide. Kershaw Road is located at Milepoint 2.29, west of this potential site, while Riley Road/E Antelope Road is located at Milepoint 3.59, east of this potential site. There are four gated field access points and an access reservation on the north side between the two public roadways.

The potential scale location near Milepoint 2.5 would likely require some additional right of way from the adjacent parcel to accommodate the dimensions associated with the portable scales site. To minimize conflicts with vehicles turning at Kershaw Road, the exit from the scales would need to be located at least ¼ mile east of Kershaw Road. This would not conflict with any of the gated field access points but would not meet ODOT's access spacing standards. The adjacent lands are currently in agricultural use but some of the Jackson County zoning rural residential and some is agricultural. There are some mapped wetlands (palustrine, emergent) documented in this vicinity and impacts to wetlands should be avoided; mitigation and permitting will be necessary if impacts cannot be avoided. Hopkins Canal also crosses under the highway twice with culverts located at Milepoints 2.42 and 3.03.

Recommendation

To support Motor Carrier's needs, a westbound site for portable scales operations should be included in the OR 140 Corridor Plan. The specific location will require additional research before a final determination can be made.

7.6.6. Concept A-6 – Recreational Trail Connections

Concept A-6 considers the need for a connection between on-street bicycle and pedestrian improvements on Blackwell Road with the nearby recreational trail system.

Discussion

The Bear Creek Greenway Trail through the Rogue Valley currently ends at the Dean Creek Trailhead southwest of I-5 Interchange 35, the western terminus of OR 140. The Rogue River Greenway Trail will connect westward from the Bear Creek Greenway to Grants Pass. The Trail crosses Kirtland Road near the intersection with Blackwell Road at a new undercrossing that was constructed as part of the improvements that realigned the intersection and gave priority to OR 140 travel.

The trail has not been constructed in the vicinity of this undercrossing but improvements on Blackwell Road identified under Concept RS-2 should include connections between on-street bicycle and pedestrian improvements and the future trail.

Recommendation

Concept A-6, connections between on-street bicycle and pedestrian improvements and the future recreational trail, is recommended at several locations as an element of the OR 140 Corridor Plan. This project could be installed with Concept RS-2, the Blackwell Road improvements but funding would need to be pursued through local government sources.

7.6.7. Concept A-7 – Dry Creek Landfill Access

Concept A-7 considers options to improve access to the Dry Creek Landfill should operations expand and truck demand on OR 140 subsequently increase.

Discussion

The primary access for trucks destined for the Dry Creek Landfill is located on a private road that connects with OR 140 from the south side at Milepoint 2.81. The posted speed on OR 140 is 55 mph at this location. There is an eastbound truck weigh station located on the south side of OR 140 between Milepoints 2.64 and 2.79, west of this private roadway.

With potential expansion of activity at the landfill, truck volumes to this private roadway would measurably increase several safety and operational concerns which would need to be addressed. The heaviest traffic movements would be the eastbound right-turn movement from OR 140 onto the private road and a northbound left-turn movement from the private road onto OR 140. Safety concerns with the eastbound right turns focus on two issues: 1) the increase

potential for rear end collisions as more vehicles are slowing on the highway and 2) the conflict between trucks slowing to the make the right turn towards the landfill and trucks entering the highway from the weigh station. Safety concerns with the northbound left-turns focus on the increased potential for turning or angle collisions as trucks turn onto the highway, particularly since acceleration rates for trucks are much slower than for passenger vehicles. Operational concerns are primarily focused on increase delay for the northbound left-turning vehicles as they look for gaps in the traffic stream.

Two approaches can be taken to addressing these concerns. One option focuses on improving the geometry of the intersection to better accommodate the increased activity at this location. The other option reroutes traffic on local streets to another highway intersection that already has been substantially improved.

To improve the private road intersection to safely serve a higher traffic demand turning lanes would be needed. In the eastbound direction, a right-turn deceleration lane would separate the turning traffic from the through traffic on the highway to reduce the conflict between slowing vehicles and higher speed vehicles. The existing weigh station would need to be relocated to a point further west of the intersection to accommodate the deceleration lane and eliminate the conflict between trucks entering the highway from the weigh station and those slowing to turn right destined for the landfill. Relocating the weigh station may raise several concerns with mapped wetlands in the area and the Hopkins Canal culvert at Milepoint 2.42. The addition of a westbound left-turn lane on OR 140 should also be considered. Even though most traffic would be coming from the opposite direction, the westbound left-turn lane would create a refuge area on the east side of the intersection that could facilitate truck turning and acceleration onto OR 140.

The other option would be to consider a connection westward to Kershaw Road, where left-turn lanes, right-turn deceleration lanes, and a flashing yellow beacon are already installed. The connection could utilize the unimproved, gated lane between the private road that serves the landfill and Thunder Road in the Jackson County Sports Park. This connection would require a significant upgrade to the existing facilities to accommodate the truck demand from the landfill. Thunder Road is an internal circulation road for the Sports Park and issues about conversion to a public roadway would also need to be addressed. Another alternative within this option would be to construct a new roadway that skirts the Sport Park to connect with Kershaw Road. However, mapped wetlands and Hopkins Canal are some of the issues that would need to be addressed.

Recommendation

While Concept A-7 highlights some potential safety concerns that may arise on OR 140, it addresses a private roadway serving private development. The options discussed should be considered with a land use action rather than the corridor planning process. No improvement is recommended as part of the OR 140 Corridor Plan.

7.7. Summary of Recommendations

The following table summarizes each of the concepts and the recommendations for implementation.

Table 7-1. Summary of OR 140 Concepts - Highway Redesignation

Concept	Milepoints	Recommendation	Implementation
HIGHWAY REDESIGNATION CONCEPTS			
Concept HR-1 – Extension of OR 140 to I-5 Southbound Ramps	-8.29 on OR 140 to 0.34 on OR 99	Recommended	*OTC adoption needed concurrently with OR 140 Corridor Plan adoption*
Concept HR-2 – Extension of Freight Route Designation	-8.29 to 0.00	Recommended	*OTC adoption needed concurrently with OR 140 Corridor Plan adoption*
Concept HR-3 – Rerouting to Crater Lake Highway and Avenue G	0.00 to –1.16	Recommended	*No action at this time but OR 140 Corridor Plan will need to be reassessed when the OR 62 full corridor improvement is funded*
JACKSON COUNTY ROAD RECLASSIFICATION CONCEPTS			
Concept JCR-1 – Blackwell Road Reclassification	-8.29 to -7.02	Recommended	Next Jackson County TSP & RTP Update
Concept JCR-2 – Kirtland Road Reclassification (Rural Section)	-7.02 to -5.12 (White City UUC)	Recommended	Next Jackson County TSP & RTP Update
Concept JCR-3 – Kirtland Road Reclassification (White City Section)	-5.12 (White City UUC) to -2.55	Recommended	Next Jackson County & White City TSP Updates & RTP Update
Concept JCR-4 – Avenue G Reclassification (State Section)	-2.55 to -1.16	Recommended	Next Jackson County & White City TSP Updates & RTP Update
Concept JCR-5 – Agate Road Reclassification	-1.16 to -0.20	Recommended	Next Jackson County & White City TSP Update & RTP Update
Concept JCR-6 – Avenue G Reclassification (County Section)	NA	Recommended	Next Jackson County & White City TSP Update
Concept JCR-7 – Avenue G Reclassification with Rerouted OR 140	NA	Recommended	*No action at this time but OR 140 Corridor Plan will need to be reassessed when the OR 62 full corridor improvement is funded*
ROADWAY SEGMENT CONCEPTS			
Concept RS-1 – Blackwell Road Improvements – Widening	-8.17 to -7.02 widening	Not recommended	NA
Concept RS-2 – Blackwell Road Improvements – Widening and Curve Realignment	-8.17 to -7.02 widening	Recommended as a 3-lane rural section with setbacks for 5 lanes	High priority due to crash rate and anticipated volume
Concept RS-3 – Kirtland Road – Safety Improvements	-7.02 to -2.71	Recommended	Medium priority but priority should be elevated if a high crash pattern persists
Concept RS-4 – Kirtland Road – Widening	-7.02 to -2.71	Not recommended	NA

Table 7-1. Summary of OR 140 Concepts - Highway Redesignation

Concept	Milepoints	Recommendation	Implementation
Concept RS-5 – Avenue G – Widening	-2.55 to -1.16	Recommended as a 3-lane urban section	Phased implementation with development
Concept RS-6 – Agate Road – Widening	-1.16 to -0.20	Recommended as a 3-lane urban section	Phased implementation with development or volume growth
Concept RS-7 – Avenue G – County Section Widening	NA (County Road)	Recommended	Should be addressed in next Jackson County & White City TSP Updates
Concept RS-8 – Avenue G – OR 140 Reroute Widening	NA (County Road)	Not recommended	NA
INTERSECTION IMPROVEMENT CONCEPTS			
Concept I-1 – Blackwell Road & Kirtland Road Traffic Signal	-7.02	Not recommended at this time	May need future consideration with development of Tolo area
Concept I-2 – Kirtland Road & High Banks Road Left-Turn Lanes	-5.37	Recommended	Lower priority – monitor for traffic growth or increase in crash frequency
Concept I-3 – Kirtland Road & West Antelope Road Left-Turn Lane	-3.74	Recommended	Lower priority – monitor for traffic growth or RVTD service expansion
Concept I-4 – Avenue G & Agate Road – Intersection Realignment	-1.16	Not recommended	NA
Concept I-5 – Avenue G & Agate Road – Channelization and Traffic Signal	-1.16	Recommendation	Medium priority – monitor for traffic growth and signal warrants
Concept I-6 – Agate Road & Leigh Way – Intersection Realignment	-0.20	Not recommended	NA
Concept I-7 – Agate Road & Leigh Way – Channelization and Traffic Control	-0.20	Recommended	Higher priority for traffic control changes, Medium priority for turn lane – monitor for volume growth
Concept I-8 – OR 140 & Lakeview Drive Left-Turn Lanes	1.03	Recommended	Medium to high priority based on existing warrants and crash history
Concept I-9 – OR 140 & Riley Road/E Antelope Left-Turn Lanes	3.59	Recommended	Medium to high priority based on existing warrants and crash history
Concept I-10 – OR 140 & Meridian Road Left-Turn Lanes	5.03	Recommended	Lower priority – monitor for traffic growth or increase in crash frequency
Concept I-11 – OR 140 & Brownsboro-Meridian Road Left-Turn Lanes	7.41	Recommended	Lower priority – monitor for traffic growth or increase in crash frequency
Concept I-12 – OR 140 & Brownsboro-Eagle Point Road Left-Turn Lanes	7.98	Recommended	Lower priority – monitor for traffic growth or increase in crash frequency
ADDITIONAL CONSIDERATION CONCEPTS			
Concept A-1 – Right Turn Deceleration Lanes	Various	Recommended at Riley/E Antelope Rd (MP 3.59)	Medium to high priority – install with left-turn lanes (Concept I-9)

Table 7-1. Summary of OR 140 Concepts - Highway Redesignation

Concept	Milepoints	Recommendation	Implementation
Concept A-2 – Right-Turn Acceleration Lanes	Various	Not recommended	NA
Concept A-3 – Flashing Yellow Beacons	Various	Not recommended	NA
Concept A-4 – Additional Roadway Delineation	Various	Recommended on some segments	Consider implementation with modernization of paving overlay projects
Concept A-5 – Truck Weigh Stations	Approx. 1.0 or 2.5	Recommended	Priority and installation dependent on Motor Carrier needs and support
Concept A-6 – Recreational Trail Connections	Approx. -7.0	Recommended	Priority and installation dependent on local funding sources
Concept A-7 – Dry Creek Landfill Access	2.81	Not recommended as public project	Address with land use action for Dry Creek Landfill

OR 140 Corridor Plan:
I-5 Exit 35 to Brownsboro–Eagle Point Road

Technical Memorandum #8
Access Management Plan

Prepared for

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March 2013

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8.4.3. OR 140 from Pacific Avenue to OR 62 10
8.4.4. OR 140 from OR 62 to Brownsboro-Eagle Point Road 11

8. ACCESS MANAGEMENT PLAN

Access management is an essential tool for maintaining capacity, traffic flow, and safety of the highway system. Implementation of effective access management has two primary effects: (1) protecting the public investment in highway facilities, and (2) enabling them to accommodate traffic volumes safely and efficiently into the future while ensuring circulation necessary for good access to the highway. The OR 140 Corridor Plan acknowledges the vital need of adjacent property owners to maintain access to their businesses and residences. However, a proliferation of driveways and minor street intersections along a highway can drastically increase conflicts, causing operational problems, reducing the capacity of intersections, and generally degrading service for all system users. Hence, the access management plan must balance the competing needs of compatible land uses, private access, and the function of the transportation system.

Although access management imposes some restrictions and reduction of access for property along this statewide, freight route, access management actions in this plan do not prevent the properties from being used and 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 the properties by improving traffic circulation and mobility.

The access management standards identified in OR 140 Corridor Plan govern ODOT's decisions of all road approaches to OR 140 from the Blackwell Road/Kirtland Road intersection to the Brownsboro-Eagle Point Road intersection. These standards are based on roadway OHP standards, statewide highway classification, and future traffic demand. Access management for the section of OR 140 between the I-5 Exit 35 ramps and the Blackwell Road/Kirtland Road intersection are established in the Draft I-5 Exit 35 IAMP. The plan includes medium- and long-term actions 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.

8.1. Access Standards

The 1999 Oregon Highway Plan (OHP) devotes an entire section to the discussion of access management with the most recent revisions adopted in March 2012[1]. 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[2].

[1] 1999 Oregon Highway Plan Revisions to Address Senate Bill 264 (2011) Policy 3A, website: http://www.oregon.gov/ODOT/TD/TP/docs/ohp_am/accessm.pdf

[2] Oregon Administrative Rules Chapter 734, Division 51, Highway Approaches, Access Control, Spacing Standards, and Medians, Effective June 29, 2012, website: http://www.oregon.gov/ODOT/HWY/ACCESSMGT/docs/pdf/734-051_Perm_Rule.pdf

Division 51 and the OHP contain minimum spacing standards for private and public road approaches[3] based on highway classifications and speeds. The March 2012 revisions specifically note that the spacing standards do not apply to approaches in existence prior to January 1, 2012 except for changes in use, new approach requests, infill development or redevelopment, and highway construction projects. The specific language from Division 51 is:

> OAR 734-051-4020, Standards and Criteria for Approval of Private Approaches:
>
> (8)(c) The spacing standards in Tables 3 through 6 do not apply to approaches in existence prior to January 1, 2012, except when:
>
> (A) A new approach road is requested or an existing approach permit is subject to change of use under ORS 374.312 and
>
> (B) Where infill development or infill redevelopment occurs the approach road spacing standards will be a department determination; the department shall determine whether the approach road spacing or safety is improved by moving in the direction of the spacing standards in Tables 3 through 6; and
>
> (C) Where a highway or interchange project occurs the approach road spacing standard will be a department determination; the department shall consider whether the approach road spacing or safety is improved by moving in the direction of the applicable spacing standards in Tables 3 through 6.

Under these circumstances, ODOT "shall determine whether the approach road spacing or safety is improved by moving in the direction of the spacing standards."

The standards applicable to the OR 140 corridor from I-5 to Brownsboro-Eagle Point Road are summarized in Table 8-1. These standards are based on roadway OHP standards, statewide highway classification, and long-range estimates of traffic demand. Upon the OTC's adoption, the OR 140 access management plan governs ODOT's decisions of all future road approaches to OR 140 from the Blackwell Road/Kirtland Road intersection to the Brownsboro-Eagle Point Road intersection. Access management for the section of OR 140 between the I-5 Exit 35 ramps and the Blackwell Road/Kirtland Road intersection are established in the IAMP. Future modifications of the adopted access standards will require OTC's amendment of the OR 140 Corridor Plan.

[3] Under OAR 734-051-1070, Definitions, private approach "means an approach that serves one or more properties and that is not a public approach." A public approach "means an existing or planned city street or county road connection that provides vehicular access to and from a highway. An existing city street or county road connection must be under the authority of the city or county to be considered a public approach. A planned city street or county road must be consistent with OAR 731-051-1070(51) and must be or come under the authority of the city or county to be considered a public approach."

Table 8-1. Minimum Access Spacing Standards for OR 140

Milepoints	Segment Description	Posted Speed	Minimum Spacing[1]
West of White City UUC Boundary[2]			
MP -8.29 to -8.04	OR 140 (Blackwell Rd): ¼ mile north of I-5 Ramps[3]	45 mph	1,320 ft (full access) 750 ft (partial access)
MP -8.04 to -7.02	OR 140 (Blackwell Rd): North of I-5 Ramps to Kirtland Rd[3]	45 mph	990 ft
MP -7.02 to -4.33	OR 140 (Kirtland Rd): Blackwell Rd to White City UUC	45 mph 55 mph	990 ft 1,320 ft
White City (within UUC Boundary)[2]			
MP -4.33 to -2.55	OR 140 (Kirtland Rd): White City UUC Boundary to Ave G	45 mph 55 mph	800 ft 1,320 ft
MP -2.55 to -1.16	OR 140 (Ave G): Kirtland Rd to Agate Rd	45 mph 55 mph	800 ft 800 ft
MP -1.16 to -0.20	OR 140 (Agate Rd): Ave G to Leigh Way	45 mph	800 ft
MP -0.20 to 0.0	OR 140 (Leigh Way): Agate Rd to OR 62	45 mph	800 ft
MP 0.0 to 1.75	OR 140: OR 62 to Brownsboro-Eagle Point Rd	55 mph	1,320 ft
East of White City UUC Boundary[2]			
MP 1.75 to 7.98	OR 140: OR 62 to Brownsboro-Eagle Point Rd	55 mph	1,320 ft

Notes:
1. Future modifications of the adopted access standards will require OTC's amendment of the OR 140 Corridor Plan
2. Standards in the OHP are less restrictive inside urban boundaries than in rural areas
3. Access management for the section of OR 140 between the I-5 Exit 35 ramps and the Blackwell Road/Kirtland Road intersection are established in the Draft I-5 Exit 35 IAMP.
4. Partial access limits approach movements to right turns only.

Ideally, a project includes provisions by which access can be made fully compliant with the OR 140 Corridor Plan spacing standards established in Table 8-1. In many instances, 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 or a deviation[4] must be justified and approved by the Region Access Management Engineer. .

8.2. Existing Access Inventory

Access inventory data was obtained from ODOT's Official Project Access List (OPAL), Central Highway Approach/Maintenance Permit System (CHAMPS), and Access Control Research prepared by ODOT right-of-way research unit for OR 140 from I-5 to Brownsboro Eagle Point Road. These data include public street intersections and public/private approaches to OR 140. A total of 279 accesses were identified (139 on the left side, 140 on the right side). Six of the accesses in the database are no longer connected to OR 140 because of the improvements at the Blackwell/Kirtland Road intersection.

[4] OAR 734-051-3050 Deviations from Approach Road Spacing, Sight Distance, and Channelization Standards for a Private Approach

Aerial mapping depicting access locations are shown in figures at the end of this memorandum (Figure 8-1 through Figure 8-8). Table 8-3 accompanies these figures and provides details for public and private approaches including: tax lot number, property owner, use, and related information.

ODOT requires approach permits for approaches to highways under its jurisdiction, but many driveways predate the permitting process or have come into existence without permits. Access permits were only available for the section of roadway east of OR 62 where 20 accesses currently have permits. (Appendix 8-A contains the CHAMPS database output received from ODOT.)

The OPAL and CHAMPS databases were compared and augmented with the Access Control Research data to highlight which access locations are currently permitted or have access control or reservations established. Permits for OR 140 do not exist west of OR 62 as this is a new section of highway. East of OR 62, there are few access points without a permit, access control or reservation. Appendix 8-B contains the updated OPAL database output received from ODOT.

Along the OR 140 corridor segments speeds and traffic volumes vary as does the adjacent land characteristics (urban or rural). Table 8-2 summarizes the access spacing between the public roadways that intersect OR 140. Because access spacing is measure along one side of the roadway without regard for connections on the opposite side, Table 8-2 considers spacing on the “right” and “left” sides of the roadway when traveling from west to east (ascending mile points).

OR 140 has 18 segments between the public roadways that intersect on the right side of the highway and 15 segments between the public roadways that intersect on the left side. Only a few segments on either side of the highway have no driveway accesses between public roadways. Based on the revised Division 51, ODOT will no longer require a permit for public road approaches.

When compared to the applicable spacing standards, few of the driveway accesses meet current spacing standards based on existing average annual daily traffic (AADT) volumes, speeds, and rural/urban characteristics.

Table 8-2. Driveway Access Spacing between Public Roadways

Segment on OR 140		Distance (miles)	Number of Driveway Accesses	Spacing Standard[1]	Number of Accesses Meeting Standard
Milepoint	**Description**				
ACCESS POINTS ON RIGHT SIDE OF OR 140					
-8.29 to -8.17	I-5 to Dean Creek Frontage Rd (Blackwell Rd)	0.12	0	750/1,320 ft	0
-8.17 to -7.02	Dean Creek Frontage Rd to Kirtland Rd (Blackwell Rd)	1.15	20	990 ft[2]	1
-7.02 to -5.37	Blackwell Rd to High Banks Rd (Kirtland Rd)	1.65	11	990/1,320 ft[3]	2
-5.37 to -3.74	High Banks Rd to W Antelope Rd (Kirtland Rd)	1.63	4	1,320 ft	3
-3.74 to -2.99	W Antelope Rd to Table Rock Rd (Kirtland Rd)	0.75	3		1
-2.99 to -2.71	Table Rock Rd to Pacific Rd (Kirtland Rd)	0.28	0		0
-2.71 to -1.95	Pacific Rd to 5th St (Pacific Rd/Ave G)	0.76	6		1
-1.95 to -1.64	5th St to 8th St (Ave G)	0.31	3		0
-1.64 to -1.29	8th St to 11th St (Ave G)	0.35	4	800 ft	1
-1.29 to -1.16	11th St to Agate Rd (Ave G)	0.13	0		0
-1.16 to -0.50	Ave G to Antelope Rd (Agate Rd)	0.66	8		1
-0.50 to -0.20	Antelope Rd to Leigh Way (Agate Rd)	0.30	3		0
-0.20 to 0.00	Agate Rd to OR 62 (Leigh Way)	0.20	1		0
0.00 to 1.03	OR 62 to Lakeview Dr	1.03	1	1,320 ft	1
1.03 to 2.29	Lakeview Dr to Kershaw Rd	1.26	0		1
2.29 to 3.59	Kershaw Rd to Riley/E Antelope Rd	1.30	8		1
3.59 to 5.03	Riley/E Antelope Rd to Meridian Rd	1.44	7		2
5.03 to 7.98	Meridian Rd to Brownsboro-Eagle Point Rd	2.95	10		6
ACCESS POINTS ON LEFT SIDE OF OR 140					
-8.29 to -7.02	I-5 to Kirtland Rd (Blackwell Rd)	1.27	18	990 ft	0
-7.02 to -5.37	Blackwell Rd to High Banks Rd (Kirtland Rd)	1.65	8	990/1,320 ft[2]	3
-5.37 to -2.99	High Banks Rd to Table Rock Rd (Kirtland Rd)	2.38	10	1,320 ft	3
-2.99 to -2.71	Table Rock Rd to Pacific Rd (Kirtland Rd)	0.28	1		0
-2.71 to -1.29	Pacific Rd to 11th St (Pacific Rd/Ave G)[2]	1.42	8	800 ft	3
-1.29 to -1.16	11th St to Agate Rd (Ave G)[2]	0.13	1	800 ft	0
-1.16 to -0.50	Ave G to Antelope Rd (Agate Rd)	0.66	9		1
-0.50 to -0.20	Antelope Rd to Leigh Way (Agate Rd)	0.30	1		1
-0.20 to 0.00	Agate Rd to OR 62 (Leigh Way)	0.20	2		0
0.00 to 1.03	OR 62 to Lakeview Dr	1.03	0	1,320 ft	0
1.03 to 2.29	Lakeview Dr to Kershaw Rd	1.26	0		0
2.29 to 3.59	Kershaw Rd to Riley/E Antelope Rd	1.30	4		2
3.59 to 5.03	Riley/E Antelope Rd to Meridian Rd	1.44	7		2
5.03 to 7.41	Meridian Rd to Brownsboro-Meridian Rd	2.38	8		4
7.41 to 7.98	Brownsboro-Meridian to Brownsboro-Eagle Point Rd	0.57	0		0

Notes:
1. Access spacing standard from Table 8-1. Minimum Access Spacing Standards for OR 140
2. Interchange access spacing standard of 1,320 feet applies from Milepoint -8.29 to Milepoint -8.04 and the access spacing standard of 990 feet applies north/east of -8.04.
3. Access spacing standards depend on posted speed: 990 feet for 45 mph posted speed and 1,320 feet for 55 mph posted speed.

Source: David Evans and Associates, Inc.

8.3. Access Management Techniques and Objectives

Access management is a set of measures techniques that the state can use to control access to a highway that extend the operational life of the facility by reducing congestion, improving traffic flow, reducing crashes, and reducing conflicting vehicle movements. Access management techniques applicable to the OR 140 corridor include:

- ***Controlling Intersection Spacing***: Maintaining minimum distances between intersections, particularly those with traffic signals, can improve the flow of traffic, which reduces congestion and improves air quality for heavily traveled corridors.
- ***Managing Driveway Spacing***: Fewer driveways spaced further apart can allow for more orderly merging of traffic and present fewer challenges to drivers.
- ***Adding Turning Lanes***: Dedicated left- and right-turn lanes keep through-traffic flowing.
- ***Installing Median Treatments***: Two-way left-turn lanes and non-traversable, raised medians are some of the most effective means to regulate access and reduce accidents.[5]
- ***Improving the Local Street Network***: Local system improvements provide access to property, ensure sufficient capacity for development to occur, and can reduce the demand of local traffic on the highway system.

Proposed construction projects and land use changes along OR 140 will require approach permits from ODOT in order to demonstrate compliance or movement towards compliance with the standards applicable to this corridor. Objectives when implementing access management in the OR 140 include:

- Consider exceptions to access spacing standards to take advantage of existing property boundaries and existing or planned public streets and to accommodate environmental constraints.
- Allow for shared access and reciprocal access easements as part of new development or infill/redevelopment.
- Replace private approaches with public streets, where feasible, to provide consolidated access to multiple properties.
- Purchase access control along a section of highway as part of a highway improvement project.
- Ensure all properties impacted by improvements on the highway are provided reasonable access to the transportation system.
- Align approaches on opposite sides of a roadway, where feasible, to reduce left-turning conflicts.

[5] Raised median installation on OR 140 between Brownsboro-Eagle Point Rd. to OR 62 requires coordination with ODOT Motor Carrier and OTC approval for a reduction of capacity on a freight route consistent with ORS 366.215. Medians on OR 140 between OR 62 and I-5 Exit 35 only require coordination with ODOT Motor Carrier for a reduction of capacity on a freight route.

8.4. Access Management and Implementation by Highway Segment

The access management plan for OR 140 includes a variety of techniques that can be applied in the corridor as appropriate to the roadways and adjacent land use characteristics. Access management techniques shall be applied with a desire to move towards achieving applicable access spacing standards over time.

Access management techniques would be implemented when one or more of the following triggers occur:

- Applications for land use changes or development are submitted
  - Example: *"Consolidation or closure of driveways should be considered when properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street."*
- Future highway improvement projects move into design and construction
  - Example: *"Right-turn deceleration lanes should be considered when 3-lane improvements are constructed on OR 140 (Avenue G or Agate Road)."*
- Safety and/or operational problems arise
  - Example: *"Consolidation or closure of driveways should be considered when the annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT Safety Priority Index System (SPIS) rating in the worst 10 percent."*

However, approval or delay of implementation may be determined by the Region Access Management Engineer.

8.4.1. OR 140 from I-5 to Kirtland Road

The Draft Interchange Area Management Plan (IAMP) prepared for I-5 Exit 35 (Seven Oaks) includes an access management plan for Blackwell Road from I-5 to Kirtland Road. For consistency, the elements of this plan must be incorporated into the OR 140 Corridor Plan as well. The IAMP calls for local street network enhancements north of the interchange. This new configuration will greatly increase the distance between the access points and the freeway ramp terminals, thus reducing access conflicts and improving safety at the Interchange 35. It also provides the framework to allow land in the Tolo area along Blackwell Road to redevelop with more intense land uses as identified in the Greater Bear Creek Valley Regional Plan.

In addition to the IAMP, this OR 140 Corridor Plan also includes a project to widen OR 140 (Blackwell Road) to a three-lane roadway with setbacks for five lanes and curve realignment to reduce crashes. The three-lane section will include a center refuge lane to support left-turning movements at intersections and driveways. Right-turn lanes may also be needed at high-volume driveways or new intersections formed by an improvement local street network.

The OR 140 Corridor Plan recommended access management actions, including actions from from the I-5 Exit 35 IAMP, are illustrated in Figure 8-9 and summarized below:

1. Construct a local road parallel and east of Blackwell Road to serve development with connections to Blackwell Road that meet the minimum ¼-mile access spacing from the interchange as well as spacing standards for a statewide freight route (OR 140). This new road should intersect OR 140 opposite the new road west of Blackwell Road.
   - *Local network improvements should occur concurrently with adjacent development unless other mechanisms for funding the improvements become available.*
2. Construct a local road parallel and west of Blackwell Road to serve development with connections to Blackwell Road that meet the minimum ¼-mile access spacing from the interchange as well as spacing standards for a statewide freight route (OR 140). This new road should intersect OR 140 opposite the new road east of Blackwell Road.
   - *Local network improvements should occur concurrently with adjacent development unless other mechanisms for funding the improvements become available.*
3. Extend existing Dean Creek Frontage Road to connect with the new local road east of Blackwell Road and close or restrict access at the current connection immediately north of the interchange.
   - *Extension should occur concurrently with adjacent development and should be coordinated with other network improvements.*
4. Orient new driveway connections towards these newly created parallel routes north of the interchange.
   - *Modifications to driveways may occur with construction of local network improvements or as properties redevelop.*
5. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
   - *Consolidation or closure of driveways should be considered when any of the following three conditions are met:*
     - *Properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street.*
     - *The 3-lane improvements on OR 140 (Blackwell Road) are constructed.*
     - *The annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT SPIS rating in the worst 10 percent.*
6. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.
   - *Left-turn and right-turn lanes should be considered when either of the following conditions are met:*
     - *Properties develop or redevelop and are expected to generate traffic volumes sufficient to meet the ODOT turn lane guidelines for installation.*

    - *The annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT SPIS rating in the worst 10 percent.*
  - *Right-turn deceleration lanes should be considered when the 3-lane improvements on OR 140 (Blackwell Road) are constructed (Project #1*).

8.4.2. OR 140 from Blackwell Road to Pacific Avenue

The OR 140 Corridor Plan includes three projects along the segment of OR 140 (Kirtland Road) between Blackwell Road and Pacific Avenue. One of these projects includes the installation of delineators on portions of Kirtland Road to improve safety. The other two install left-turn lanes on OR 140 at the High Banks Road and W Antelope Road intersections. Jackson County is also beginning construction on a project to create smooth, higher-speed curves at the Kirtland Road/Pacific Avenue and Pacific Avenue/Avenue G intersections.

The OR 140 Corridor Plan recommended access management actions are illustrated in Figure 8-10 and summarized below:

7. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
   - *Consolidation or closure of driveways should be considered when any of the following three conditions are met:*
     - *Properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street.*
     - *The left-turn lanes are added on OR 140 at the intersections with High Banks Road and W Antelope Road.*
     - *The annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT SPIS rating in the worst 10 percent.*
8. Consider installing left-turn and right-turn deceleration lanes at high-volume intersections and driveways.
   - *Left-turn and right-turn lanes should be considered when either of the following conditions are met:*
     - *Properties develop or redevelop and are expected to generate traffic volumes sufficient to meet the ODOT turn lane guidelines for installation.*
     - *The annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT SPIS rating in the worst 10 percent.*
   - *Right-turn deceleration lanes should be considered when the left-turn lanes are added on OR 140 at the intersections with High Banks Road and W Antelope Road are constructed.*

8.4.3. OR 140 from Pacific Avenue to OR 62

Six projects are included in this OR 140 Corridor Plan for the segment of OR 140 (Avenue G/ Agate Road/Leigh Way) between Pacific Avenue and OR 62. Two projects would widen OR 140 to a three-lane urban roadway: one on Avenue G from Pacific Avenue to Agate Road and another on Agate Road from Avenue G to Leigh Way. Both of these projects will include a center refuge lane to support left-turning movements at intersections and driveways. Right-turn lanes may also be needed at high-volume driveways or new intersections formed by an enhanced local street network created by development to the north. Two other projects focus on intersections (Avenue G/Agate Road and Agate Road/Leigh Way) with improvements targeted at improved flow for the through traffic movements along on OR 140. The last two projects focus on the OR 140/OR 62 intersection with additional turn lanes on OR 140 and addition through lanes on OR 62.

The OR 140 Corridor Plan recommended access management actions for this section of OR 140 are illustrated in Figure 8-11 and summarized below:

9. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
    - *Consolidation or closure of driveways should be considered when any of the following five conditions are met:*
        - *Properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street.*
        - *The 3-lane improvements are constructed on OR 140 (Avenue G or Agate Road).*
        - *The southbound or northbound merge lanes are constructed on OR 140 along Agate Road.*
        - *The additional turn lanes are constructed on OR 140 at OR 62.*
        - *The annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT SPIS rating in the worst 10 percent.*
10. Consider installing left-turn and right-turn deceleration lanes at high-volume intersections and driveways.
    - *Left-turn and right-turn lanes should be considered when either of the following conditions are met:*
        - *Properties develop or redevelop and are expected to generate traffic volumes sufficient to meet the ODOT turn lane guidelines for installation.*
        - *The annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT SPIS rating in the worst 10 percent.*
    - *Right-turn deceleration lanes should be considered when 3-lane improvements are constructed on OR 140 (Avenue G or Agate Road).*

Note: This access management plan does not address access control on OR 62 but measures should be considered with the widening on OR 62 at the intersection with OR 140.

8.4.4. OR 140 from OR 62 to Brownsboro-Eagle Point Road

Five projects are included in this OR 140 Corridor Plan for the segment of OR 140 between OR 62 and Brownsboro-Eagle Point Road. Each of these projects would install left-turn lanes on OR 140 at an intersection (Lakeview Drive, Riley Road/E Antelope Road, Meridian Road, Brownsboro-Meridian Road, and Brownsboro-Eagle Point Road). Jackson County has identified the extension of Foothill Road from Corey Road to a new intersection with OR 140 opposite a short extension of Atlantic Avenue. This project is identified as a medium-range project in the Jackson County TSP and the Regional Transportation Plan (RTP).

The recommended access management actions for this section of OR 140 are illustrated in Figure 8-12 and summarized below:

11. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
    - *Consolidation or closure of driveways should be considered when any of the following three conditions are met:*
        - *Properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street.*
        - *The left-turn lanes are added on OR 140 at the intersections with Lakeview Drive, Riley Road/E Antelope Road, Meridian Road, Brownsboro-Meridian Road, and Brownsboro-Eagle Point Road.*
        - *The annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT SPIS rating in the worst 10 percent.*
12. Consider installing left-turn and right-turn deceleration lanes at high-volume intersections and driveways.
    - *Left-turn and right-turn lanes should be considered when either of the following conditions are met:*
        - *Properties develop or redevelop and are expected to generate traffic volumes sufficient to meet the ODOT turn lane guidelines for installation.*
        - *The annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT SPIS rating in the worst 10 percent.*
    - *Right-turn deceleration lanes should be considered when the left-turn lanes are added on OR 140 at the intersections with Lakeview Drive, Riley Road/E Antelope Road, Meridian Road, Brownsboro-Meridian Road, and Brownsboro-Eagle Point Road.*
13. Evaluate traffic control, left-turn lane, and right-turn lane needs at new OR 140 intersection created with extension of Foothill Road to Atlantic Avenue and evaluate if turn limitations at other locations (Kershaw Road or Lakeview Drive) would improve corridor safety.
    - *Analysis should be completed when planning and design begins for the Foothill Road extension.*

Attachments:

Table 8-3. Summary of Existing Access Inventory
Figure 8-1. Existing Access Inventory-West of OR 62
Figure 8-2. Existing Access Inventory-West of OR 62
Figure 8-3. Existing Access Inventory-West of OR 62
Figure 8-4. Existing Access Inventory-East of OR 62
Figure 8-5. Existing Access Inventory-East of OR 62
Figure 8-6. Existing Access Inventory-East of OR 62
Figure 8-7. Existing Access Inventory-East of OR 62
Figure 8-8. Existing Access Inventory-East of OR 62
Figure 8-9. OR 140 Access Management Plan from I-5 to Blackwell Rd/Kirtland Rd Intersection
Figure 8-10. OR 140 Access Management Plan from Blackwell Road to Pacific Avenue
Figure 8-11. OR 140 Access Management Plan from Pacific Avenue to OR 62
Figure 8-12. OR 140 Access Management Plan from OR 62 to Brownsboro-Eagle Point Rd

Appendix 8-A. CHAMPS Database Output from ODOT
Appendix 8-B. OPAL Database Output from ODOT

Table 8-3. Existing Access Inventory

Access ID	Section Name	Posted Speed	Urban/ Rural	Side	Existing Width	Property Use	Tax Lot Data	Owner	Address	Private/ Public	Comments
1	Blackwell	45	Rural	R	25'	Rd	n/a	Jackson County	n/a	Public	Existing Rds two lanes. Dean Creek Frontage Rd. Jackson County Owner
2	Blackwell	45	Rural	L	25'	Commercial	36-2W-28-TL3000	Payne Allen Ray	6389 Blackwell	Private	Access to Nursery.
3	Blackwell	45	Rural	L	90'	Commercial	36-2W-28-TL3000	Payne Allen Ray	6389 Blackwell	Private	Appears to be getting buried. Cascade Florist and Nursery.
4	Blackwell	45	Rural	R	15'	Commercial	36-2W-28-TL700	Cardmoore Properties et al	6366 Blackwell	Private	Paved apron to driveway. Driveway= gravel. Microwave tower site plus other users.
5	Blackwell	45	Rural	R	17'	Commercial	36-2W-28-TL800	Rock N Ready Mix Concrete LLC	6422 Blackwell	Private	
6	Blackwell	45	Rural	R	10'	Residential	36-2W-28-TL800	Rock N Ready Mix Concrete LLC	6422 Blackwell	Private	Double entrance with B3.
7	Blackwell	45	Rural	L	17'	Commercial	36-2W-28-TL2900	Hong Ernest C. et al	6467 Blackwell	Private	
8	Blackwell	45	Rural	R	74'	Residential	36-2W-28-TL900	Rock N Ready Mix Concrete LLC	6452 Blackwell	Private	Acess to empty lot.
9	Blackwell	45	Rural	R	16'	Residential	36-2W-28-TL900	Rock N Ready Mix Concrete LLC	6452 Blackwell	Private	Acess to empty open space.
10	Blackwell	45	Rural	R	26'	Residential	36-2W-28-TL1000	Von Der Hellen Louise, et al	6200 Blackwell	Private	Gravel drive with culvert. Acess to multiple houses.
11	Blackwell	45	Rural	L	33'	Residential	36-2W-28-TL2800	Christianson Linda	6535 Blackwell	Private	Access serves two residences.
11	Blackwell	45	Rural	L	33'	Residential	36-2W-28-TL2900	Hong Ernest C. et al	6467 Blackwell	Private	Access serves two residences.
12	Blackwell	45	Rural	R	64'	Commercial	36-2W-28-TL1400	Robertson William J / Rebecca	6486 Blackwell	Private	Jerry Robertson Body Works. 664-4500.
13	Blackwell	45	Rural	R	19'	Residential	36-2W-28-TL1300	Rock N Ready Mix Concrete LLC	6508 Blackwell [Situs: 6480 Blackwell]	Private	
14	Blackwell	45	Rural	R	15'	Residential	36-2W-28-TL1600	Nieto Tony Living Trust	6554 Blackwell	Private	Single house.
15	Blackwell	45	Rural	L	15'	Residential	36-2W-28-TL2700	Brown Kenneth L	6577 Blackwell	Private	6665 Blackwell+ 4
16	Blackwell	45	Rural	L	17'	Agricultural	36-2W-28-TL2700	Brown Kenneth L	6577 Blackwell	Private	second access to B21.
17	Blackwell	45	Rural	R	19'	Residential	36-2W-28-TL2600	Jones Mathew D	6646 Blackwell	Private	Serves four residents.
18	Blackwell	45	Rural	R	51'	Commercial	36-2W-28-TL1700	Rock N Ready Mix Concrete LLC	6774 Blackwell	Private	
19	Blackwell	45	Rural	L	78'	Agricultural	36-2W-28-TL2700	Brown Kenneth L	6577 Blackwell	Private	Agriculteral access. Found Bench Mark CMP #2.
20	Blackwell	45	Rural	R	21'	Commercial	36-2W-28-TL1700	Rock N Ready Mix Concrete LLC	6774 Blackwell	Private	Abandoned mobile home.
21	Blackwell	45	Rural	L	15'	Residential	36-2W-28-TL2603	Knauss Lee H / Clara A	6807 Blackwell	Private	6807 Blackwell + 3 additional homes Central Point / County
21	Blackwell	45	Rural	L	15'	Residential	36-2W-28-TL2605	Tevis Julie	6753 Blackwell	Private	6807 Blackwell + 3 additional homes Central Point / County
21	Blackwell	45	Rural	L	15'	Residential	36-2W-28-TL2606	Walker Scott V / Joan M	6689 Blackwell	Private	6807 Blackwell + 3 additional homes Central Point / County
22	Blackwell	45	Rural	R	65'	Commercial	36-2W-28-TL1800	Rock N Ready Mix Concrete LLC	6960 Blackwell	Private	Gravel Rd w/ gate.
23	Blackwell	45	Rural	L	16'	Residential	36-2W-28-TL2601	Shaw Charles / Joyce C.	6825 Blackwell	Private	
24	Blackwell	45	Rural	L	12'	Residential	36-2W-28-TL2500	Burgess Vera J	6855 Blackwell	Private	
25	Blackwell	45	Rural	L	12'	Residential	36-2W-28-TL2400	Klein Dorthy M E	6887 Blackwell	Private	
26	Blackwell	45	Rural	L	12'	Residential	36-2W-28-TL2300	Mark Stanley	6955 Blackwell	Private	Width taken at gate.
27	Blackwell	45	Rural	R	23'	Industrial	36-2W-28-TL1800	Rock N Ready Mix Concrete LLC	6960 Blackwell	Private	Plant entrance.We went to other side of the Rd at this 1/2 mile point and worked our way back to the start point.
28	Blackwell	45	Rural	L	11'	Residential	36-2W-28-TL2300	Mark Stanley L	6955 Blackwell	Private	
29	Blackwell	45	Rural	R	26''	Residential	36-2W-28-TL1900	Rock N Ready Mix Concrete LLC	6966 Blackwell	Private	This is the first point on the right side of the Rd after point B15. PPL 17/3. 6968 Blackwell Rd
30	Blackwell	45	Rural	L	15'	Residential	36-2W-28-TL2200	Phillips Eddie L Barbara J	7017 Blackwell	Private	7017 Blackwell Rd
31	Blackwell	45	Rural	L	33'	Commercial	36-2W-28-TL2000	Haught James R / Chelly D	7137 Blackwell	Private	Cross CreekTrucking/ Trading CO. Desimome Micheal S 7137 Blackwell Rd Central Point / County. Note Three records listed for this tax lot
31	Blackwell	45	Rural	L	33'	Commercial	36-2W-28-TL2001	Cater Eric D	7181 Blackwell	Private	Cross CreekTrucking/ Trading CO. Desimome Micheal S 7137 Blackwell Rd Central Point / County. Note Three records listed for this tax lot
31	Blackwell	45	Rural	L	33'	Commercial	36-2W-28-TL2100	Desimome Michael S	7137 Bl;ackwell	Private	Cross CreekTrucking/ Trading CO. Desimome Micheal S 7137 Blackwell Rd Central Point / County. Note Three records listed for this tax lot
32	Blackwell	45	Rural	L	15'	Residential	36-2W-21-TL1301	Lavell Laurel E / Jessica L	7215 Blackwell	Private	
33	Blackwell	45	Rural	R	14'	Agricultural	36-2W-21-TL1300	Savage Donald / Mary R	7256 Blackwell	Private	Gate access to field.
34	Blackwell	45	Rural	R	35'	Industrial	36-2W-21-TL1300	Savage Donald / Mary R	7256 Blackwell	Private	Crater Sand and Gravel entrance. Also a residence on this access. Residence looks abandonded. 7252 Blackwell Rd
35	Blackwell	45	Rural	R	12'	Agricultural	36-2W-21-TL1300	Savage Donald / Mary R	7256 Blackwell	Private	Field access w/ concrete culvert. WOOD PILING WITH BARBED WIRE AT ACCESS POINT.
36	Blackwell	45	Rural	L	15'	Residential	36-2W-20-TL1800	Hodge Brent	7365 Blackwell	Private	7365, 7381 Blackwell
37	Blackwell	45	Rural	R	15'	Residential	36-2W-21-TL1300	Savage Donald / Mary R	7256 Blackwell	Private	RUNDOWN PINK BUILDING WITH 2 OUT BUILDINGS. 7400 Blackwell Rd
38	Blackwell	45	Rural	L	200' +	Commercial	36-2W-20-TL1400	Nelson Richard C Trustee Nelson Family Trust	7457 Blackwell	Private	The pine tree market. There is a residential access on one side leading up to a home. 7461 , 7457 Blackwell Rd
39	Blackwell	45	Rural	R	24'	Industrial	36-2W-21-TL1300	Savage Donald / Mary R	7256 Blackwell	Private	FENCED AREA. CAVEMAN FENCING.
40	Blackwell	45	Rural	R	24'	Rd	n/a	n/a	n/a	Public	Kirtland Rd Intersection. No tax lot information.
41	Kirtland	45	Rural	L	31'	Industrial	36-2W-20-TL1300	McLininger/Sons Inc.	3770 Kirtland	Private	Knife River.

Table 8-3. Existing Access Inventory

Access ID	Section Name	Posted Speed	Urban/ Rural	Side	Existing Width	Property Use	Tax Lot Data	Owner	Address	Private/ Public	Comments
42	Kirtland	45	Rural	L	15'	See Comments	See Comments			Private	Utility access. No taxlot associated with this point. See Jackson County GIS…
43	Kirtland	45	Rural	L		RailRd	n/a	n/a	n/a	Private	Single track crossing Kirtland to point K1
44	Kirtland	45	Rural	R		RailRd	n/a	n/a	n/a	Private	Single track crossing Kirtland.
45	Kirtland	45	Rural	L	20'	Unknown	36-2W-20-TL205	Rogue Aggregates Inc.	3750 Kirtland. [Situs: 7700 Gold Ray Rd]	Private	7 Records present, 5 are active.
46	Kirtland	45	Rural	L	110 +	Industrial	36-2W-20-TL205	Rogue Aggregates Inc.	7700 Gold Ray Rd	Private	Knife River Quarry. 7 Records present, 5 are active.
47	Kirtland	45	Rural	R	32'	Commercial	36-2W-21-1204	Savage Donald	3880 kirtland	Private	Morotcycle track facility entrance.
48	Kirtland	45	Rural	L	73'	Industrial	36-2W-20-TL205	Rogue Aggregates Inc.	7700 Gold Ray Rd	Private	Knife River Quarry. 7 Records present, 5 are active.
49	Kirtland	55	Rural	L	16'	Agricultural	36-2W-20-TL100	Bear Creek Orchards Inc.	3660 Kirtland	Private	Gated access to Orchard.
50	Kirtland	55	Rural	R	19'	Agricultural	36-2W-21-TL1203	Dept. of Fish and Wildlife	Blackwell Rd	Private	Open field. Gas access panel at this point.
51	Kirtland	55	Rural	L	21'	Commercial	36-2W-20-TL100	Bear Creek Orchards Inc.	3660 Kirtland	Private	
52	Kirtland	55	Rural	L	14'	Agricultural	36-2W-20-TL100	Bear Creek Orchards Inc.	3660 Kirtland	Private	Bridge access into orchard.
53	Kirtland	55	Rural	R	13'	Industrial	36-2W-21-TL1202	Rogue Valley Sewer Services, RVS	3200 Kirtland Rd	Private	Dunn Pump Station.
54	Kirtland	55	Rural	L	48'	Agricultural	36-2W-21-TL1100	Romkins, Janice Firth	3230 Kirtland	Private	Serves two access points that eventually combine into one Rd.
54	Kirtland	55	Rural	L	48'	Agricultural	36-2W-21-TL1600	Bear Creek Orchards Inc.	3448 Kirtland	Private	
55	Kirtland	55	Rural	R	25'	Industrial	36-2W-21-TL1202	Rogue Valley Sewer Services, RVS	3200 Kirtland Rd	Private	This was one mile point on right side.
56	Kirtland	55	Rural	R	32'	Agricultural	36-2W-21-TL1201	Salyer Norman J	3033 Kirtland	Private	
57	Kirtland	55	Rural	L	16	Agricultural	36-2W-21-TL1100	Tompkins Janice Firth	3230 Kirtland Rd	Private	
58	Kirtland	55	Rural	R	42'	Industrial	36-2W-21-TL1201	Salyer Norman J	3033 Kirtland	Private	
59	Kirtland	55	Rural	L	22	Residential	36-2W-21-TL1700	Kirtland Farms 600 LLC	2826 KIRTLAND	Private	2826
60	Kirtland	55	Rural	R	30'	Commercial	36-2W-21-TL1201	Salyer Norman J	3033 Kirtland	Private	
61	Kirtland	55	Rural	R	14'	Residential	36-2W-21-TL800	McMahan Albert C.	2795 Kirtland	Private	
62	Kirtland	55	Rural	R	44'	Residential	36-2W-21-TL600	Scallon Philip H	2667 kirtland	Private	One Access with Two Taxlots.
62	Kirtland	55	Rural	R	44'	Residential	36-2W-21-TL700	Scallon Philip H/Diane L	2695 Kirtland	Private	One Access with Two Taxlots.
63	Kirtland	55	Rural	R	22	Residential	36-2W-21-TL600	Scallon Phillip H	2667 Kirtland	Private	
64	Kirtland	55	Rural	R	33	Commercial	36-2W-21-TL500	McLane Industrial Park LLC	2639 Kirtland	Private	One access for two driveways. 3 Records, 2 are active.
65	Kirtland	55	Rural	L	14	Field	36-2W-21M-TL101	True-Mix Leasing Co.	7861 High Banks Rd	Private	
66	Kirtland	55	Rural	R	24'	Rd	n/a	n/a	n/a	Public	Intersection of highBanks Rd
67	Kirtland	55	Rural	L	24	Rd	n/a	n/a	n/a	Public	HIGHBANKS RD INTERSECTION WITH KIRTLAND
68	Kirtland	55	Urban	L	18	Industrial	26-2W-22-TL202	KRC Holding Inc.	2236 KIRTLAND	Private	
69	Kirtland	55	Urban	R	24'	Agricultural	36-2W-22-TL290	Galpin C A	Kirtland Rd	Private	
70	Kirtland	55	Urban	L	40	Industrial	36-2W-22-TL203	KRC Holding Inc.	1858 KIRTLAND	Private	
71	Kirtland	55	Urban	R	16'	Agricultural	36-2W-22-TL600	Medford Ready Mix	Kirtland Rd	Private	open field.
72	Kirtland	55	Urban	L	20	Industrial	36-2W-22-TL100	Crater Sand/ Gravel Inc	Kirtland Rd	Private	ROCK PIT ENTRANCE. Agent: Inc., Southern Oregon Aggregate.
73	Kirtland	55	Urban	L	18	Industrial	36-2W-23-TL101	White City Sanitary District	Kirtland Rd	Private	Water Treatment Facility.
74	Kirtland	55	Urban	R		utility	36-2W-23-TL103	City of Medford	Kirtland Rd	Private	Utility box access. 2 Records, Both are active. City of Medford (for both)
75	Kirtland	55	Urban	L	18	Industrial	36-2W-23-TL101	White City Sanitary District	Kirtland Rd	Private	WATER TREATMENT FACILITY.
76	Kirtland	55	Urban	R		Industrial	36-2W-23-TL102	Erickson Air-Crane LLC	3782 Kirtland [Situs: 1993 Kirtland Rd]	Private	Continuation of right side points above K16.
77	Kirtland	55	Urban	L	20	Industrial	36-2W-14-TL800	City of Medford	1100 Kirtland Rd	Private	CURB. 4 Records, 3 are active.
78	Kirtland	55	Urban	L	25	CITY PROP.	36-2W-14-TL800	City of Medford	1100 Kirtland Rd	Private	VERNON THORPE WATER RECLAIMATION PROJECT. CURB ON ACCESS.
79	Kirtland	55	Urban	R	35'	Rd	n/a	n/a	n/a	Public	Antelope Rd intersection
80	Kirtland	55	Urban	L	26	Industrial	36-2W-14-TL800	City of Medford	1100 Kirtland Rd	Private	WASTE WATER TREATMENT FACILITY.
81	Kirtland	55	Urban	L	16	Field	36-2W-14-TL800	City of Medford	1100 Kirtland Rd	Private	WASTE WATER IRRIGATION SITE.
82	Kirtland	55	Urban	R	16'	Agricultural	36-2W-14-TL806	BOC Gropu Inc.	Kirtland Rd	Private	
83	Kirtland	55	Urban	L	16	Field	36-2W-14-TL800	City of Medford	1100 Kirtland Rd	Private	4 Records, 3 are active.
84	Kirtland	55	Urban	R	18	Agricultural	36-2W-14-TL804	Washington Water/Power Co.	Kirtland Rd	Private	Serves Several Taxlots.
85	Kirtland	55	Urban	R	41	Commercial	36-2W-13-TL1400	State of Oregon/ Dept. of Fish and Wildlife	8001 Table rock Rd	Private	PART OF WEIGH STATION, EXIT.
86	Kirtland	55	Urban	L		Rd	n/a	n/a	n/a	Public	TABLEROCK INTERSECTION WITH KIRTLAND
87	Kirtland	55	Urban	L	18	Agricultural	36-2W-13-TL1200	State of Oregon	Kirtland Rd	Private	BOUNDARY TO DENMAN WILDLIFE AREA.
88	Kirtland	55	Urban	R		Rd	n/a	n/a	n/a	Public	PACIFIC AVENUE

Table 8-3. Existing Access Inventory

Access ID	Section Name	Posted Speed	Urban/ Rural	Side	Existing Width	Property Use	Tax Lot Data	Owner	Address	Private/ Public	Comments
89	Kirtland	55	Urban	R	22	Commercial	36-2W-13-TL1100	Carestream Health	8124 Pacific Avenue	Private	CURB ON ACCESS
90	Kirtland	55	Urban	L		Rd	n/a	n/a	n/a	Public	PACIFIC AVENUE INTERSECTION WITH KIRTLAND
91	Pacific	55	Urban	R	24	Commercial	36-2W13TL1100	Carestream Health	8124 Pacific Ave	Private	Parking lot gate
91	Pacific	55	Urban	R	24	Commercial	36-2W-13-TL1300	Carestream Health	8124 Pacific Ave	Private	
92	Avenue G	55	Urban	L	12	Field	36-2W-13-TL1200	State of Oregon	Kirtland Rd	Private	ACCESS IS ON PACIFIC AND G AVENUE INTERSECTION OFF THE RD ON SHARP CORNER. State of Oregon.
93	Avenue G	55	Urban	L	30	Commercial	36-2W-13-TL1203	Lallo Ralph R.	875 G AVENUE	Private	CURB ON ACCESS. STORE (EXTREME PAINTING).
94	Avenue G	55	Urban	L	46	Field	36-2W-13-TL1205	Lallo Ralph R.		Private	
95	Avenue G	55	Urban	R	55	Field	36-2W-13-TL1100	Carestream Health	8124 Pacific Ave	Private	ONE ACCESS, TWO DRIVEWAYS. CONCRETE CULVERT FOR EACH DRIVEWAY.
96	Avenue G	55	Urban	L	12	Field	36-2W-13-TL1204 et al		Pacific Avenue	Private	
97	Avenue G	55	Urban	R	27	Commercial	36-2W-13-TL1100	Carestream Health	8124 Pacific Ave	Private	CARE-STREAM SHIPPING AND RECEIVING ACCESS.
98	Avenue G	55	Urban	L	25	Field	36-1W-18-TL103	Burrill Resources LLC. CMS and G Inc.	Avenue G	Private	
99	Avenue G	55	Urban	R	25	Commercial	36-1W-18-TL219	Certainteed Corporation	1200 Avenue G	Private	
100	Avenue G	55	Urban	R	33	Rd	n/a	n/a	n/a	Public	5TH STREET INTERSECTION WITH G AVENUE
101	Avenue G	55	Urban	R	33	Commercial	36-1W-18-TL227	Oberlander James R.	1316 G AVENUE	Private	CURB ON ACCESS.
102	Avenue G	55	Urban	R	52	Commercial	36-1W-18-TL228	Big Boy Maxi Storage LLC	1400 Avenue G	Private	CURB AT BACK OF ACCESS. .
103	Avenue G	55	Urban	R	45	Commercial	36-1W-18-TL200	Timber Products Company	1550 Avenue G	Private	TIMBER PRODUCTS COMPANY.
104	Avenue G	45	Urban	R	33	Rd	n/a	n/a	n/a	Public	8TH STREET INTERSECTION WITH G AVENUE
105	Avenue G	45	Urban	R	38	Commercial	36-1W-18D-TL900	Antelope Acquisitions	1601 G AVENUE	Private	
106	Avenue G	45	Urban	R	26	Commercial	36-1W-18D-TL900	Antelope Acquisitions	1601 G AVENUE	Private	Limited Partnership.
107	Avenue G	45	Urban	L	20	Field	36-1W-18D-TL800	Burrill Resources LLC	1655 Avenue G	Private	
108	Avenue G	45	Urban	R	430	Commercial	36-1W-18D-TL1000	Davis George A	1790 G AVENUE	Private	DAVIS FINISH PRODUCTS.
109	Avenue G	45	Urban	L	10	Field	36-1W-18D-TL700	Burrill Resources LLC	Avenue G	Private	
110	Avenue G	45	Urban	L	n/a	RailRd	n/a	n/a	n/a	Private	SINGLE TRACK. APPEARS TO BE ABANDONED AS TRACK SECTION IS REMOVED.
111	Avenue G	45	Urban	R		RailRd	n/a	n	n/a	Private	SINGLE TRACK. APPEARS TO BE ABANDONED AS TRACK SECTION IS REMOVED.
112	Avenue G	45	Urban	R	24	Rd	n/a	n/a	n/a	Public	11TH STREET INTERSECTION WITH G AVENUE
113	Avenue G	45	Urban	L	24	Rd	n/a	n/a	n/a	Public	11TH STREET INTERSECTION WITH G AVENUE.
114	Avenue G	45	Urban	L	80	Commercial	36-1W-18D-TL200	Jackson County Fire District #3	8333 Agate Rd	Private	CURB ON ACCESS. FIRE STATION. ONE ACCESS FOR TWO DRIVEWAYS.
115	Agate	45	Urban	L	40	Commercial	36-1W-17CC-TL1400	Southern Oregon Holdings	8250 AGATE	Private	PANEL PRODUCTS MAIN OFFICE ON CORNER OF AVENUE G AND AGATE.
116	Agate Rd	45	Urban	L	83	Commercial	36-1W-17CC-TL1400	Southern Oregon Holdings	8250 Agate	Private	OPPOSITE FROM PPL 14/10.
117	Agate Rd	45	Urban	R	36	Commercial	36-1W-18D-TL1200	Royal Oak Enterprises	7997 Agate Rd	Private	
118	Agate Rd	45	Urban	R	210	Commercial	36-1W-18D-TL1200	Royal Oak Enterprises	7997 Agate Rd	Private	OLD WAREHOUSE ON SITE.
119	Agate Rd	45	Urban	L	100	Commercial	36-1W-17CC-TL1400	Southern Oregon Holdings	8250 Agate	Private	OPPOSITE FROM PPL 12/10.
120	Agate Rd	45	Urban	R	25	Commercial	36-1W-18D-TL1200	Royal Oak Enterprises	7997 Agate Rd	Private	
121	Agate Rd	45	Urban	R	25	Commercial	36-1W-18D-TL1300	Henry Stephen T/Kathleen M	7975 AGATE	Private	PROPERTY FOR SALE. .41 ACRES. 541-821-4605.
122	Agate Rd	45	Urban	L		RailRd	n/a	n/a	n/a	Private	SINGLE TRACK.
123	Agate Rd	45	Urban	R		Commercial	n/a	n/a	n/a	Private	SINGLE TRACK
124	Agate Rd	45	Urban	L	33	Industrial	36-1W-17C-TL1200	Royal Oak Enterprises	7930 Agate Rd	Private	NEXT TO RAILRD CROSSING.
125	Agate Rd	45	Urban	L	35	Industrial	36-1W-17C-TL1200	Royal Oak Enterprises	7930 AGATE	Private	PPL B19978.
126	Agate Rd	45	Urban	R	30	Commercial	36-1W-19A-TL100	Gros Eugene w/Deborah D	7905 AGATE	Private	2 Records both are active.
126	Agate Rd	45	Urban	R	30	Commercial	36-1W-19A-TL100A1	AT&T Wireless Services		Private	AT&T Wireless Services.
127	Agate Rd	45	Urban	L	20	Industrial	36-1W-17C-TL1200	Royal Oak Enterprises	7930 Agate Rd	Private	
128	Agate Rd	45	Urban	L	45	Industrial	36-1W-20B-TL900	Boise Building solutions Manufacturing LLC	1795 Antelope Rd	Private	Boise Cascade Property.
129	Agate Rd	45	Urban	R	29	Commercial	36-1W-19A-TL2202	Antelope Agate LLC	7675 AGATE [Situs: 81 Pine Ct. Eagle Point]	Private	Agent: Kimmel Howard J.
130	Agate Rd	45	Urban	R	28	Commercial	36-1W-19A-TL2202	Antelope Agate LLC	7675 AGATE [Situs: 81 Pine Ct. Eagle Point]	Private	Agent: Kimmel Howard J.
131	Agate Rd	45	Urban	L	31	Industrial	36-1W-20B-TL900	Boise Building solutions Manufacturing LLC	1795 Antelope Rd	Private	Boise Cascade property. Curb on the frontage Rd and not the access. Gate is currently for exit purposes only. Gate 5.
132	Agate Rd	45	Urban	R		Rd	n/a	n/a		Public	ANTELOPE RD INTERSECTION WITH AGATE
133	Agate Rd	45	Urban	L		Rd	n/a	n/a	n/a	Public	ANTELOPE RD INTERECTION WITH AGATE
134	Agate Rd	45	Urban	R	58	Commercial	36-1W-19A-TL2301	Plumley Properties LLC	7189 AGATE	Private	SIDEWALK ALONG FRONTAGE RD.
135	Agate Rd	45	Urban	L	23	Commercial	36-1W-20BC-TL1000 et al	McLean Terry S, et al		Private	

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Access ID	Section Name	Posted Speed	Urban/ Rural	Side	Existing Width	Property Use	Tax Lot Data	Owner	Address	Private/ Public	Comments
136	Agate Rd	45	Urban	R	38	Commercial	36-1W-19-TL300	State of Oregon	Avenue B	Private	
137	Agate Rd	45	Urban	R	15	Commercial	36-1W-19-TL300	State of Oregon	Avenue B	Private	ACCESS TO NATURE TRAIL.
138	Leigh Way	45	Urban	L	35	Commercial	36-1W-20CBTL400	Brookside Inn Inc.	2020 Leigh Way	Private	Curb at rear. La Quinta hotel.
139	Leigh Way	45	Urban	R	35	Commercial	36-1W-20CTL1800	S & M Tyrholm Invest Co.	7303 Hwy 62 Eagle Point	Private	Curb Big R entrance.
140	Leigh Way	45	Urban	L	35	Commercial	36-1W-20CBTL400	Sargent Wayne H/Gloria J	7405 Hwy 62	Private	Curb. Cascade Shopping Center. Apple Peddler plus more businesses.
141	OR 140	55	Rural	R	41'	Commercial	36-1W-20CA-TL1400	Root James M Trustee FBO et al	Situs: 7303 Merry Ln Eagle Point/ county	Private	Shopping center entrance by Dollar Tree
142	OR 140	55	Rural	L	36'	Rd	n/a	n/a	n/a	Public	Lakeview Rd intersection
143	OR 140	55	Rural	R	31'	Rd	n/a	n/a	n/a	Public	Lake View Drive intersection
144	OR 140	55	Rural	L	30'	Rd	n/a	n/a	n/a	Public	Kershaw Rd intersection
145	OR 140	55	Rural	R	38'	Rd	n/a	n/a	n/a	Public	Kershaw Rd
146	OR 140	55	Rural	R	15'	Agricultural	36-1W-22D-TL400	Grissom Donald Trust Grissom Deloris L Trustee FBO	Situs: Hwy 140 Eagle Point / County	Private	field access. Gate next to water ditch
147	OR 140	55	Rural	L	12'	Agricultural	36-1W-22D-TL200	Burril Rodney W Et al	Situs: 7466 Kernshaw Rd White City	Private	Left of water ditch field access w/ gate
148	OR 140	55	Rural	L	18'	Commercial	36-1W-22D-TL200	Burril Rodney W Et al	Situs: 7466 Kernshaw Rd White City	Private	Field access w/ gate . Looks commercial. Concrete pieces
149	OR 140	55	Rural	R	18'	Agricultural	36-1W-22D-TL100	Grissom Donald Trust Grissom Deloris L Trustee FBO	Situs: Hwy 140 Eagle Point / County	Private	Field access. Gate and temp metal cow holding pens
150	OR 140	55	Rural	R		See Comments	n/a	n/a	n/a	Private	SHRW 65 230+00 Adjacent to H-5
151	OR 140	55	Rural	R	17'	Commercial	n/a			Private	weigh sta entrance
152	OR 140	55	Rural	R	17'	Commercial	n/a			Private	weigh sta exit
153	OR 140	55	Rural	L	15'	Commercial	36-1W-23-TL500	Betts Ronald M	4860 Antelope Rd Eagle Point / County	Private	field access w/ gate to rear of junky business
154	OR 140	55	Rural	R	25'	Commercial	36-1W-23-TL117	Weaver Curtis D / Sandra J Et al LTM Incorp	situs: Hwy 140 Eagle Point/ County	Private	Knife River entrance
155	OR 140	55	Rural	R	25'	Commercial	36-1W-23-TL118	Weaver Curtis D / Sandra J Et al LTM Incorp	situs: Hwy 140 Eagle Point/ County	Private	Knife River entrance
156	OR 140	55	Rural	L	12'	Agricultural	36-1W-23-TL200	Perry James E / Claudia J	Antelope Rd Eagle Point / County	Private	Field access w/ gate to righ tof water ditch. Looks closed
157	OR 140	55	Rural	R	11'	Agricultural	36-1W-23-TL119	Cochran James A / Tamara L	Situs: 500 Antelope Rd Eagle Point / county	Private	field entrance. Gate. Next to water ditch
158	OR 140	55	Rural	R	33'	Rd	n/a	n/a	n/a	Public	E Antelope Rd intersection
159	OR 140	55	Rural	L	33'	Rd	n/a	n/a	n/a	Public	Riley Rd intesection
160	OR 140	55	Rural	L	18'	Agricultural	36-1W-23-TL107	Hong Fang Yen et al	Riley Rd Eagle Point/County	Private	Field access w/ gate
161	OR 140	55	Rural	R	15'	Agricultural	36-1W-23-TL105	Perry James	Situs: Kershaw Rd Eagle Point / County	Private	Field access w/ gate
162	OR 140	55	Rural	R	15'	Agricultural	n/a	n/a	n/a	Private	Field access w/ gate. Appears to be some type of easement or Rd cooridor
163	OR 140	55	Rural	L	18'	Agricultural	36-1W-24-TL200	Pingle Morley H Trustee et al	Hwy 140 Eagle Point/County	Private	field access w/ gate
164	OR 140	55	Rural	L	15'	Agricultural	36-1W-24-TL200	Pingle Morley H Trustee et al	Hwy 140 Eagle Point/County	Private	Field access w/ gate
165	OR 140	55	Rural	R	15'	Agricultural	36-1W-24-TL203	Pringle Family Trust, Atkinson Morlene Trustee	Situs: Antelope Rd E Eagle Point / County	Private	Field access w/ gate
166	OR 140	55	Rural	L	18'	Agricultural	36-1W-24-TL200	Pingle Morley H Trustee et al	Hwy 140 Eagle Point/County	Private	Field access w/ gate
167	OR 140	55	Rural	R	15'	Agricultural	36-1W-24-TL203	Pringle Family Trust, Atkinson Morlene Trustee	Situs: Antelope Rd E Eagle Point / County	Private	Field access w/ gate and wooden cattle loading pen
168	OR 140	55	Rural	R	15'	Agricultural	36-1W-24-TL203	Pringle Family Trust, Atkinson Morlene Trustee	Situs: Antelope Rd E Eagle Point / County	Private	Field access w/ gate
169	OR 140	55	Rural	L	18'	Agricultural	36-1W-13-TL900	Mercer Carole L	Alta Vista Rd Eagle Point/County	Private	Field access w/ gate
170	OR 140	55	Rural	R	18'	Residential	36-1W-13-TL1002	Strom Living Trust Strom Carolyn L Trustee FBO	Situs: 4810 Eagle Point / County	Private	4180
171	OR 140	55	Rural	R	18'	Residential	36-1W-13-TL1100	Irish John A	Situs: 4888 Hyw 140 Eagle Point / County	Private	wood fencing
172	OR 140	55	Rural	L	18'	Agricultural	36-1W-13-TL1001	Wilson Steven G et al	1185 Meridian Rd Eagle Point/ Country	Private	Field access w/ gate
173	OR 140	55	Rural	L	18'	Residential	36-1W-13-TL1101	Hurd Jeffrey W/Diane E	4909 Hwy 140 Eagle Point/County	Private	4909
174	OR 140	55	Rural	R	28'	Rd	n/a	n/a	n/a	Public	Meridian Rd
175	OR 140	55	Rural	L	49'	Rd	n/a	n/a	n/a	Public	Meridian Rd Intersection
176	OR 140	55	Rural	L	18'	Agricultural	36-1E-18-TL802	Carter Neil F/Katherine C	1330 Meridian Rd Eagle Point/County	Private	field access w/ gate
177	OR 140	55	Rural	R	18'	Agricultural	36-1E-18-TL901	Antelope Ranch LLC	Situs: Hwy 140 Eagle Point / County	Private	field access w/ gate
178	OR 140	55	Rural	L	18'	Residential	36-1E-18-TL800	Costelow Albert J/La Quita	5871 Hwy 140 Eagle Point/County	Private	5851
179	OR 140	55	Rural	R	18'	Agricultural	36-1E-18-TL900	Triple Springs Ranch	5972 Hwy 140 Eagle Point / County	Private	field access w/ gate
180	OR 140	55	Rural	R	22'	Agricultural	36-1E-18-TL100	Triple S MT Horse Ranch LLC	Situs: 6210 Hwy 140 Eagle Point / County	Private	Triples Ranch. 6000,6210,6222, 5972
181	OR 140	55	Rural	L	15'	Agricultural	36-1E-18-TL202	Boyd Laurie et al	Hwy 140 Eagle Point/County	Private	fiels access w/ gate
182	OR 140	55	Rural	R	14'	Agricultural	36-1E-18-TL100	Triple S MT Horse Ranch LLC	Situs: 6210 Hwy 140 Eagle Point / County	Private	Field access @ Triples Ranch
183	OR 140	55	Rural	L	18'	Residential	36-1E-18-TL201	Roberts James D/Woodra A	6261 Hwy 140 Eagle Point/County	Private	6261
184	OR 140	55	Rural	L	18'	Residential	36-1E-07-TL1601	Scott Norman E/Marcia L	6273 Hwy 140 Eagle Point/County	Private	6273

Table 8-3. Existing Access Inventory

Access ID	Section Name	Posted Speed	Urban/ Rural	Side	Existing Width	Property Use	Tax Lot Data	Owner	Address	Private/ Public	Comments
184	OR 140	55	Rural	L	18'	Residential	36-1E-07-TL1601	Scott Marcia Lynne et al	6273 Hwy 140 Eagle Point/County	Private	6273
185	OR 140	55	Rural	R	16'	Residential	36-1E-07-TL1800	Dulany Steve Trustee Dulany Trust	Situs: 6310 Hwy 140 Eagle Point / County	Private	6250 mile marker 6. serves several residences
186	OR 140	55	Rural	L	15'	Residential	36-1E-07-TL1600	Clement Shelly M et al	6525 Hwy 140 Eagle Point/ County	Private	6525
187	OR 140	55	Rural	R	34'	Residential	36-1E-08-TL700	Kendle Susan L in Trust Stanley Eugene D	Situs: Hwy 140 Eagle Point / County	Private	6540
188	OR 140	55	Rural	L	15'	Agricultural	36-1E-08-TL603	Waterhouse A C Jr/Sharon L	Hwy 140 Eagle Point/County	Private	Field access w/ chain
189	OR 140	55	Rural	R	18'	Residential	36-1E-08-TL605	Smith Debora P	Situs: 7050 Hwy 140 Eagle Point / County	Private	MTL gate
190	OR 140	55	Rural	L	15'	Commercial	36-1E-08-TL600	Medford Oaks RV Resort Inc	7049 Hwy 140 Eagle Point/ County	Private	Medford Oaks RV Park 7049
191	OR 140	55	Rural	R	12'	Residential	36-1E-08-TL501	Gilman William F / Cindy L	Situs: 7102 Hwy 140 Eagle Point / county	Private	7102. Hay pole barn close to raod
192	OR 140	55	Rural	R	12'	Residential	36-1E-08-TL100	Payne H Ray / Erma J	Situs: 7642 Hwy 140 Eagle Point / County	Private	7490
192	OR 140	55	Rural	R	12'	Residential	36-1E-08-TL400	Perkins Denver B / Winona M	Situs: 7490 Hwy 140 Eagle Point / County	Private	
193	OR 140	55	Rural	L	30'	Rd	n/a	n/a	n/a	Public	Meridian Rd intersection
194	OR 140	55	Rural	L	49'	Rd	n/a	n/a	n/a	Public	Intersection to Eagle Point and Brownsboro
195	OR 140	55	Rural	R	27'	Rd	n/a	n/a	n/a	Private	Meridian Rd intersection and multi family access (opposite Brownsboro Eagle Point Rd)

Yellow highlighting indicates public roadway intersections.

OR 140 Corridor Plan

Legend

- ## Private Access
- ## Public Access
- Parcels

Note: Callout box location is not indicative of the side of roadway which access is taken from.

Source Data: Jackson County, ESRI, Oregon GEO

Figure 8-1

Existing Access Inventory

OR 140 Corridor Plan

Legend

- ## Private Access
- ## Public Access
- Parcels

Note: Callout box location is not indicative of the side of roadway which access is taken from.

Source Data: Jackson County, ESRI, Oregon GEO

Figure 8-2

Existing Access Inventory

Path: \\Pdxfs1\project\O\ODOT00000717\0600\INFO\GS\arcmap\AccessLocations.mxd
Date Saved: Wednesday, March 06, 2013 4:54:35 PM

OR 140 Corridor Plan

Legend

- ## Private Access
- ## Public Access
- Parcels

Note: Callout box location is not indicative of the side of roadway which access is taken from.

Source Data: Jackson County, ESRI, Oregon GEO

Figure 8-3

Existing Access Inventory

Path: \\Pdxfs1\project\O\ODOT00000717\0600\INFO\GS\arcmap\AccessLocations.mxd
Date Saved: Wednesday, March 06, 2013 4:54:35 PM

OR 140 Corridor Plan

Legend

- ○ ## Private Access
- ● ## Public Access
- Parcels

Note: Callout box location is not indicative of the side of roadway which access is taken from.

Source Data: Jackson County, ESRI, Oregon GEO

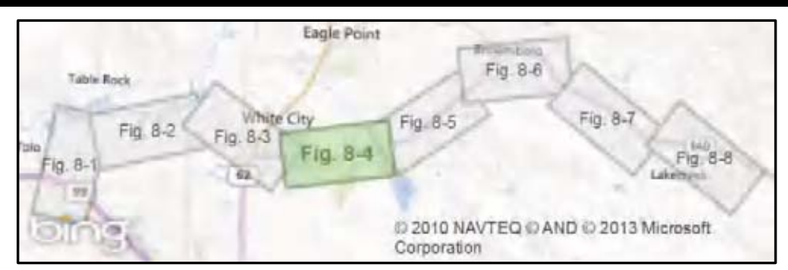

Figure 8-4

Existing Access Inventory

Path: \\Pdxfs1\project\O\ODOT00000717\0600INFO\GS\arcmap\AccessLocations.mxd
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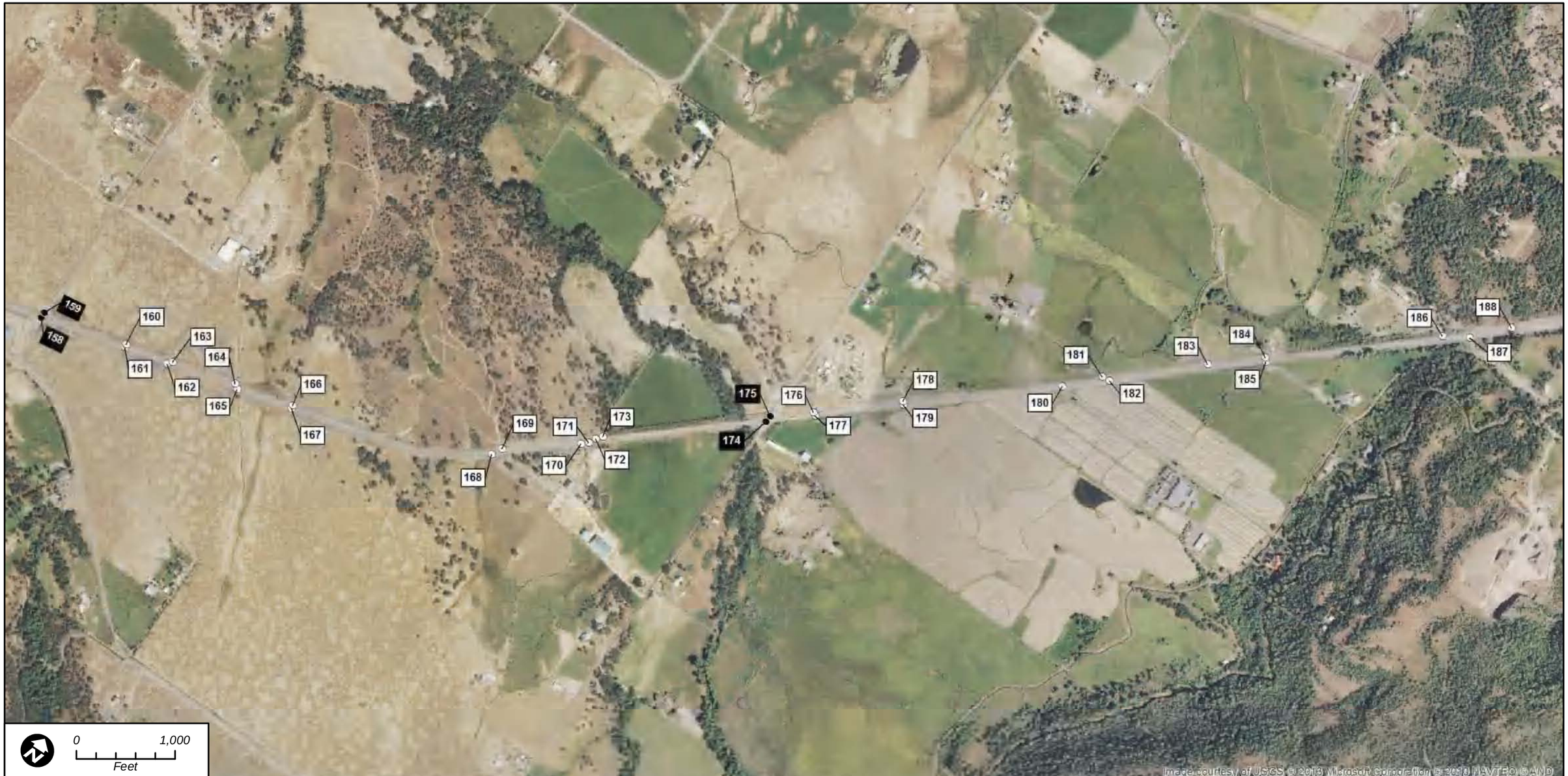


OR 140 Corridor Plan

Legend

- ## Private Access
- ## Public Access
- Parcels

Note: Callout box location is not indicative of the side of roadway which access is taken from.

Source Data: Jackson County, ESRI, Oregon GEO

Figure 8-5

Existing Access Inventory

Path: \\Pdxfs1\project\O\ODOT00000717\0600INFO\GS\arcmap\AccessLocations.mxd
Date Saved: Wednesday, March 06, 2013 4:54:35 PM

OR 140 Corridor Plan

Legend

- ## Private Access
- ## Public Access
- Parcels

Note: Callout box location is not indicative of the side of roadway which access is taken from.

Source Data: Jackson County, ESRI, Oregon GEO

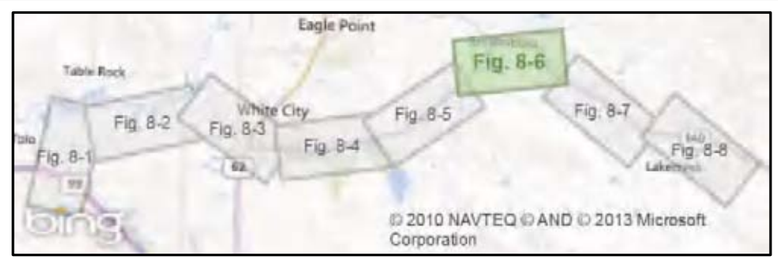


Figure 8-6

Existing Access Inventory

Path: \\Pdxfs1\project\O\ODOT00000717\0600INFO\GS\arcmap\AccessLocations.mxd
Date Saved: Wednesday, March 06, 2013 4:54:35 PM

OR 140 Corridor Plan

Legend

- ## Private Access
- ## Public Access
- Parcels

Note: Callout box location is not indicative of the side of roadway which access is taken from.

Source Data: Jackson County, ESRI, Oregon GEO

Figure 8-7

Existing Access Inventory

Path: \\Pdxfs1\project\O\ODOT00000717\0600INFO\GS\arcmap\AccessLocations.mxd
Date Saved: Wednesday, March 06, 2013 4:54:35 PM

OR 140 Corridor Plan

Legend

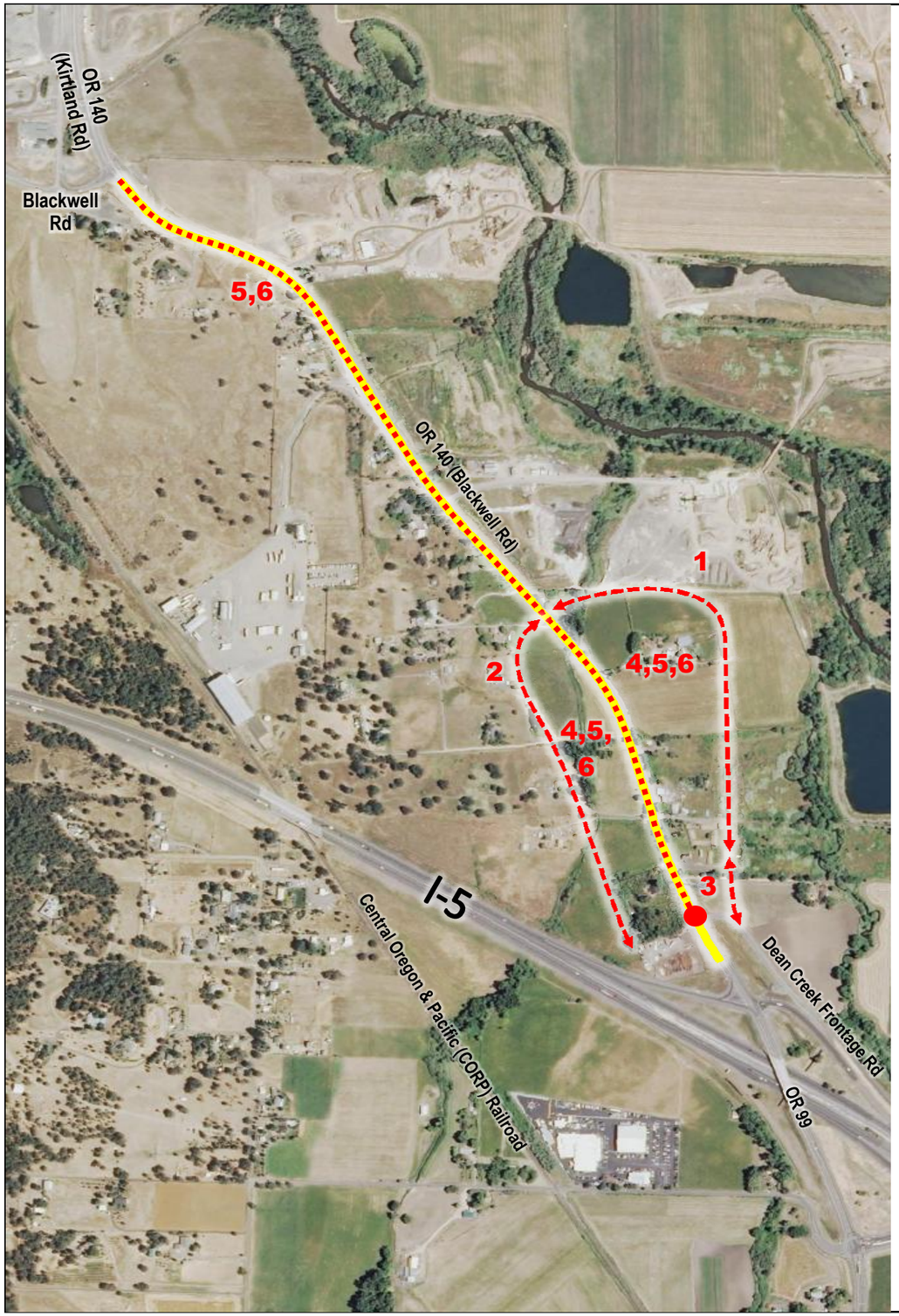
- ○ ## Private Access
- ● ## Public Access
- Parcels

Note: Callout box location is not indicative of the side of roadway which access is taken from.

Source Data: Jackson County, ESRI, Oregon GEO

Figure 8-8

Existing Access Inventory



Recommended Access Management Action:

1. Construct a local road parallel and east of Blackwell Road to serve development with connections to Blackwell Road that meet the minimum ¼-mile access spacing from the interchange as well as spacing standards for a statewide freight route (OR 140). This new road should intersect OR 140 opposite the new road west of Blackwell Road.
   → *Local network improvements should occur concurrently with adjacent development unless other mechanisms for funding the improvements become available.*
2. Construct a local road parallel and west of Blackwell Road to serve development with connections to Blackwell Road that meet the minimum ¼-mile access spacing from the interchange as well as spacing standards for a statewide freight route (OR 140). This new road should intersect OR 140 opposite the new road east of Blackwell Road.
   → *Local network improvements should occur concurrently with adjacent development unless other mechanisms for funding the improvements become available.*
3. Extend existing Dean Creek Frontage Road to connect with the new local road east of Blackwell Road and close or restrict access at the current connection immediately north of the interchange.
   → *Extension should occur concurrently with adjacent development and should be coordinated with other network improvements.*
4. Orient new driveway connections along these newly created parallel routes north of the interchange.
   → *Modifications to driveways may occur with construction of local network improvements or as properties redevelop.*
5. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
   → *Consolidation or closure of driveways should be considered when any of the following three conditions are met:*
   - *Properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street.*
   - *The 3-lane improvements on OR 140 (Blackwell Road) are constructed.*
   - *The annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT SPIS rating in the worst 10 percent.*
6. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.
   → *Left-turn and right-turn lanes should be considered when either of the following conditions are met:*
   - *Properties develop or redevelop and are expected to generate traffic volumes sufficient to meet the ODOT turn lane guidelines for installation.*
   - *The annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT SPIS rating in the worst 10 percent.*

   → *Right-turn deceleration lanes should be considered when the 3-lane improvements on OR 140 (Blackwell Road) are constructed.*

Legend

- Recommended Improvement Project
- Access Consolidation/Closure
- New Street Connections
- Turn Restrictions

Spacing Standards for OR 140 Corridor Plan:

750 feet	I-5 Northbound Ramps to first partial (right-in/ right-out) access	45 mph
1,320 feet	I-5 Northbound Ramps to first full access intersection	45 mph
990 feet	Beginning 1,320 feet north of I-5 Ramps & Outside White City UUC Boundary	45 mph
1,320 feet	Beginning 1,320 feet north of I-5 Ramps & Outside White City UUC Boundary	55 mph

UUC = Urban Unincorporated Community

OR 140 Corridor Plan

Figure 8-9

OR 140 Access Management Plan from I-5 to Blackwell Rd/ Kirtland Rd Intersection

Recommended Access Management Actions:

7. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.

→ *Consolidation or closure of driveways should be considered when any of the following three conditions are met:*

- *Properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street.*
- *The left-turn lanes are added on OR 140 at the intersections with High Banks Road or W Antelope Road.*
- *The annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT SPIS rating in the worst 10 percent.*

8. Consider installing left-turn and right-turn deceleration lanes at high-volume intersections and driveways.

→ *Left-turn and right-turn lanes should be considered when either of the following conditions are met:*

- *Properties develop or redevelop and are expected to generate traffic volumes sufficient to meet the ODOT turn lane guidelines for installation.*
- *The annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT SPIS rating in the worst 10 percent.*

→ *Right-turn deceleration lanes should be considered when the left-turn lanes are added on OR 140 at the intersections with High Banks Road or W Antelope Road are constructed.*

OR 140 Corridor Plan

Legend

- Recommended Improvement Project
- Access Consolidation/Closure
- Near-Term Funded Improvement Project (Illustrative Alignment)

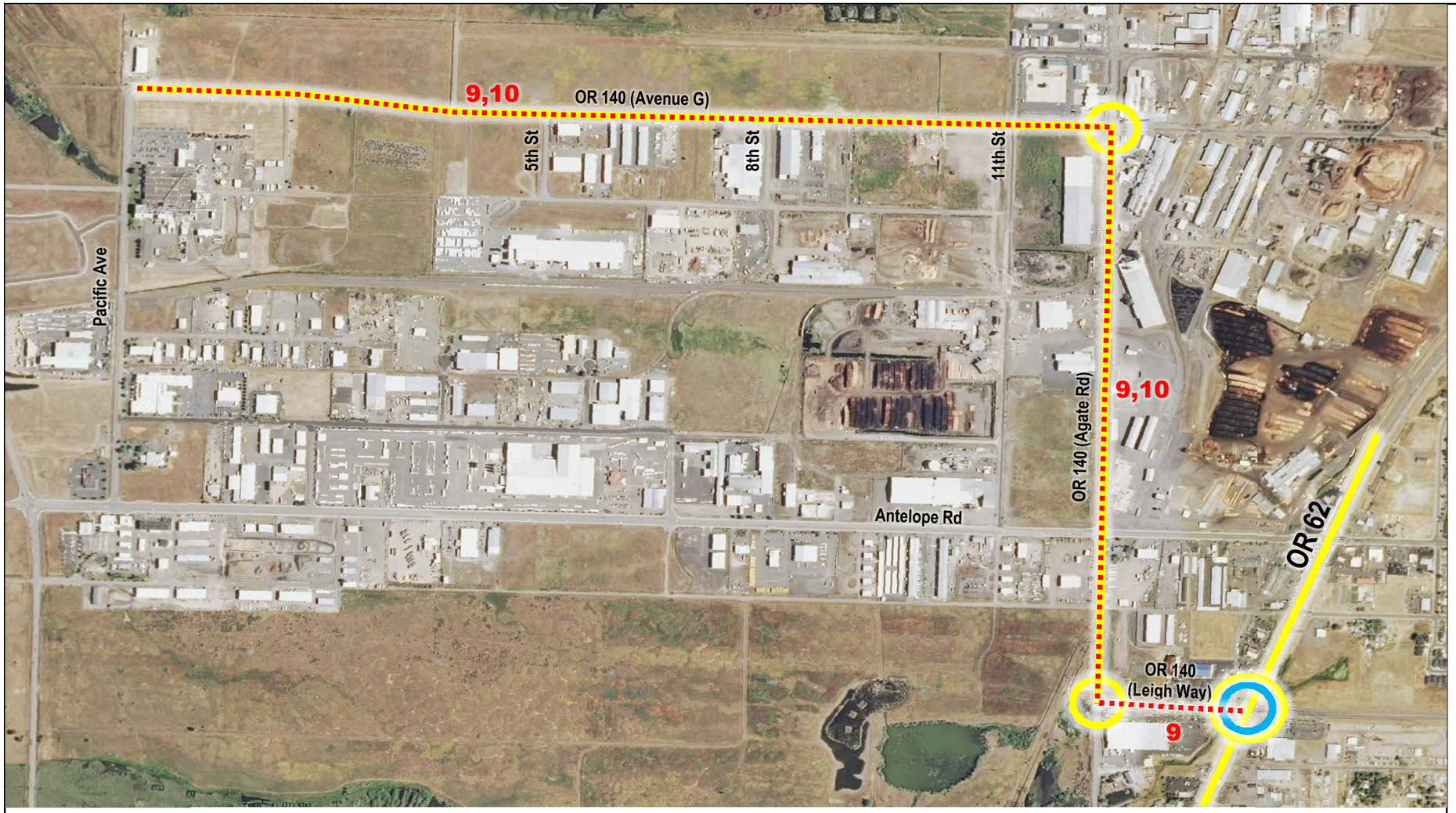
Spacing Standards for OR 140 Corridor Plan:

990 feet	**OR 140 (Kirtland Rd):** Outside White City UUC Boundary	45 mph
1,320 feet	**OR 140 (Kirtland Rd):** Outside White City UUC Boundary	55 mph
800 feet	**OR 140 (Kirtland Rd):** Inside White City UUC Boundary	45 mph
1,320 feet	**OR 140 (Kirtland Rd):** Inside White City UUC Boundary	55 mph

UUC = Urban Unincorporated Community

Figure 8-10

OR 140 Access Management Plan from Blackwell Rd to Pacific Avenue



Legend

- Recommended Improvement Project
- Access Consolidation/Closure
- Near-Term Funded Improvement Project

Spacing Standards for OR 140 Corridor Plan:

800 feet	**OR 140 (Avenue G):** Inside White City UUC Boundary	45 mph or 55 mph
800 feet	**OR 140 (Agate Rd):** Inside White City UUC Boundary	45 mph
800 feet	**OR 140 (Leigh Way):** Inside White City UUC Boundary	45 mph

UUC = Urban Unincorporated Community

Recommended Access Management Actions:

9. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.

→ *Consolidation or closure of driveways should be considered when any of the following five conditions are met:*

- *Properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street.*
- *The 3-lane improvements are constructed on OR 140 along Avenue G or Agate Road.*
- *The southbound or northbound merge lanes are constructed on OR 140 along Agate Road.*
- *The additional turn lanes are constructed on OR 140 at OR 62.*
- *The annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT SPIS rating in the worst 10 percent.*

10. Consider installing left-turn and right-turn deceleration lanes at high-volume intersections and driveways.

→ *Left-turn and right-turn lanes should be considered when either of the following conditions are met:*

- *Properties develop or redevelop and are expected to generate traffic volumes sufficient to meet the ODOT turn lane guidelines for installation.*
- *The annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT SPIS rating in the worst 10 percent.*

→ *Right-turn deceleration lanes should be considered when 3-lane improvements are constructed on OR 140 along Avenue G or Agate Road.*

OR 140 Corridor Plan

Figure 8-11

OR 140 Access Management Plan from Pacific Avenue to OR 62

Recommended Access Management Actions:

11. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.

→ *Consolidation or closure of driveways should be considered when any of the following three conditions are met:*

- *Properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street.*
- *The left-turn lanes are added on OR 140 at the intersections with Lakeview Drive, Riley Road/E Antelope Road, Meridian Road, Brownsboro-Meridian Road, or Brownsboro-Eagle Point Road.*
- *The annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT SPIS rating in the worst 10 percent.*

12. Consider installing left-turn and right-turn deceleration lanes at high-volume intersections and driveways.

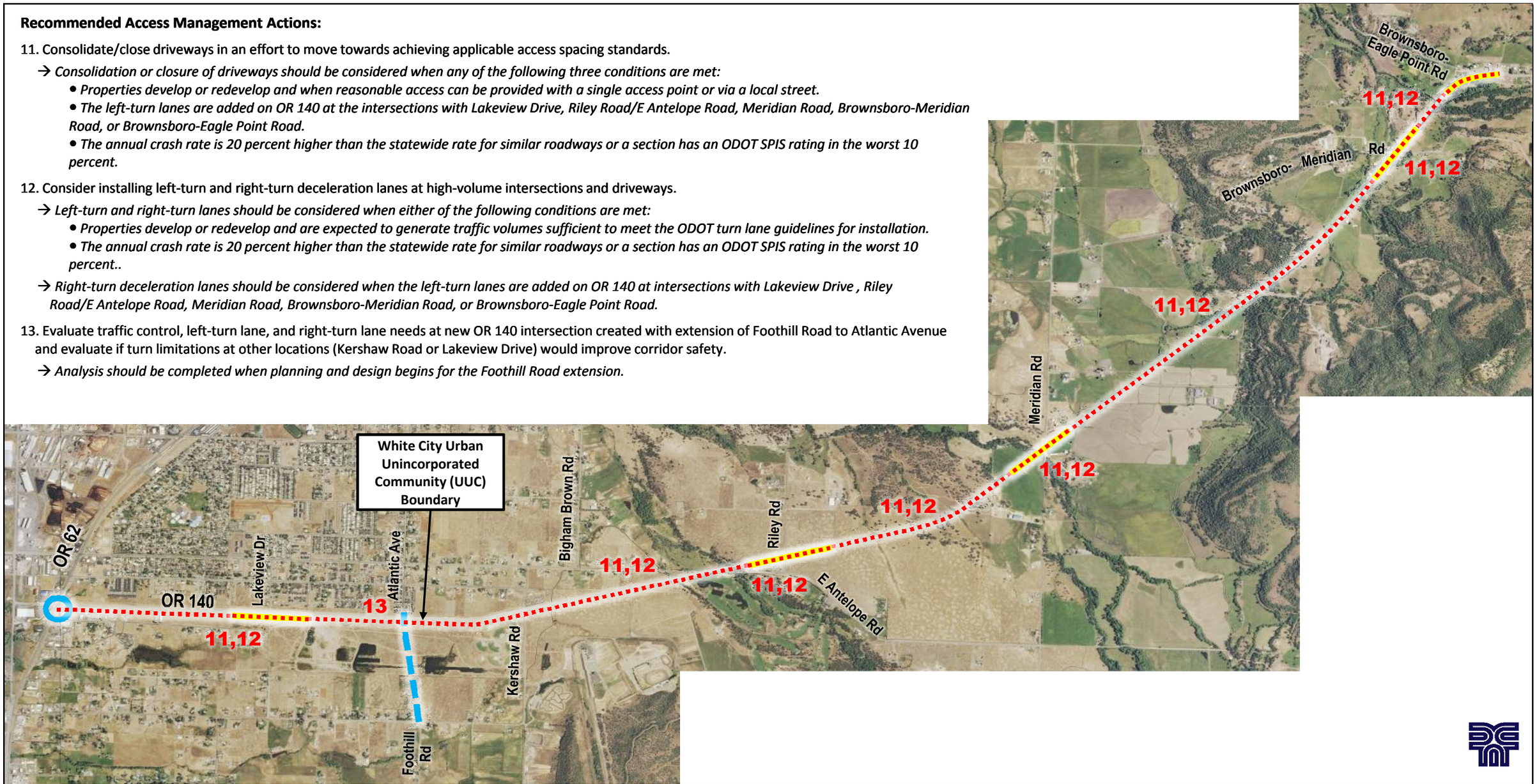
→ *Left-turn and right-turn lanes should be considered when either of the following conditions are met:*

- *Properties develop or redevelop and are expected to generate traffic volumes sufficient to meet the ODOT turn lane guidelines for installation.*
- *The annual crash rate is 20 percent higher than the statewide rate for similar roadways or a section has an ODOT SPIS rating in the worst 10 percent..*

→ *Right-turn deceleration lanes should be considered when the left-turn lanes are added on OR 140 at intersections with Lakeview Drive , Riley Road/E Antelope Road, Meridian Road, Brownsboro-Meridian Road, or Brownsboro-Eagle Point Road.*

13. Evaluate traffic control, left-turn lane, and right-turn lane needs at new OR 140 intersection created with extension of Foothill Road to Atlantic Avenue and evaluate if turn limitations at other locations (Kershaw Road or Lakeview Drive) would improve corridor safety.

→ *Analysis should be completed when planning and design begins for the Foothill Road extension.*



OR 140 Corridor Plan

Legend

- Recommended Improvement Project
- Access Consolidation/Closure
- Near-Term Funded Improvement Project
- Planned Improvement Project

Spacing Standards for OR 140 Corridor Plan:

1,320 feet	**OR 140:** Inside White City UUC Boundary	55 mph
1,320 feet	**OR 140:** Outside White City UUC Boundary	55 mph

UUC = Urban Unincorporated Community

Figure 8-12

OR 140 Access Management Plan from OR 62 to Brownsboro-Eagle Point Road

Appendix 8-A

CHAMPS Database Output from ODOT

Permit Number	Seq No.	Permit Type	Specl Type	Applicant	Dist.	Cnty	Hwy	Beg MP/ End MP	Station	Facility Type	Side	Approved/ Completion Date	Cancelled/ Expired Date	Cancelled By	Comments
2162		A		CHAMBERLA N. R B	08	15	270	1.12	+90	AR1	N	09/1?/1951			
86?8		A		CHAMBERLAIN. E R	08	15	270	1.27	8+90	AR	N	08/18/1958			
4190		A		ELBERT. C & B	08	15	270	1.44	15+95	AR	S	06/23/1953			
10523		A		BAKER L & D	08	15	270	1.45	21+75	AR	N	05/21/1960			
8730		A		BAKER L K	08	15	270	1.47	22+75	AR	N	07/?6/1958			
282		A		CHAMBERLAIN, E R	08	15	270	1.60		AR	N	04/14/1950			
4546		A		VAUGHAN, V & D	08	15	270	1.99	48+23	AR	N	08/31/1953			
27119		A		MERIDIAN ROCK I	08	15	270	2.81	245+17	AR2	S				
3063		A		DALEY, G B	08	15	270	2.86	77+30	AR	S	11/20/1955			
18005		A		TURNER SANDRA	08	15	270	3.37	104+29	AR1	S				
2476		A		JOHNSTON, C & B	08	15	270	4.50	181+00	AR	S	12/15/1951			
27302		A		BLACK GERALD	08	15	270	4.71	345+00	AR2	N				
35275		A		COSTELOW, JIM	08	15	270	5.20	376+00	AR2	N	01/28/1994			
2157		A		CARR C & J	08	15	270	5.38	223+00	AR	R	09/10/1951			
23061		A		DAVIS O & J	08	15	270	5.60	392+35	AR2	S				
11671		A		HANSEN G W	08	15	270	5.77	231+25	AR	S	10/09/1961			

Permit Number	Seq No.	Permit Type	Specl Type	Applicant	Dist.	Cnty	Hwy	Beg MP/ End MP	Station	Facility Type	Side	Approved/ Completion Date	Cancelled/ Expired Date	Cancelled By	Comments
35482		A		SOYD, LEE	08	15	270	5.90	407+00	AR2	N	04/22/1997			
7456		A		PROSSER, R & R	08	15	270	6.00	263+00	AR	S	11/09/1956			
26824		A		DODSON, JOHN	08	15	270	8.83	546+79	AR1	S				
35174		A		SUTTON, F & L	08	15	270	8.98	561+07	AR2	N	09/20/1991			

Appendix 8-B

OPAL Database Output from ODOT

AccessID	Dup	GPSPoint	SectionNam	Latitude	Longitude	Side	Approx. MP	ExtgWidth	SurfaceTyp	PropertyUs	PermitNo	TRS_TL	Owner	Address	CulvertTyp	Comments	PrivPub
1		B1	Blackwell	42.4085	-122.9445	R	-8.17	25'	Paved	Road		n/a	Jackson County	n/a	None Observed	Existing roads two lanes. Dean Creek Frontage Road. Jackson County Owner	Public
2		B27	Blackwell	42.4087	-122.9449	L	-8.15	25'	Paved apron	Commercial		36-2W-28-TL3000	Payne Allen Ray	6389 Blackwell	concrete	Access to Nursery.	Private
3		B26	Blackwell	42.4089	-122.9450	L	-8.13	90'	Paved Apron	Commercial		36-2W-28-TL3000	Payne Allen Ray	6389 Blackwell	concrete	Appears to be getting buried. Cascade Florist and Nursery.	Private
4		B2	Blackwell	42.4092	-122.9450	R	-8.12	15'	Paved	Commercial		36-2W-28-TL700	Cardmoore Properties et al	6366 Blackwell	None Observed	Paved apron to driveway. Driveway= gravel. Microwave tower site plus other users.	Private
5		B3	Blackwell	42.4093	-122.9451	R	-8.11	17'	Paved	Commercial		36-2W-28-TL800	Rock N Ready Mix Concrete LLC	6422 Blackwell	None Observed		Private
6		B4	Blackwell	42.4094	-122.9452	R	-8.10	10'	Paved	Residential		36-2W-28-TL800	Rock N Ready Mix Concrete LLC	6422 Blackwell	None Observed	Double entrance with B3.	Private
7		B25	Blackwell	42.4094	-122.9453	L	-8.10	17'	Paved Apron	Commercial		36-2W-28-TL2900	Hong Ernest C. et al	6467 Blackwell	None Observed		Private
8		B5	Blackwell	42.4097	-122.9453	R	-8.08	74'	Gravel	Residential		36-2W-28-TL900	Rock N Ready Mix Concrete LLC	6452 Blackwell	CMP	Acess to empty lot.	Private
9		B6	Blackwell	42.4100	-122.9454	R	-8.06	16'	Gravel	Residential		36-2W-28-TL900	Rock N Ready Mix Concrete LLC	6452 Blackwell	CMP	Acess to empty open space.	Private
10		B7	Blackwell	42.4102	-122.9455	R	-8.04	26'	Paved apron	Residential		36-2W-28-TL1000	Von Der Hellen Louise, et al	6200 Blackwell	None Observed	Gravel drive with culvert. Acess to multiple houses.	Private
11	y	B24	Blackwell	42.4102	-122.9457	L	-8.04	33'	Paved apron	Residential		36-2W-28-TL2800	Christianson Linda	6535 Blackwell	CMP	Access serves two residences.	Private
11	y	B24	Blackwell	42.4102	-122.9457	L	-8.04	33'	Paved apron	Residential		36-2W-28-TL2900	Hong Ernest C. et al	6467 Blackwell	CMP	Access serves two residences.	Private
12		B8	Blackwell	42.4105	-122.9456	R	-8.02	64'	Paved apron	Commercial		36-2W-28-TL1400	Robertson William J / Rebecca	6486 Blackwell	CMP	Jerry Robertson Body Works. 664-4500.	Private
13		B9	Blackwell	42.4108	-122.9457	R	-8.01	19'	Paved Apron	Residential		36-2W-28-TL1300	Rock N Ready Mix Concrete LLC	6508 Blackwell [Situs: 6480 Blackwell]	None Observed		Private
14		B10	Blackwell	42.4113	-122.9459	R	-7.97	15'	Paved Apron	Residential		36-2W-28-TL1600	Nieto Tony Living Trust	6554 Blackwell	None Observed	Single house.	Private
15		B23	Blackwell	42.4116	-122.9462	L	-7.94	15'	Paved apron	Residential		36-2W-28-TL2700	Brown Kenneth L	6577 Blackwell	CMP	6665 Blackwell+ 4	Private
16		B22	Blackwell	42.4125	-122.9469	L	-7.87	17'	Paved apron	Agricultural		36-2W-28-TL2700	Brown Kenneth L	6577 Blackwell	None Observed	second access to B21.	Private
17		B11	Blackwell	42.4126	-122.9468	R	-7.87	19'	Paved Apron	Residential		36-2W-28-TL2600	Jones Mathew D	6646 Blackwell	concrete	Serves four residents.	Private
18		B12	Blackwell	42.4128	-122.9471	R	-7.85	51'	Paved	Commercial		36-2W-28-TL1700	Rock N Ready Mix Concrete LLC	6774 Blackwell	CMP		Private
19		B21	Blackwell	42.4129	-122.9474	L	-7.83	78'	Paved apron	Agricultural		36-2W-28-TL2700	Brown Kenneth L	6577 Blackwell	CMP (2)	Agriculteral access. Found Bench Mark CMP #2.	Private
20		B13	Blackwell	42.4130	-122.9473	R	-7.83	21'	Paved	Commercial		36-2W-28-TL1700	Rock N Ready Mix Concrete LLC	6774 Blackwell	CMP	Abandoned mobile home.	Private
21	y	B20	Blackwell	42.4134	-122.9480	L	-7.78	15'	Paved apron	Residential		36-2W-28-TL2606	Walker Scott V / Joan M	6689 Blackwell	CMP	6807 Blackwell + 3 additional homes Central Point / County	Private
21	y	B20	Blackwell	42.4134	-122.9480	L	-7.78	15'	Paved apron	Residential		36-2W-28-TL2605	Tevis Julie	6753 Blackwell	CMP	6807 Blackwell + 3 additional homes Central Point / County	Private
21	y	B20	Blackwell	42.4134	-122.9480	L	-7.78	15'	Paved apron	Residential		36-2W-28-TL2603	Knauss Lee H / Clara A	6807 Blackwell	CMP	6807 Blackwell + 3 additional homes Central Point / County	Private
22		B14	Blackwell	42.4140	-122.9485	R	-7.74	65'	Paved Apron	Commercial		36-2W-28-TL1800	Rock N Ready Mix Concrete LLC	6960 Blackwell	None Observed	Gravel road w/ gate.	Private
23		B19	Blackwell	42.4140	-122.9487	L	-7.73	16'	Paved apron	Residential		36-2W-28-TL2601	Shaw Charles / Joyce C.	6825 Blackwell	Steel Pipe		Private
24		B18	Blackwell	42.4144	-122.9491	L	-7.70	12'	Paved apron	Residential		36-2W-28-TL2500	Burgess Vera J	6855 Blackwell	concrete		Private
25		B17	Blackwell	42.4150	-122.9500	L	-7.63	12'	Paved apron	Residential		36-2W-28-TL2400	Klein Dorthy M E	6887 Blackwell	concrete		Private
26		B16	Blackwell	42.4152	-122.9502	L	-7.61	12'	Paved	Residential		36-2W-28-TL2300	Mark Stanley	6955 Blackwell	concrete	Width taken at gate.	Private
27		B15	Blackwell	42.4155	-122.9503	R	-7.60	23'	Paved	Industrial		36-2W-28-TL1800	Rock N Ready Mix Concrete LLC	6960 Blackwell	None Observed	Plant entrance.We went to other side of the road at this 1/2 mile point and worked our way back to the start point.	Private
28		B40	Blackwell	42.4156	-122.9507	L	-7.58	11'	Paved Apron	Residential		36-2W-28-TL2300	Mark Stanley L	6955 Blackwell	concrete		Private
29		B28	Blackwell	42.4158	-122.9508	R	-7.57	26"	Paved apron	Residential		36-2W-28-TL1900	Rock N Ready Mix Concrete LLC	6966 Blackwell	concrete	This is the first point on the right side of the road after point B15. PPL 17/3. 6968 Blackwell Rd	Private
30		B39	Blackwell	42.4167	-122.9518	L	-7.49	15'	Paved Apron	Residential		36-2W-28-TL2200	Phillips Eddie L Barbara J	7017 Blackwell	concrete	7017 Blackwell Road	Private
31	y	B38	Blackwell	42.4175	-122.9525	L	-7.42	33'	Paved	Commercial		36-2W-28-TL2100	Desimome Michael S	7137 Bl;ackwell	concrete	Cross CreekTrucking/ Trading CO. Desimome Micheal S 7137 Blackwell Rd Central Point / County. Note Three records listed for this tax lot	Private
31	y	B38	Blackwell	42.4175	-122.9525	L	-7.42	33'	Paved	Commercial		36-2W-28-TL2000	Haught James R / Chelly D	7137 Blackwell	Concrete	Cross CreekTrucking/ Trading CO. Desimome Micheal S 7137 Blackwell Rd Central Point / County. Note Three records listed for this tax lot	Private
31	y	B38	Blackwell	42.4175	-122.9525	L	-7.42	33'	Paved	Commercial		36-2W-28-TL2001	Cater Eric D	7181 Blackwell	Concrete	Cross CreekTrucking/ Trading CO. Desimome Micheal S 7137 Blackwell Rd Central Point / County. Note Three records listed for this tax lot	Private
32		B37	Blackwell	42.4185	-122.9532	L	-7.34	15'	Paved apron	Residential		36-2W-21-TL1301	Lavell Laurel E / Jessica L	7215 Blackwell	concrete		Private
33		B29	Blackwell	42.4191	-122.9535	R	-7.31	14'	Paved apron	Agricultural		36-2W-21-TL1300	Savage Donald / Mary R	7256 Blackwell	CMP	Gate access to field.	Private
34		B30	Blackwell	42.4193	-122.9539	R	-7.29	35'	Paved apron	Industrial		36-2W-21-TL1300	Savage Donald / Mary R	7256 Blackwell	None Observed	Crater Sand and Gravel entrance. Also a residence on this access. Residence looks abandonded. 7252 Blackwell Road	Private
35		B31	Blackwell	42.4199	-122.9557	R	-7.19	12'	Paved apron	Agricultural		36-2W-21-TL1300	Savage Donald / Mary R	7256 Blackwell	concrete	Field access w/ concrete culvert. WOOD PILING WITH BARBED WIRE AT ACCESS POINT.	Private
36		B36	Blackwell	42.4199	-122.9562	L	-7.16	15'	Paved apron	Residential		36-2W-20-TL1800	Hodge Brent	7365 Blackwell	concrete	7365, 7381 Blackwell	Private
37		B32	Blackwell	42.4200	-122.9564	R	-7.15	15'	Paved apron	Residential		36-2W-21-TL1300	Savage Donald / Mary R	7256 Blackwell	None Observed	RUNDOWN PINK BUILDING WITH 2 OUT BUILDINGS. 7400 Blackwell Road	Private
38	y	B35	Blackwell	42.4201	-122.9576		-7.09			Residential		36-2W-20-TL1500	Hall Michael C Kelly	7461 Blackwell	None Observed	Acess through tax lot 1400 to residence at tax lot 1500.	Private
38	y	B35	Blackwell	42.4201	-122.9576	L	-7.09	200' +	Paved	Commercial		36-2W-20-TL1400	Nelson Richard C Trustee Nelson Family Trust	7457 Blackwell	None Observed	The pine tree market. There is a residential access on one side leading up to a home. 7461 , 7457 Blackwell Road	Private
39		B33	Blackwell	42.4202	-122.9576	R	-7.08	24'	Paved apron	Industrial		36-2W-21-TL1300	Savage Donald / Mary R	7256 Blackwell	None Observed	FENCED AREA. CAVEMAN FENCING.	Private
40		B34	Blackwell	42.4205	-122.9588	R	-7.02	24'	Paved	Road		n/a	n/a	n/a	None Observed	Kirtland Road Intersection. No tax lot information. At this point we moved to the other sid eof the road and continued to collect points back toward B14.	Public
41		K15	Kirtland	42.4213	-122.9589	L		31'	Paved apron	Industrial		36-2W-20-TL1300	McLininger/Sons Inc.	3770 Kirtland	None Observed	Knife River. No longer connected to OR 140	Private
42		K14	Kirtland	42.4217	-122.9589	L		15'	Dirt	See Comments		See Comments			None Observed	Utility access. No taxlot associated with this point. See Jackson County GIS… No longer connected to OR 140	Private
43		K13	Kirtland	42.4219	-122.9589	L			Railroad	Railroad		n/a	n/a	n/a	None Observed	Single track crossing Kirtland to point K1. No longer connected to OR 140	Private
44		K1	Kirtland	42.4219	-122.9588	R			Railroad	Railroad		n/a	n/a	n/a	CMP	Single track crossing Kirtland. No longer connected to OR 140	Private
45		K12	Kirtland	42.4221	-122.9589	L		20'	Paved	Unknown		36-2W-20-TL205	Rogue Aggregates Inc.	3750 Kirtland. [Situs: 7700 Gold Ray road]	None Observed	7 Records present, 5 are active. No longer connected to OR 140	Private
46		K11	Kirtland	42.4227	-122.9588	L		110 +	Paved	Industrial		36-2W-20-TL205	Rogue Aggregates Inc.	7700 Gold Ray Road	concrete	Knife River Quarry. 7 Records present, 5 are active. No longer connected to OR 140	Private
47		K2	Kirtland	42.4237	-122.9586	R	-6.79	32'	Paved Apron	Commercial		36-2W-21-1204	Savage Donald	3880 kirtland	None Observed	Morotcycle track facility entrance.	Private
48		K10	Kirtland	42.4255	-122.9586	L	-6.75	73'	paved apron	Industrial		36-2W-20-TL205	Rogue Aggregates Inc.	7700 Gold Ray Road	None Observed	Knife River Quarry. 7 Records present, 5 are active.	Private
49		K9	Kirtland	42.4272	-122.9565	L	-6.58	16'	paved apron	Agricultural		36-2W-20-TL100	Bear Creek Orchards Inc.	3660 Kirtland	None Observed	Gated access to Orchard.	Private
50		K3	Kirtland	42.4272	-122.9558	R	-6.50	19'	Paved Apron	Agricultural		36-2W-21-TL1203	Dept. of Fish and Wildlife	Blackwell Road	Black Plastic Culvert	Open field. Gas access panel at this point.	Private
51		K8	Kirtland	42.4275	-122.9544	L	-6.47	21'	paved apron	Commercial		36-2W-20-TL100	Bear Creek Orchards Inc.	3660 Kirtland	None Observed		Private
52		K7	Kirtland	42.4277	-122.9525	L	-6.36	14'	paved apron	Agricultural		36-2W-20-TL100	Bear Creek Orchards Inc.	3660 Kirtland	None Observed	Bridge access into orchard.	Private
53		K4	Kirtland	42.4279	-122.9468	R	-6.03	13'	Paved	Industrial		36-2W-21-TL1202	Rogue Valley Sewer Services, RVS	3200 Kirtland Road	None Observed	Dunn Pump Station.	Private
54	y	K6	Kirtland	42.4280	-122.9464	L	-6.03	48'	paved apron	Agricultural		36-2W-21-TL1100	Romkins, Janice Firth	3230 Kirtland	None Observed	Serves two access points that eventually combine into one road.	Private
54	y	K6	Kirtland	42.4280	-122.9464	L	-6.03	48'	paved apron	Agricultural		36-2W-21-TL1600	Bear Creek Orchards Inc.	3448 Kirtland	None Observed		Private
55		K5	Kirtland	42.4279	-122.9463	R	-6.00	25'	paved apron	Industrial		36-2W-21-TL1202	Rogue Valley Sewer Services, RVS	3200 Kirtland Road	None Observed	This was one mile point on right side. We crossed over to the other side of the road and began plotting points back toward the Blackwell intersection.	Private
56		K16	Kirtland	42.4280	-122.9444	R	-5.90	32'	Paved apron	Agricultural		36-2W-21-TL1201	Salyer Norman J	3033 Kirtland	CMP		Private
57		K51	Kirtland	42.4281	-122.9437	L	-5.88	16	Gravel	Agricultural		36-2W-21-TL1100	Tompkins Janice Firth	3230 Kirtland Road	CMP		Private
58		K17	Kirtland	42.4281	-122.9410	R	-5.72	42'	Paved apron	Industrial		36-2W-21-TL1201	Salyer Norman J	3033 Kirtland	CMP		Private

AccessID	Dup	GPSPoint	SectionNam	Latitude	Longitude	Side	Approx. MP	ExtgWidth	SurfaceTyp	PropertyUs	PermitNo	TRS_TL	Owner	Address	CulvertTyp	Comments	PrivPub
59		K50	Kirtland	42.4283	-122.9387	L	-5.61	22	Paved Apron	Residential		36-2W-21-TL1700	Kirtland Farms 600 LLC	2826 KIRTLAND	None Observed	2826	Private
60		K18	Kirtland	42.4282	-122.9386	R	-5.59	30'	Paved apron	Commercial		36-2W-21-TL1201	Salyer Norman J	3033 Kirtland	CMP		Private
61		K19	Kirtland	42.4283	-122.9382	R	-5.57	14'	Paved apron	Residential		36-2W-21-TL800	McMahan Albert C.	2795 Kirtland	None Observed		Private
62	y	K20	Kirtland	42.4283	-122.9364	R	-5.48	44'	Paved apron	Residential		36-2W-21-TL700	Scallon Philip H/Diane L	2695 Kirtland	CMP	One Access with Two Taxlots.	Private
62	y	K20	Kirtland	42.4283	-122.9364	R	-5.48	44'	Paved apron	Residential		36-2W-21-TL600	Scallon Philip H	2667 kirtland	None Observed	One Access with Two Taxlots.	Private
63		K21	Kirtland	42.4284	-122.9359	R	-5.45	22	Paved apron	Residential		36-2W-21-TL600	Scallon Phillip H	2667 Kirtland	CMP		Private
64		K22	Kirtland	42.4284	-122.9356	R	-5.43	33	Paved apron	Commercial		36-2W-21-TL500	McLane Industrial Park LLC	2639 Kirtland	CMP	One access for two driveways. 3 Records, 2 are active.	Private
65		K49	Kirtland	42.4285	-122.9355	L	-5.43	14	Paved Apron	Field		36-2W-21M-TL101	True-Mix Leasing Co.	7861 High Banks Road	CMP		Private
66		K23	Kirtland	42.4284	-122.9344	R	-5.37	24'	Paved	Road		n/a	n/a	n/a	None Observed	Intersection of highBanks Road	Public
67		K48	Kirtland	42.4285	-122.9344	L	-5.37	24	Paved	Road		n/a	n/a	n/a	None Observed	HIGHBANKS ROAD INTERSECTION WITH KIRTLAND	Public
68	y	K47	Kirtland	0.0000	0.0000		-5.09			?		36-2W-22-TL202	Lambert Thomas L	2236 Kirtland	CMP		Private
68	y	K47	Kirtland	42.4293	-122.9290	L	-5.09	18	Paved Apron	Industrial		26-2W-22-TL202	KRC Holding Inc.	2236 KIRTLAND	CMP		Private
69		K24	Kirtland	42.4297	-122.9258	R	-4.92	24'	Gravel	Agricultural		36-2W-22-TL290	Galpin C A	Kirtland Road	CMP		Private
70	y	K46	Kirtland	42.4300	0.0000		-4.85			Commercial		36-2W-22-TL201	KRC Holding Inc.	1858 KIRTLAND	CMP		Private
70	y	K46	Kirtland	42.4300	-122.9244	L	-4.85	40	Paved	Industrial		36-2W-22-TL203	KRC Holding Inc.	1858 KIRTLAND	CMP		Private
71		K25	Kirtland	42.4306	-122.9197	R	-4.60	16'	Paved	Agricultural		36-2W-22-TL600	Medford Ready Mix	Kirtland Road	None Observed	open field.	Private
72		K45	Kirtland	42.4315	-122.9149	L	-4.35	20	Paved Apron	Industrial		36-2W-22-TL100	Crater Sand/ Gravel Inc	Kirtland Road	CMP	ROCK PIT ENTRANCE. Agent: Inc., Southern Oregon Aggregate.	Private
73		K44	Kirtland	42.4318	-122.9130	L	-4.24	18	Paved Apron	Industrial		36-2W-23-TL101	White City Sanitary District	Kirtland Road	CMP	Water Treatment Facility.	Private
74		K26	Kirtland	42.4320	-122.9107	R	-4.13		Gravel	utility		36-2W-23-TL103	City of Medford	Kirtland Road	None Observed	Utility box access. 2 Records, Both are active. City of Medford (for both)	Private
75		K43	Kirtland	42.4322	-122.9100	L	-4.09	18	Paved Apron	Industrial		36-2W-23-TL101	White City Sanitary District	Kirtland Road	None Observed	WATER TREATMENT FACILITY.	Private
76		K27	Kirtland	42.4329	-122.9051	R	-3.84		Paved apron	Industrial		36-2W-23-TL102	Erickson Air-Crane LLC	3782 Kirtland [Situs: 1993 Kirtland Road]	CMP	Continuation of right side points above K16.	Private
77		K42	Kirtland	42.4331	-122.9048	L	-3.81	20	Paved	Industrial		36-2W-14-TL800	City of Medford	1100 Kirtland Road	CMP	CURB. 4 Records, 3 are active.	Private
78		K41	Kirtland	42.4332	-122.9039	L	-3.77	25	Paved	CITY PROP.		36-2W-14-TL800	City of Medford	1100 Kirtland Road	None Observed	VERNON THORPE WATER RECLAIMATION PROJECT. CURB ON ACCESS.	Private
79		K28	Kirtland	42.4332	-122.9033	R	-3.74	35'	Paved	road		n/a	n/a	n/a	None Observed	Antelope road intersection	Public
80		K40	Kirtland	42.4339	-122.9004	L	-3.58	26	Paved	Industrial		36-2W-14-TL800	City of Medford	1100 Kirtland Road	CMP	WASTE WATER TREATMENT FACILITY.	Private
81		K39	Kirtland	42.4342	-122.8986	L	-3.49	16	Paved Apron	Field		36-2W-14-TL800	City of Medford	1100 Kirtland Road	None Observed	WASTE WATER IRRIGATION SITE.	Private
82		K29	Kirtland	42.4341	-122.8985	R	-3.49	16'	Paved apron	Agricultural		36-2W-14-TL806	BOC Gropu Inc.	Kirtland Road	None Observed		Private
83		K38	Kirtland	42.4346	-122.8965	L	-3.37	16	Paved Apron	Field		36-2W-14-TL800	City of Medford	1100 Kirtland Road	CMP	4 Records, 3 are active.	Private
84		K30	Kirtland	42.4347	-122.8956	R	-3.33	18	Paved Apron	Agricultural		36-2W-14-TL804	Washington Water/Power Co.	Kirtland Road	CMP	Serves Several Taxlots.	Private
85		K31	Kirtland	42.4348	-122.8897	R	-3.03	41	Paved Apron	Commercial		36-2W-13-TL1400	State of Oregon/ Dept. of Fish and Wildlife	8001 Table rock Road	CMP	PART OF WEIGH STATION, EXIT.	Private
86		K32	Kirtland	42.4348	-122.8890	R	-2.99		Paved	road		n/a	n/a	n/a	None Observed	TABLEROCK INTERSECTION WITH KIRTLAND	Public
86	y	K37	Kirtland	0.0000	0.0000	L	-2.99		Paved	Road		n/a	n/a	n/a	None Observed	TABLEROCK INTERSECTION WITH KIRTLAND	Public
87		K36	Kirtland	42.4349	-122.8856	L	-2.82	18	Gravel	Agricultural		36-2W-13-TL1200	State of Oregon	Kirtland Road	None Observed	BOUNDARY TO DENMAN WILDLIFE AREA.	Private
88		K333	Kirtland	42.4348	-122.8834	R	-2.71		Paved	road		n/a	n/a	n/a	None Observed	PACIFIC AVENUE	Public
89		K34	Kirtland	42.4349	-122.8833	R	-2.70	22	Paved	Commercial		36-2W-13-TL1100	Carestream Health	8124 Pacific Avenue	None Observed	CURB ON ACCESS	Private
90		K35	Kirtland	42.4349	-122.8834	L	-2.71		Paved	road		n/a	n/a	n/a	None Observed	PACIFIC AVENUE INTERSECTION WITH KIRTLAND	Public
91	y	P2	Pacific	42.4361	-122.8833	R	-2.62	24	Paved	Commercial		36-2W-13-TL1300	Carestream Health	8124 Pacific Ave	Black Plastic Culvert		Private
91	y	P2	Pacific	42.4361	-122.8833	R	-2.62	24	Paved	Commercial		36-2W13TL1100	Carestream Health	8124 Pacific Ave	None Observed	Parking lot gate	Private
92		G23	Avenue G	42.4373	-122.8833	L	-2.55	12	Dirt	Field		36-2W-13-TL1200	State of Oregon	Kirtland Road	None Observed	ACCESS IS ON PACIFIC AND G AVENUE INTERSECTION OFF THE ROAD ON SHARP CORNER. State of Oregon.	Private
93		G22	Avenue G	42.4373	-122.8826	L	-2.51	30	Paved	Commercial		36-2W-13-TL1203	Lallo Ralph R.	875 G AVENUE	CMP	CURB ON ACCESS. STORE (EXTREME PAINTING).	Private
94		G21	Avenue G	42.4373	-122.8817	L	-2.46	46	Gravel	Field		36-2W-13-TL1205	Lallo Ralph R.		CMP		Private
95		G1	Avenue G	42.4372	-122.8809	R	-2.43	55	Gravel	Field		36-2W-13-TL1100	Carestream Health	8124 Pacific Ave	concrete	ONE ACCESS, TWO DRIVEWAYS. CONCRETE CULVERT FOR EACH DRIVEWAY.	Private
96		G20	Avenue G	42.4373	-122.8806	L	-2.41	12	Gravel	Field		36-2W-13-TL1204 et al		Pacific Avenue	concrete		Private
97		G2	Avenue G	42.4372	-122.8789	R	-2.32	27	Paved	Commercial		36-2W-13-TL1100	Carestream Health	8124 Pacific Ave	None Observed	CARE-STREAM SHIPPING AND RECEIVING ACCESS.	Private
98		G19	Avenue G	42.4370	-122.8743	L	-2.08	25	Paved Apron	Field		36-1W-18-TL103	Burrill Resources LLC. CMS and G Inc.	Avenue G	CMP in Concrete Structure/Housing		Private
99		G3	Avenue G	42.4369	-122.8739	R	-2.06	25	Gravel	Commercial		36-1W-18-TL219	Certainteed Corporation	1200 Avenue G	None Observed		Private
100		G4	Avenue G	42.4369	-122.8717	R	-1.95	33	Paved	Road		n/a	n/a	n/a	None Observed	5TH STREET INTERSECTION WITH G AVENUE	Public
101		G5	Avenue G	42.4369	-122.8700	R	-1.86	33	Paved	Commercial		36-1W-18-TL227	Oberlander James R.	1316 G AVENUE	concrete	CURB ON ACCESS.	Private
102		G6	Avenue G	42.4369	-122.8690	R	-1.82	52	Paved	Commercial		36-1W-18-TL228	Big Boy Maxi Storage LLC	1400 Avenue G	CMP	CURB AT BACK OF ACCESS. .	Private
103		G7	Avenue G	42.4369	-122.8667	R	-1.70	45	Paved	Commercial		36-1W-18-TL200	Timber Products Company	1550 Avenue G	None Observed	TIMBER PRODUCTS COMPANY.	Private
104		G8	Avenue G	42.4369	-122.8656	R	-1.64	33	Paved	Road		n/a	n/a	n/a	None Observed	8TH STREET INTERSECTION WITH G AVENUE	Public
105		G9	Avenue G	42.4369	-122.8640	R	-1.56	38	Gravel	Commercial		36-1W-18D-TL900	Antelope Acquisitions	1601 G AVENUE	Black Plastic Culvert		Private
106		G10	Avenue G	42.4369	-122.8633	R	-1.52	26	Gravel	Commercial		36-1W-18D-TL900	Antelope Acquisitions	1601 G AVENUE	None Observed	Limited Partnership.	Private
107		G18	Avenue G	42.4370	-122.8631	L	-1.51	20	Gravel	Field		36-1W-18D-TL800	Burrill Resources LLC	1655 Avenue G	CMP in Concrete Structure/Housing		Private
108		G11	Avenue G	42.4369	-122.8599	R	-1.35	430	Paved	Commercial		36-1W-18D-TL1000	Davis George A	1790 G AVENUE	None Observed	DAVIS FINISH PRODUCTS.	Private
109		G17	Avenue G	42.4370	-122.8591	L	-1.31	10	Gravel	Field		36-1W-18D-TL700	Burrill Resources LLC	Avenue G	CMP in Concrete Structure/Housing		Private
110		G16	Avenue G	42.4370	-122.8590	L	-1.30	n/a	Railroad	Railroad		n/a	n/a	n/a	None Observed	SINGLE TRACK. APPEARS TO BE ABANDONED AS TRACK SECTION IS REMOVED.	Private
111		G12	Avenue G	42.4369	-122.8590	R	-1.30		Railroad	Railroad		n/a	n	n/a	None Observed	SINGLE TRACK. APPEARS TO BE ABANDONED AS TRACK SECTION IS REMOVED.	Private
112		G13	Avenue G	42.4368	-122.8588	R	-1.29	24	Paved	Road		n/a	n/a	n/a	None Observed	11TH STREET INTERSECTION WITH G AVENUE	Public
113		G15	Avenue G	42.4370	-122.8588	L	-1.29	24	Paved	Road		n/a	n/a	n/a	CMP in Concrete Structure/Housing	11TH STREET INTERSECTION WITH G AVENUE.	Public
114		G14	Avenue G	42.4370	-122.8572	L	-1.22	80	Paved	Commercial		36-1W-18D-TL200	Jackson County Fire District #3	8333 Agate Road	None Observed	CURB ON ACCESS. FIRE STATION. ONE ACCESS FOR TWO DRIVEWAYS.	Private
115		A23	Agate Road	42.4366	-122.8560	L	-1.14	40	Paved	Commercial		36-1W-17CC-TL1400	Southern Oregon Holdings	8250 AGATE	concrete	PANEL PRODUCTS MAIN OFFICE ON CORNER OF AVENUE G AND AGATE.	Private
116		A22	Agate Road	42.4362	-122.8560	L	-1.11	83	Paved	Commercial		36-1W-17CC-TL1400	Southern Oregon Holdings	8250 Agate	concrete	OPPOSITE FROM PPL 14/10.	Private
117		A1	Agate Road	42.4361	-122.8561	R	-1.10	36	Gravel	Commercial		36-1W-18D-TL1200	Royal Oak Enterprises	7997 Agate Road	concrete		Private
118		A2	Agate Road	42.4349	-122.8561	R	-1.02	210	Paved	Commercial		36-1W-18D-TL1200	Royal Oak Enterprises	7997 Agate Road	None Observed	OLD WAREHOUSE ON SITE.	Private
119		A21	Agate Road	42.4346	-122.8559	L	-1.00	100	Paved	Commercial		36-1W-17CC-TL1400	Southern Oregon Holdings	8250 Agate	None Observed	OPPOSITE FROM PPL 12/10.	Private
120		A3	Agate Road	42.4342	-122.8561	R	-0.97	25	Paved	Commercial		36-1W-18D-TL1200	Royal Oak Enterprises	7997 Agate Road	concrete		Private
121		A4	Agate Road	42.4338	-122.8561	R	-0.95	25	Paved Apron	Commercial		36-1W-18D-TL1300	Henry Stephen T/Kathleen M	7975 AGATE	None Observed	PROPERTY FOR SALE. .41 ACRES. 541-821-4605.	Private
122		A20	Agate Road	42.4337	-122.8559	L	-0.94		Railroad	Railroad		n/a	n/a	n/a	None Observed	SINGLE TRACK.	Private
123		A5	Agate Road	42.4336	-122.8561	R	-0.93		Railroad	Commercial		n/a	n/a	n/a	None Observed	SINGLE TRACK	Private
124		A19	Agate Road	42.4336	-122.8559	L	-0.93	33	Paved	Industrial		36-1W-17C-TL1200	Royal Oak Enterprises	7930 Agate Road	None Observed	NEXT TO RAILROAD CROSSING.	Private
125		A18	Agate Road	42.4329	-122.8559	L	-0.89	35	Paved	Industrial		36-1W-17C-TL1200	Royal Oak Enterprises	7930 AGATE	concrete	PPL B19978.	Private
126	y	A6	Agate Road	42.4327	-122.8561	R	-0.87	30	Paved	Commercial		36-1W-19A-TL100	Gros Eugene w/Deborah D	7905 AGATE	CMP	2 Records both are active.	Private
126	y	A6	Agate Road	42.4327	-122.8561	R	-0.87	30	Paved	Commercial		36-1W-19A-TL100A1	AT&T Wireless Services		None Observed	AT&T Wireless Services.	Private
127		A17	Agate Road	42.4323	-122.8559	L	-0.85	20	Paved	Industrial		36-1W-17C-TL1200	Royal Oak Enterprises	7930 Agate Road	concrete		Private

AccessID	Dup	GPSPoint	SectionNam	Latitude	Longitude	Side	Approx. MP	ExtgWidth	SurfaceTyp	PropertyUs	PermitNo	TRS_TL	Owner	Address	CulvertTyp	Comments	PrivPub
128		A16	Agate Road	42.4320	-122.8559	L	-0.82	45	Paved	Industrial		36-1W-20B-TL900	Boise Building solutions Manufacturing LLC	1795 Antelope Road	concrete	Boise Cascade Property.	Private
129		A7	Agate Road	42.4318	-122.8561	R	-0.81	29	Paved	Commercial		36-1W-19A-TL2202	Antelope Agate LLC	7675 AGATE [Situs: 81 Pine Ct. Eagle Point]	concrete	Agent: Kimmel Howard J.	Private
130		A8	Agate Road	42.4311	-122.8561	R	-0.76	28	Paved	Commercial		36-1W-19A-TL2202	Antelope Agate LLC	7675 AGATE [Situs: 81 Pine Ct. Eagle Point]	CMP	Agent: Kimmel Howard J.	Private
131		A15	Agate Road	42.4279	-122.8559	L	-0.54	31	Paved	Industrial		36-1W-20B-TL900	Boise Building solutions Manufacturing LLC	1795 Antelope Road	None Observed	Boise Cascade property. Curb on the frontage road and not the access. Gate is currently for exit purposes only. Gate 5.	Private
132		A9	Agate Road	42.4273	-122.8561	R	-0.50		Paved	Road		n/a	n/a		None Observed	ANTELOPE ROAD INTERSECTION WITH AGATE	Public
133		A14	Agate Road	42.4273	-122.8559	L	-0.50		Paved	Road		n/a	n/a	n/a	None Observed	ANTELOPE ROAD INTERECTION WITH AGATE	Public
134		A10	Agate Road	42.4264	-122.8560	R	-0.43	58	Paved	Commercial		36-1W-19A-TL2301	Plumley Properties LLC	7189 AGATE	None Observed	SIDEWALK ALONG FRONTAGE ROAD.	Private
135		A13	Agate Road	42.4256	-122.8559	L	-0.37	23	Paved	Commercial		36-1W-20BC-TL1000 et al	McLean Terry S, et al		Concrete (2)		Private
136		A11	Agate Road	42.4256	-122.8560	R	-0.37	38	Paved Apron	Commercial		36-1W-19-TL300	State of Oregon	Avenue B	None Observed		Private
137		A12	Agate Road	42.4236	-122.8560	R	-0.23	15	Gravel	Commercial		36-1W-19-TL 300	State of Oregon	Avenue B	None Observed	ACCESS TO NATURE TRAIL.	Private
138		L3	Leigh Way	42.4233	-122.8536	L	-0.09	35	Paved	Commercial		36-1W-20CBTL400	Brookside Inn Inc.	2020 Leigh Way	CMP	Curb at rear. La Quinta hotel.	Private
139		L1	Leigh Way	42.4232	-122.8535	R	-0.09	35	Paved	Commercial		36-1W-20CTL1800	S & M Tyrholm Invest Co.	7303 Hwy 62 Eagle Point	None Observed	Curb Big R entrance.	Private
140		L2	Leigh Way	42.4233	-122.8526	L	-0.04	35	Paved	Commercial		36-1W-20CBTL400	Sargent Wayne H/Gloria J	7405 Hwy 62	CMP	Curb. Cascade Shopping Center. Apple Peddler plus more businesses.	Private
141		H-1	ext hwy 140	42.4232	-122.8497	R	0.10	41'	Paved	Commercial		36-1W-20CA-TL1400	Root James M Trustee FBO et al	Situs: 7303 Merry Ln Eagle Point/ county	CMP	Shopping center entrance by Dollar Tree	Private
142		H-137	ext hwy 140	42.4231	-122.8313	L	1.03	36'	Paved	road		n/a	n/a	n/a	None Observed	Lakeview Road intersection	Public
143		H-2	ext hwy 140	42.4230	-122.8313	R	1.03	31'	Paved	road		n/a	n/a	n/a	None Observed	Lake View Drive intersection	Public
144		H-136	ext hwy 140	42.4239	-122.8070	L	2.29	30'	Paved	road		n/a	n/a	n/a	concrete	Kershaw Road intersection	Public
145		H-3	ext hwy 140	42.4237	-122.8070	R	2.29	38'	Paved	road		n/a	n/a	n/a	concrete	Kershaw Road	Public
146		H-4	ext hwy 140	42.4242	-122.8045	R	2.42	15'	Gravel	Agricultural		36-1W-22D-TL400	Grissom Donald Trust Grissom Deloris L Trustee FBO	Situs: Hwy 140 Eagle Point / County	None Observed	field access. Gate next to water ditch	Private
147		H-135	ext hwy 140	42.4243	-122.8044	L	2.43	12'	Gravel	Agricultural		36-1W-22D-TL200	Burril Rodney W Et al	Situs: 7466 Kernshaw Rd White City	None Observed	Left of water ditch field access w/ gate	Private
148		H-134	ext hwy 140	42.4245	-122.8033	L	2.48	18'	Paved Apron	Commercial		36-1W-22D-TL200	Burril Rodney W Et al	Situs: 7466 Kernshaw Rd White City	CMP	Field access w/ gate . Looks commercial. Concrete pieces	Private
149		H-5	ext hwy 140	42.4245	-122.8023	R	2.53	18'	Paved Apron	Agricultural		36-1W-22D-TL100	Grissom Donald Trust Grissom Deloris L Trustee FBO	Situs: Hwy 140 Eagle Point / County	CMP	Field access. Gate and temp metal cow holding pens	Private
150		H-6	ext hwy 140	42.4246	-122.8022	R	2.54			See Comments		n/a	n/a	n/a	None Observed	SHRW 65 230+00 Adjacent to H-5	Private
151		H-7	ext hwy 140	42.4250	-122.8002	R	2.65	17'	Paved	Commercial		n/a			None Observed	weigh sta entrance	Private
152		H-8	ext hwy 140	42.4255	-122.7976	R	2.79	17'	Paved	Commercial		n/a			None Observed	weigh sta exit	Private
153		H-133	ext hwy 140	42.4258	-122.7970	L	2.82	15'	Paved Apron	Commercial		36-1W-23-TL500	Betts Ronald M	4860 Antelope Road Eagle Point / County	None Observed	field access w/ gate to rear of junky business	Private
154		H-9	ext hwy 140	42.4257	-122.7969	R	2.83	25'	Paved	Commercial		36-1W-23-TL117	Weaver Curtis D / Sandra J Et al LTM Incorp	situs: Hwy 140 Eagle Point/ County	concrete	Knife River entrance	Private
155		H-9	ext hwy 140	42.4257	-122.7969	R	2.83	25'	Paved	Commercial	18008? (u-permit)	36-1W-23-TL118	Weaver Curtis D / Sandra J Et al LTM Incorp	situs: Hwy 140 Eagle Point/ County	None Observed	Knife River entrance	Private
156		H-132	ext hwy 140	42.4265	-122.7930	L	3.03	12'	Paved Apron	Agricultural		36-1W-23-TL200	Perry James E / Claudia J	Antelope Road Eagle Point / County	None Observed	Field access w/ gate to righ tof water ditch. Looks closed	Private
157		H-10	ext hwy 140	42.4264	-122.7928	R	3.04	11'	Paved Apron	Agricultural		36-1W-23-TL119	Cochran James A / Tamara L	Situs: 500 Antelope Rd Eagle Point / county	None Observed	field entrance. Gate. Next to water ditch	Private
158		H-11	ext hwy 140	42.4285	-122.7823	R	3.59	33'	Paved	road		n/a	n/a	n/a	CMP	E Antelope Road intersection	Public
159		H-131	ext hwy 140	42.4286	-122.7823	L	3.59	33'	Paved	road		n/a	n/a	n/a	CMP	Riley Road intesection	Public
160		H-130	ext hwy 140	42.4292	-122.7791	L	3.76	18'	Paved Apron	Agricultural		36-1W-23-TL107	Hong Fang Yen et al	Riley Road Eagle Point/County	CMP	Field access w/ gate	Private
161		H-12	ext hwy 140	42.4291	-122.7791	R	3.76	15'	Paved Apron	Agricultural		36-1W-23-TL105	Perry James	Situs: Kershaw Rd Eagle Point / County	CMP	Field access w/ gate	Private
162		H-13	ext hwy 140	42.4294	-122.7774	R	3.85	15'	Paved Apron	Agricultural		n/a	n/a	n/a	CMP	Field access w/ gate. Appears to be some type of easement or road cooridor	Private
163		H-129	ext hwy 140	42.4295	-122.7773	L	3.85	18'	Paved Apron	Agricultural		36-1W-24-TL200	Pingle Morley H Trustee et al	Hwy 140 Eagle Point/County	CMP	field access w/ gate	Private
164		H-128	ext hwy 140	42.4300	-122.7749	L	3.98	15'	Paved Apron	Agricultural		36-1W-24-TL200	Pingle Morley H Trustee et al	Hwy 140 Eagle Point/County	CMP	Field access w/ gate	Private
165		H-14	ext hwy 140	42.4299	-122.7747	R	3.99	15'	Paved Apron	Agricultural		36-1W-24-TL203	Pringle Family Trust, Atkinson Morlene Trustee	Situs: Antelope Road E Eagle Point / County	None Observed	Field access w/ gate	Private
166		H-127	ext hwy 140	42.4304	-122.7726	L	4.10	18'	Paved Apron	Agricultural		36-1W-24-TL200	Pingle Morley H Trustee et al	Hwy 140 Eagle Point/County	CMP	Field access w/ gate	Private
167		H-15	ext hwy 140	42.4303	-122.7726	R	4.10	15'	Paved Apron	Agricultural		36-1W-24-TL203	Pringle Family Trust, Atkinson Morlene Trustee	Situs: Antelope Road E Eagle Point / County	CMP	Field access w/ gate and wooden cattle loading pen	Private
168		H-16	ext hwy 140	42.4324	-122.7654	R	4.50	15'	Paved Apron	Agricultural		36-1W-24-TL203	Pringle Family Trust, Atkinson Morlene Trustee	Situs: Antelope Road E Eagle Point / County	None Observed	Field access w/ gate	Private
169		H-126	ext hwy 140	42.4327	-122.7653	L	4.51	18'	Paved Apron	Agricultural		36-1W-13-TL900	Mercer Carole L	Alta Vista Rd Eagle Point/County	CMP	Field access w/ gate	Private
170		H-17	ext hwy 140	42.4341	-122.7629	R	4.67	18'	Paved Apron	Residential		36-1W-13-TL1002	Strom Living Trust Strom Carolyn L Trustee FBO	Situs: 4810 Eagle Point / County	CMP	4180	Private
171		H-18	ext hwy 140	42.4342	-122.7627	R	4.69	18'	Paved	Residential		36-1W-13-TL1100	Irish John A	Situs: 4888 Hyw 140 Eagle Point / County	CMP	wood fencing	Private
172		H-125	ext hwy 140	42.4344	-122.7626	L	4.69	18'	Paved Apron	Agricultural	27302 (u-permit)	36-1W-13-TL1001	Wilson Steven G et al	1185 Meridian Road Eagle Point/ Country	CMP	Field access w/ gate	Private
173		H-124	ext hwy 140	42.4346	-122.7624	L	4.71	18'	Paved	Residential		36-1W-13-TL1101	Hurd Jeffrey W/Diane E	4909 Hwy 140 Eagle Point/County	CMP	4909	Private
174		H-19	ext hwy 140	42.4375	-122.7577	R	5.03	28'	Paved	road		n/a	n/a	n/a	None Observed	Meridian Road	Public
175		H-123	ext hwy 140	42.4377	-122.7576	L	5.03	49'	Paved	road		n/a	n/a	n/a	None Observed	Meridian Road Intersection	Public
176		H-122	ext hwy 140	42.4385	-122.7564	L	5.11	18'	Paved Apron	Agricultural		36-1E-18-TL802	Carter Neil F/Katherine C	1330 Meridian Rd Eagle Point/County	CMP	field access w/ gate	Private
177		H-20	ext hwy 140	42.4384	-122.7563	R	5.13	18'	Paved Apron	Agricultural		36-1E-18-TL901	Antelope Ranch LLC	Situs: Hwy 140 Eagle Point / County	CMP	field access w/ gate	Private
178		H-121	ext hwy 140	42.4401	-122.7539	L	5.29	18'	Paved Apron	Residential	35275 (u-permit)	36-1E-18-TL800	Costelow Albert J/La Quita	5871 Hwy 140 Eagle Point/County	CMP	5851	Private
179		H-21	ext hwy 140	42.4400	-122.7538	R	5.30	18'	Paved Apron	Agricultural		36-1E-18-TL900	Triple Springs Ranch	5972 Hwy 140 Eagle Point / County	CMP	field access w/ gate	Private
180		H-22	ext hwy 140	42.4430	-122.7492	R	5.60	22'	Paved Apron	Agricultural	23061 (u-permit)	36-1E-18-TL100	Triple S MT Horse Ranch LLC	Situs: 6210 Hwy 140 Eagle Point / County	CMP	Triples Ranch. 6000,6210,6222, 5972	Private
181		H-120	ext hwy 140	42.4438	-122.7482	L	5.68	15'	Paved Apron	Agricultural		36-1E-18-TL202	Boyd Laurie et al	Hwy 140 Eagle Point/County	None Observed	fiels access w/ gate	Private
182		H-23	ext hwy 140	42.4438	-122.7479	R	5.70	14'	Paved Apron	Agricultural		36-1E-18-TL100	Triple S MT Horse Ranch LLC	Situs: 6210 Hwy 140 Eagle Point / County	CMP	Field access @ Triples Ranch	Private
183		H-119	ext hwy 140	42.4458	-122.7452	L	5.88	18'	Paved Apron	Residential	35482 (u-permit)	36-1E-18-TL201	Roberts James D/Woodra A	6261 Hwy 140 Eagle Point/County	CMP	6261	Private
184 y		H-118	ext hwy 140	42.4468	-122.7436	L	6.00	18'	Paved Apron	Residential		36-1E-07-TL1601	Scott Norman E/Marcia L	6273 Hwy 140 Eagle Point/County	None Observed	6273	Private
184 y		H-118	ext hwy 140	42.4468	-122.7436	L	6.00	18'	Paved Apron	Residential		36-1E-07-TL1601	Scott Marcia Lynne et al	6273 Hwy 140 Eagle Point/County	None Observed	6273	Private
185		H-24	ext hwy 140	42.4467	-122.7434	R	6.00	16'	Paved	Residential		36-1E-07-TL1800	Dulany Steve Trustee Dulany Trust	Situs: 6310 Hwy 140 Eagle Point / County	CMP	6250 mile marker 6. serves several residences	Private
186		H-117	ext hwy 140	42.4501	-122.7385	L	6.34	15'	Paved Apron	Residential		36-1E-07-TL1600	Clement Shelly M et al	6525 Hwy 140 Eagle Point/ County	CMP	6525	Private
187		H-25	ext hwy 140	42.4505	-122.7376	R	6.39	34'	Paved	Residential		36-1E-08-TL700	Kendle Susan L in Trust Stanley Eugene D	Situs: Hwy 140 Eagle Point / County	cattle guard	6540	Private
188		H-116	ext hwy 140	42.4514	-122.7366	L	6.48	15'	Paved Apron	Agricultural		36-1E-08-TL603	Waterhouse A C Jr/Sharon L	Hwy 140 Eagle Point/County	CMP	Field access w/ chain	Private
189		H-26	ext hwy 140	42.4540	-122.7324	R	6.76	18'	Paved Apron	Residential		36-1E-08-TL605	Smith Debora P	Situs: 7050 Hwy 140 Eagle Point / County	CMP	MTL gate	Private
190		H-115	ext hwy 140	42.4543	-122.7323	L	6.78	15'	Paved	Commercial		36-1E-08-TL600	Medford Oaks RV Resort Inc	7049 Hwy 140 Eagle Point/ County	CMP	Medford Oaks RV Park 7049	Private
191		H-27	ext hwy 140	42.4567	-122.7298	R	6.99	12'	Paved	Residential		36-1E-08-TL501	Gilman William F / Cindy L	Situs: 7102 Hwy 140 Eagle Point / county	None Observed	7102. Hay pole barn close to raod	Private
192 y		H-28	ext hwy 140	42.4586	-122.7280	R	7.15	12'	Paved Apron	Residential		36-1E-08-TL100	Payne H Ray / Erma J	Situs: 7642 Hwy 140 Eagle Point / County	None Observed	7490	Private
192 y		H-28	ext hwy 140	42.4620	-122.7248	R	7.15	12'	Paved Apron	Residential		36-1E-08-TL400	Perkins Denver B / Winona M	Situs: 7490 Hwy 140 Eagle Point / County	None Observed		Private
193		H-114	ext hwy 140	42.4617	-122.7253	L	7.41	30'	Paved	road		n/a	n/a	n/a	None Observed	Meridian Road intersection	Public
194		H-113	ext hwy 140	42.4681	-122.7178	L	7.98	49'	Paved	road		n/a	n/a	n/a	None Observed	Intersection to Eagle Point and Brownsboro	Public
195		H-29	ext hwy 140	42.4680	-122.7178	R	7.98	27'	Paved	road		n/a	n/a	n/a	None Observed	Meridian Road intersection and multi family access	Private
196 y		H-30	ext hwy 140	42.4680	-122.7178	R		21'	Paved	Road		36-1E-04-TL601	Oregon State of	Situs: Hwy 140 Eagle Point / County	None Observed	Road ends 50 yards from 140	Public
196 y		H-30	ext hwy 140	42.4680	-122.7178	R		21'	Paved	Road		36-1E-05-TL1300	Oregon State of	Situs: Hwy 140 Eagle Point / County	None Observed	Road ends 50 yards from 140	Public
197		H-112	ext hwy 140	42.4683	-122.7164	L		21'	Paved Apron	Commercial		36-1E-04-TL900	Frazier Billy S/Julia	5325 Brownsboro Hwy Eagle Point/County	CMP	Brownsboro Excavating Inc.	Private
198		H-31	ext hwy 140	42.4682	-122.7158	R		12'	Paved Apron	Agricultural		36-1E04-TL801	Craig Bob F / Alma Kay	Situs: 8585 Hwy 140 Eagle Point / County	CMP	Just past mile marker 8. Field access w/ gate. Fire wood piles.	Private
199		H-111	ext hwy 140	42.4684	-122.7155	L		15'	Paved Apron	Residential		36-1E-04-TL400	Hansen Margaret J Trustee	8575 Hwy 140 Eagle Point/ County	CMP	8575	Private
200		H-32	ext hwy 140	42.4682	-122.7146	R		12'	Paved Apron	Agricultural		36-1E-04-TL801	Craig Bob F / Alma Kay	Situs: 8585 Hwy 140 Eagle Point / County	CMP	metal gate to barn	Private
201		H-110	ext hwy 140	42.4684	-122.7144	L		15'	Paved Apron	Agricultural		36-1E-04-TL801	Craig Bob F/Alma Kay et al	8585 Hwy 140 Eagle Point/County	CMP	Emu pens w/ domed shelters	Private
202		H-33	ext hwy 140	42.4682	-122.7142	R		12'	Paved Apron	Agricultural		36-1E-04-TL801	Craig Bob F / Alma Kay	Situs: 8585 Hwy 140 Eagle Point / County	CMP	gate access to barn and Emu pens	Private
203		H-109	ext hwy 140	42.4684	-122.7141	L		18'	Paved Apron	Agricultural		36-1E-04-TL801	Craig Bob F/Alma Kay et al	8585 Hwy 140 Eagle Point/County	CMP	8577, 8585 Emu pens	Private
204		H-108	ext hwy 140	42.4684	-122.7133	L		18'	Paved Apron	Agricultural		36-1E-04-TL700	Cook Thomas W et al	8633 Hwy 140 Eagle Point/ County	CMP	Exit to circular drive for H-107 plus access to rear of property	Private

OR 140 Corridor Plan:
I-5 Exit 35 to Brownsboro–Eagle Point Road

Technical Memorandum #9:
Public Involvement Summary

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 97201

March 2013

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Note: When viewing an electronic version of this document, items in the Table of Contents are hyperlinks that will direct you to the specified material. References to figures, tables, and appendices are also hyperlinks that will direct you to the specified material.

9. PUBLIC INVOLVEMENT SUMMARY

The public involvement process for OR 140 included a Technical Advisory Committee (TAC), a Citizen Advisory Committee (CAC), and general public outreach.

9.1. Technical Advisory Committee

The TAC provided technical and policy guidance and will serve as the primary body making recommendations about the project. The committee was composed primarily of ODOT and local jurisdiction staff.

Five TAC meetings were held during development of the OR 140 Corridor Plan. Meetings were held on the following dates:

1. June 16th, 2011 – Topic: Introduction and Existing Deficiencies
2. July 28th, 2011 – Topic: Future Deficiencies and Alternatives Development
3. November 17th, 2011 – Topic: Alternatives Evaluation
4. June 6th, 2012 – Topic: Preferred Alternative and Access Management
5. November 6th, 2012 – Topic: Draft Corridor Plan

9.2. Citizen Advisory Committee

The CAC provided stakeholder input and offer recommendations to the TAC. The committee was composed of interested citizens, property owners, business representatives, and other stakeholders along the corridor.

Five CAC meetings were held during development of the OR 140 Corridor Plan. Meetings were held on the following dates:

1. July 16th, 2011 – Topic: Introduction and Existing Deficiencies
2. July 28th, 2011 – Topic: Future Deficiencies and Alternatives Development
3. November 16th, 2011 – Topic: Alternatives Evaluation
4. June 6th, 2012 – Topic: Preferred Alternative and Access Management
5. November 5th, 2012 – Topic: Draft Corridor Plan

9.3. General Public Outreach

General public outreach included web-accessible materials and three public open houses.

9.3.1. Website

ODOT project documents (technical memoranda and reports) were posted on the ODOT Region 3 website (http://www.oregon.gov/ODOT/HWY/REGION3/pages/index.aspx) for public access.

9.3.2. Public Open Houses

Public open houses were held as informational exchanges where staff and consultant present and explain project information and the general public could provide input and comment on issues and concerns of importance to them.

Three (3) public open houses were held during development of the OR 140 Corridor Plan. Open houses were advertised in local English and Spanish media outlets (i.e. radio and newspaper display ads and news releases), direct mailing to property owners abutting the corridor, and the ODOT website. The open house public presentations were held on the following dates:

1. July 27th, 2011 – Topic: Existing and Future Deficiencies
2. November 16th, 2011 – Topic: Alternatives Evaluation
3. November 5th, 2012 – Topic: Draft Corridor Plan

A Spanish language interpreter was present at all three (3) open houses. Additional services were used at the third open house on November 5th, 2012.

9.3.3. Access Management Outreach

The following describes how the OR 140 Corridor Plan meets the provisions outlined in Senate Bill 408 - Section 4. The bill set forth requirements for facility plans and access management strategies developed for highway improvement or modernization projects, including:

1. A methodology that balances the economic development objectives of properties abutting state highways with the transportation safety and access management objectives of state highways, in a manner consistent with Jackson County's transportation system plan and land uses permitted in the County comprehensive plan.
2. A collaborative discussion and agreement between ODOT and Jackson County to identify and document the location of County roads intersecting the state highway within the project area.
3. Key principles to evaluate how properties abutting a state highway may retain or obtain access to the state highway during and after plan implementation.
4. A methodology to weigh the benefits of a highway improvement or modernization project to public safety and mobility against a) Jackson County's TSP and the land uses permitted in the County's Comprehensive Plan and b) the economic development objectives of affected real property owners who require access to a state highway.
5. Key principles for modifying, relocating or closing existing private approaches with a level of detail sufficient to inform affected real property owners of the potential for the modification, relocation or closure of existing private approaches within the plan's study area.
6. A timeline by which the plan may need to be implemented in order to meet the safety and operational needs of the state highway.

7. A long term safety and operational needs for the state highway and for all intersecting highways, roads or streets based on an engineering analysis conducted by a traffic engineer.
8. Send notice of the key principles to Jackson County and affected real property owners by first class mail for review and comment, and adopt the key principles twenty (20) days after the date ODOT sends written notice.

Notification and Involvement

This corridor plan met the spirit and intent of SB 408 in making sure that affected property owners and Jackson County were aware of the planning concepts and any implications to private accesses or local street connections. Several property owners were members of the Citizen Advisory Committee (CAC) and others participated in the public open houses. Jackson County staffs were members of the Technical Advisory Committee (TAC) and attended the public open houses. Additionally, ODOT staff sent a direct mailing to all property owners abutting the highway inviting them to the public open house and advising them that the recommended planning concepts may impact their access to the highway including, but limited to, closure, consolidation or realignment.

Public input and involvement was critical to the success of the corridor plan. The OR 140 TAC and CAC developed a methodology to balance the economic development objectives of properties abutting state highways with the transportation safety and access management objectives of state highways, in a manner consistent with Jackson County's transportation system plan and land uses permitted in the County comprehensive plan.

This balance was accomplished through the Corridor Goals and Objectives, such as Goal 3 – Safety, Goal 4 - Economic Vitality and Goal 5 - Coordination. The TAC and CAC considered all these goals in identifying and selecting the highway projects.

- Goal 3 (Safety) – promote the safety of current and future travel modes for all users.
- Goal 4 (Economic Vitality) – develop integrated transportation facilities and services that can adequately support travel for business and recreation opportunities.
- Goal 5 (Coordination) – coordinate planning efforts for OR 140 with other transportation plans and projects in the study area.

Each planning concept considered highway safety for the traveling public. Concepts also considered compatibility with the County's Comprehensive Plan and Zoning land uses for properties abutting the highway. Local road connections are recommended parallel to highway segments where urbanization is expected. Access standards were tailored to accommodate planned land uses in both urban and rural areas. Additionally, triggers for improvements were established for intersection safety projects that may require access consolidation and/or closure. These additional considerations are included in each project sheet and the access management plan to assure coordination and collaboration with Jackson County staff and affected property owners during project level scoping.

City/County Collaboration

The OR 140 TAC facilitated a collaborative discussion and agreement between ODOT and Jackson County to identify and document the location of County roads intersecting the state highway within the project area. This included developing an access management plan (see Table 9-1) illustrating actions and key principles for managing access by highway segment.

Table 9-1. Summary of Access Management Measures

Project Name	Description
Blackwell Road: I-5 to Kirtland Road	▪ Construct a local road parallel and east of Blackwell Road that meet minimum ¼ mile access spacing from the interchange as well as spacing standards for a statewide freight route. ▪ Construct a local road parallel and west of Blackwell Road that meet the minimum ¼-mile access spacing from the interchange as well as spacing standards for a statewide freight route. ▪ Extend existing Dean Creek Frontage Road to connect with the new local road east of Blackwell Road and close or restrict access at the current connection immediately north of the interchange. ▪ Orient new driveway connections towards these newly created parallel routes north of the interchange. ▪ Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards. ▪ Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.
Kirtland Road: Blackwell Road to Pacific Avenue	▪ Consolidate/close driveways in an effort to move towards achieving applicable spacing standards; and ▪ Consider installing left-turn and right-turn deceleration lanes at high volume intersections and driveways.
Avenue G/Agate Road/Leigh Way from Pacific Avenue to OR 62	▪ Consolidate/close driveways in an effort to move towards achieving applicable spacing standards; ▪ Consider installing left-turn and right-turn deceleration lanes at high volume intersections and driveways.
OR 140 from OR 62 to Brownsboro-Eagle Point Road	▪ Consolidate/close driveways in an effort to move towards achieving applicable spacing standards; and ▪ Consider installing left-turn and right-turn deceleration lanes at high volume intersections and driveways; and ▪ Evaluate traffic control, left turn lane, and right turn lane needs at new OR 140 intersection created with the extension of Foothill Road to Atlantic Avenue and assess whether turn lane limitations at other locations (Kershaw Road or Lakeview Drive) would improve corridor safety.

The access management plan includes key principles for modifying, relocating or closing existing private approaches with a level of detail sufficient to inform affected real property owners of the potential for the modification, relocation or closure of existing private approaches within the plan's study area.

The OR 140 TAC and CAC developed triggers for implementing access management actions consistent with Jackson County's TSP and the land uses permitted in the County's Comprehensive Plan. This included assessing the economic development objectives of affected real property owners who require access to a state highway. Access improvements are triggered by land use changes (new development or redevelopment), when future highway improvements are constructed, or when highway safety and operational issues arise.

The access management plan also inventoried each connection to the highway to establish the number of existing accesses acknowledged by the plan. The TAC and CAC then developed unique access spacing standards for the OR 140 Corridor. This process included acknowledging existing accesses included in the jurisdictional transfer with Jackson County, and adopted County conditions of approval for future development abutting the highway. Additionally, a provision was added to allow property owner to demonstrate progress toward meeting a minimum access spacing standard in areas where the minimum standard cannot be met and/or it is not feasible.

Monitoring Program

The Corridor Plan includes a monitoring program to assure long term safety and operational needs for the state highway and for all intersecting highways, roads or streets. Monitoring includes reviewing periodic traffic counts, evaluation of crash histories and assessment of development proposals traffic impact studies prepared by a licensed traffic engineer as triggers to recommend and elevate highway projects for STIP consideration.

Public Notice

ODOT mailed the notice of intent to adopt the OR 140 Corridor Plan to Jackson County for an opportunity to review and comment on the planning concepts. ODOT also mailed a letter to affected property owners abutting the highway for an opportunity to review and comment on the key principles. These notices were sent at least twenty (20) days prior to the OTC's adoption.

Attachments:

Appendix 9-A. Technical Advisory Committee Meeting Materials
Appendix 9-B. Citizen Advisory Committee Meeting Materials
Appendix 9-C. Public Open House Meeting Materials

Appendix 9-A

Technical Advisory Committee Meeting Materials

OR 140 CORRIDOR PLAN

Technical Advisory Committee Meeting #1

2:00 PM to 4:00 PM

June 16, 2011

ODOT White City Office
Conference Room B & C
100 Antelope Road
White City, OR 97503

AGENDA

1.	Introductions	Tom Guevara, ODOT
2.	Project Overview	Jennifer Danziger, DEA Shelly Alexander, DEA
3.	Review of Existing Conditions	Jennifer Danziger, DEA Shelly Alexander, DEA
4.	Existing Conditions Discussion	All
5.	Next Steps	Jennifer Danziger, DEA Tom Guevara, ODOT

OR 140 Corridor Plan

Technical Advisory Committee

Meeting #1 – June 16, 2011

Draft Meeting Notes

Attendees: See Attached List

Introductions

Tom Guevara opened the first TAC meeting with a general overview of the project. He introduced himself as the ODOT project manager and identified the consultant team. We then went around the room and everyone in attendance stated their name and the community or agency they were representing.

Tom requested that all comments on Technical Memoranda (1-4) be submitted to him by July 28, 2011, the next TAC meeting date.

Project Overview

To set the stage for the meeting material Tom reference two adjacent area projects including: Interchange 35 Area Management Plan (IAMP 35) and the OR 62 Corridor Project. He clarified that the OR 140 Corridor project is coordinating with the two projects and the IAMP 35 project will address any improvements needed up to and including Blackwell Road.

Jennifer Danziger, the Consultant project manager, provided a brief overview of the OR 140 Corridor purpose, process, goals, planning area, and environmental and land use reconnaissance. She highlighted two environmental and land use "red flag" locations: high-value vernal pools and threatened species (vernal pool fairy shrimp and dwarf wooly meadow-foam). The information she covered is contained in slides 2 through 10 of the attached presentation.

Review of Existing Conditions

Shelly Alexander, the Consultant traffic engineer, presented a summary of the existing conditions data collection and analysis that has been completed to date. The information she covered is contained in slides 11 through 28 of the attached presentation.

Comments/questions during the presentation are documented below in the existing conditions discussion.

Existing Conditions Discussion

The following comments/questions were received during the meeting:

- Ron Hughes suggested including Division 51, sections 115 (corridor specific) and 125 (interchange specific) in the text. He also mentioned that in January 2012 the new Division 51 changes take effect.
- The standards were discussed for the corridor. Specifically, which apply to White City as it is unincorporated, yet within the Rogue Valley Metropolitan Planning Organization Area (RVMPO). The group agreed that we should use the urban containment boundary which will result in the application of the urban standards.
- Robin requested that the crash data be expanded to include truck specific crashes/crash rate, while the group expressed interest in seeing the crashes at the Kershaw intersection broken down by year. There was some discussion regarding anecdotal safety information for the section of Blackwell Road between the Frontage Road and Kirtland Road-property owners indicate that far more crashes occur than what was documented in the existing conditions report. Jennifer reminded the group that while that may be true, unless the crash is officially reported it is not counted in the crash analysis.
- The group recommended checking 2010 partial data for Blackwell Road/Kirtland Road to see if there had been a reduction in crashes since improvements were completed last summer. Jennifer noted that the period of available data may not be long enough to produce any conclusions at this time.
- TAC identified improvements at Kershaw Road in 2007, realignment and turn lanes. Jennifer said DEA would check to see if history at Kershaw showed fewer crashes after the improvements were installed.
- In response to the yearly crash trend declining after 2007, it was noted that the County had completed a paving project along OR 140 between Table Rock Road and Bear Creek Bridge during that timeframe.
- A comment was made regarding the depth of ditch along Kirtland Road stating that it is very deep and non-recoverable for vehicles that enter.
- Jennifer noted that the number of lanes for OR 62 was incorrect on slide 13 and it was pointed out that Antelope is 3 lanes and the speed drops near OR 62.
- Comments on the Rail Crossing history of the corridor included: crossing located at Kirtland Road was replaced but the old crossing remains as a private crossing, there is a spur that crosses Avenue G, CORP co-owns through Agate.
- Comments for slides 18 and 19 (regarding recent traffic volume trends): County should have data to help fill holes in AADT for the section of corridor west of OR 62, if possible acquire freight data as well with the County counts (freight trips may show downward trend). Adam will work with County to get that data to DEA.
- It was suggested that the evaluation consider travel time along the corridor when considering project improvements.
- It was suggested that the “Hole-in-the-Air” (ORS 366.215) concept be considered/evaluated with this project; however, one member suggested that this ORS should not be an issue for this corridor as the effective pavement width would not be made smaller than what is currently there.

- It was recommended that two documents be added to the policy review section: Central Point TSP and the OR Freight Plan (adopted 6/15/11).
- The district is considering a project to add delineators for the length of Kirtland Road. Fog is an issue along the roadway.
- County realignment of Pacific Avenue is scheduled for summer of 2012.

Next Steps

DEA is currently working on the future conditions analysis for the corridor. These will be discussed at the next meeting. We will also be discussing concepts for improvements to the corridor.

The next round of meetings (TAC, Citizen Committee, and Public Open Houses) is anticipated on July 27/28. We will provide as much notice as possible about the schedule for those meetings.

Attachments:
Attendance Sheet
PowerPoint Presentation

OR 140 Corridor Plan

TAC Sign-In Sheet
6/16/2011

Name	Agency	Phone No.	E-Mail	Sign-In
TAC Members				
Thomas Guevara Jr.	ODOT Project Manager	541-957-3692	Thomas.Guevara@odot.state.or.us	
Jennifer Danziger	DEA Project Manager	503-499-0381	Jed@deainc.com	
Shelly Alexander	DEA Traffic Engineer	503-499-0241	Sma@deainc.com	
Jeremiah Griffin / Adam Stallsmith	ODOT District 8	541-774-6352 6328	Jeremiah.M.Griffin@odot.state.or.us	
Peter Schuytema	ODOT Transp. Planning Analysis	503-986-4110	Peter.L.Schuytema@odot.state.or.us	
Michael Wang	ODOT Traffic Engineer	541-774-6316	Wei.Wang@odot.state.or.us	WW
Ed Moore	DLCD	971-239-9454	Ed.w.moore@state.or.us	
Vicki Guarino	Rogue Valley MPO	541-423-6674	Vguarino@rvcog.org	
John Vial	Jackson County	541-774-8184	VialJN@jacksoncounty.org	
Matt Samitore	City of Central Point	541-664-3321 x205	Matt.Samitore@centralpointoregon.gov	
Ian Horlach	ODOT Dist. 8	541-774-6399	ian.k.horlach@odot.state.or.us	
Project Resources				
Leslie Elbon	ODOT Motor Carrier	541-776-6004	Leslie.A.Elbon@odot.state.or.us	
Michael Swede Hays	ODOT Rail	503-986-4322	Michael.D.Hays@odot.state.or.us	
Ronald Hughes	ODOT Access Management	541-957-3696	Ronald.H.Hughes@odot.state.or.us	
Robin Marshburn	ODOT Freight	503-986-3696	Robin.L.Marshburn@odot.state.or.us	
Jayne Randleman	ODOT Project Delivery	541-774-6394	Jayne.A.Randleman@odot.state.or.us	
Joseph Thomas	ODOT Survey & R/W	541-774-6357	Joseph.R.Thomas@odot.state.or.us	
Jerry Vogt	ODOT Environmental	541-864-8823	Jerry.Vogt@odot.state.or.us	
Chris Zelmer	ODOT Roadway Design	541-864-8812	Chris.R.Zelmer@odot.state.or.us	
Daniel Vandyke	ODFW	541-826-8774	Daniel.J.Vandyke@state.or.us	
Paige Townsend	RVTD	541-608-2429	P.townsend@rvtd.org	

OR 140 Corridor Plan

Technical Advisory & Citizen Committees
Meeting #1 – June 16, 2011

DAVID EVANS AND ASSOCIATES INC

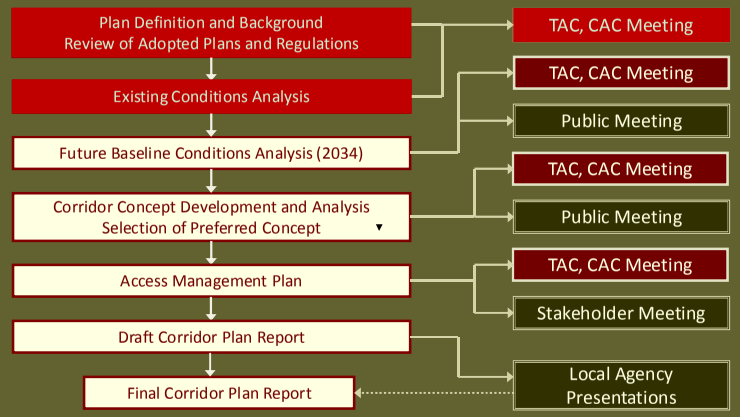
Presentation Topics

1. Project Overview
   - Purpose
   - Process
   - Goals & Objectives
2. Work Completed
   - Environmental and Land Use Reconnaissance
   - Existing Conditions Analysis
3. Next Steps

Project Purpose

- Determine how the existing highway functions
  - Existing conditions – Year 2010
  - Future conditions – Year 2034
- Identify strategies/improvements to enhance safety and capacity within the corridor
  - Demand and System Management
  - Additional Infrastructure
- Build upon other transportation projects
  - Highway 62 Corridor Project
  - I-5 Exit 35 Interchange Area Management Plan

Corridor Planning Process



Draft Corridor Goals

Four Goals with Supporting Objectives:

Goal 1: Mobility

Develop and implement management measures and physical improvements that maximize the efficiency of existing roadway facilities through 2034.

Goal 2: Freight Operations

Develop a plan that facilitates freight mobility in the corridor.

Draft Corridor Goals (continued)

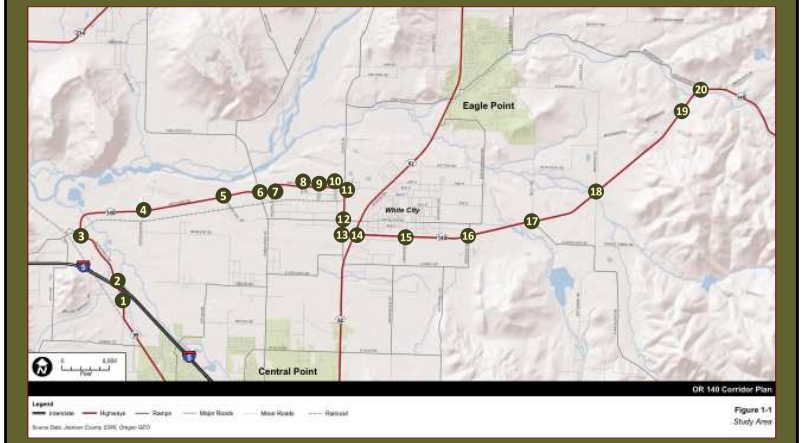
Goal 3: Safety

Promote the safety of current and future travel modes for all users.

Goal 4: Coordination

Coordinate planning efforts for OR 140 with other plans and projects in the study area.

Corridor Planning Area



Environmental and Land Use Reconnaissance

Reconnaissance was performed to understand existing environmental and land use issues and to help inform the process of developing conceptual alternatives.

- Environmental Reconnaissance
  - Natural resources such as riparian corridors, wetlands, wildlife habitat, and recreation trails
  - Wildlife crossings and threatened and endangered species
  - Floodplains and floodways
  - Air and noise quality
  - Hazardous materials
  - Visual resources

Environmental and Land Use (continued)

- Land Use Summary
  - Zoning and Comprehensive Plan designations
  - Community features
    - Parks and recreation areas
    - Historical and Archaeological Resources
    - Section 4(f) and 6(f) resources
  - Right-of-way
  - Canals and Culverts
- Socioeconomic and Environmental Justice

Potential Design Constraints

Tech Memo #2 includes an Environmental and Land Use "Red Flag" Summary of Potential Design Constraints

- Wetlands (Goal 5 Resource)
  - High-value vernal pools adjacent to right-of-way
  - Threatened species (vernal pool fairy shrimp and dwarf wooly meadow-foam)
- Historical and Archaeological Resources
  - Unlisted but potentially eligible historic resources
  - Potential archaeological (identified and unidentified) resources

Existing Transportation Analysis

- Transportation System Inventory
  - Roadways
  - Pedestrian and Bicycle Facilities
  - Transit
  - Freight
  - Intelligent Transportation Systems (ITS)
  - Rail
- Traffic Conditions
  - Design Hourly Volumes - 2010
  - Traffic Operations – 20 intersections
  - Crash History – 2005 through 2009

OR 140 Corridor Inventory

OR 140 Segment	Functional Classification		Posted Speed (mph)	No. of Lanes
	Federal[1]	Jackson County		
Blackwell Rd: I-5 to Kirtland Rd	Rural Principal Arterial - Other	Major Collector	45	2
Kirtland Rd: Blackwell Rd to Pacific Ave	Rural Principal Arterial	Major/Industrial Collector	45-55	2
Pacific Ave: Kirtland Rd to Ave G	Rural Principal Arterial	Industrial Collector	55	2
Ave G: Pacific Ave to Agate Rd	Rural Principal Arterial	Industrial Collector	35-55	2
Agate Rd: Ave G to Leigh Way	Rural Principal Arterial – Other	Industrial Collector	45	2
Leigh Way: Agate Rd to OR 62	Urban Principal Arterial	Major Arterial	Not Posted	2
OR 62 to Brownsboro-Eagle Point Rd	Urban/Rural Principal Arterial	Major Arterial	55	2-3

Inventory also addresses travel lane width, pavement width, and right-of-way

Local Road Inventory

Intersecting Roads		Functional Classification	Traffic Control at OR 140	Posted Speed (mph)	No. of Lanes
West of White City	High Banks Rd	Local	STOP Sign	55	2
White City	W Antelope Rd	Minor Arterial	STOP Sign	55	2
	Table Rock Rd	Minor Arterial	Traffic Signal	55	2
	5th St	Local	STOP Sign	55	2
	8th St	Local	STOP Sign	45	2
	11th St	Rural Major/ Urban Collector	STOP Sign	45	2
	Antelope Rd	Minor Arterial	Traffic Signal	45	2
	OR 62	Statewide	Traffic Signal	45	4
	Lakeview Dr	Local	STOP Sign	55	2
East of White City	Kershaw Rd	Rural Major/ Urban Collector	STOP Sign/Beacon	55	2
	Weigh Station EB	--	--	--	--
	Riley Rd/Antelope Rd	Minor Collector	STOP Sign	55	2
	Meridian Rd	Local	STOP Sign	55	2
	Brownsboro- Meridian Rd	Local	STOP Sign	55	2
	Brownsboro-Eagle Point Rd	Rural Major/ Urban Collector	STOP Sign	55	2

Pavement Conditions

MP -2.51
Avenue G

Section Name	Begin Milepoint	End Milepoint	Length (miles)	2010 Rating
Blackwell Rd: Junction with I-5 - Kirtland Rd	-8.29	-7.02	1.27	Very Good
Kirtland Rd: Blackwell Rd - Pacific Ave	-7.02	-2.71	4.31	Fair
Ave G: Pacific Ave - Agate St	-2.55	-1.16	1.39	Fair
Agate St: Ave G - Leigh Way	-1.16	-0.20	0.96	Poor
Leigh Way: Agate St – Junction OR 62	-0.20	0.00	0.20	Poor
Junction OR 62 – Brownsboro-Eagle Point Rd	0.00	7.98	7.98	Good

MP -1.055
Agate St

MP -0.3
Leigh Way

Pedestrian and Bicycle Facilities

- Sidewalks
  - Leigh Way & OR 62
- Crosswalks
  - Blackwell Road/I-5 SB ramps
  - Agate Road/Antelope Road
  - OR 140/OR 62
- Bike Facilities
  - No bike lanes
  - East of OR 62, shoulders are generally 8 to 10 feet
  - Other roadways such as Kirtland, Avenue G, and Agate, have some shoulders that are greater than 4 feet but most are not contiguous.

Other Facilities

- Bridges
  - 5 bridges with no deficiencies identified
- Transit Facilities
  - One route (#60) on OR 62 operated by RVTD
  - 30-minute headways, 5:00 AM to 6:30 PM, Monday through Friday
- Rail
  - Central Oregon and Pacific Railroad (CORP)
  - White City Terminal and Utility (WCTU) Railway
  - Two Crossings
    - Kirtland Road: north of Blackwell Road
    - Agate Road: south of Avenue G

Existing Traffic Volumes

- 20 Intersections along OR 140
- Turning movement data collected for 4-hour, 16-hour, or 24-hour periods
  - 3 counts from 2004
  - 1 count from 2007
  - 16 counts from 2010
- Common peak hour between 3:30 and 4:30 PM
- Converted to design hourly volumes (DHV) = 30th highest hour

Recent Traffic Volume Trends

Mile-point	Count Location	Average Annual Daily Traffic (AADT) Volume						Change
		2004[1]	2005	2006	2007[1]	2008	2009[2]	Total
-8.07	0.10 miles NW of Frontage Rd	-	-	-	-	-	8,400	NA
-6.97	0.05 miles N of Blackwell Rd	-	-	-	-	-	7,300	NA
-2.76	0.05 miles W of Pacific Avenue	-	-	-	-	-	4,100	NA
-1.21	0.05 miles W of Agate Rd	-	-	-	-	-	4,500	NA
-0.05	0.05 miles W of OR62	-	-	-	-	-	3,400	NA
0.12	0.12 miles E of OR62	5,400	5,300	5,200	5,800	5,200	5,400	0.0%
2.31	0.02 miles E of Kershaw Rd	4,300	4,200	4,100	5,400	4,900	5,000	16.3%
3.69	0.10 miles E of Riley Rd	4,800	4,700	4,600	3,900	3,500	3,600	-25.0%
7.96	0.02 miles SW of Brownsboro-Eagle Point Rd	3,500	3,400	3,400	3,300	2,900	3,100	-11.4%

1. Actual counts on OR 140 east of OR 62 were collected in 2004 and 2007.
2. Actual counts on OR 140 west of OR 62 were collected in 2009.

Note: Year 2010 AADT data is not available yet.

Recent Traffic Volume Trends (continued)

- No good history of former county roads
- Mix of increases and decreases east of OR 62

How does this affect future volumes?

Freight Traffic Volumes

Location	3:30 PM – 4:30 PM			Other Periods			
	Trucks[1]	Total Volume	Truck %	Trucks[1]	Total Volume	Truck %	Count Period[2]
West of High Banks Rd	49	420	12%	136	1,328	10%	4-hour
West of Table Rock Rd	37	282	13%	482	3,436	14%	16-hour
East of Table Rock Rd	26	261	10%	295	3,076	10%	16-hour
West of OR 62	16	410	4%	248	3,755	7%	24-hour
East of OR 62	34	621	5%	483	6,938	7%	24-hour
West of Brownsboro-Eagle Point Rd	19	264	7%	335	3,723	9%	16-hour

1. Trucks include single unit and tractor trailers.
2. All counts from 2010

Intersection Operations Evaluation

- Performance Measures
  - Volume/Capacity Ratio
    - *Volume = Traffic Demand*
    - *Capacity = Maximum Throughput*
  - Level of Service A through F based on delay
  - 95th Percentile Queues
- Performance Standards
  - ODOT Standards
    - V/C ratio of 0.85 statewide highway in MPO (west of OR 62)
    - V/C ratio of 0.80 statewide freight route in MPO (east of OR 62)
    - V/C ratio of 0.70 statewide freight route rural (east of Meridian)
  - Other Jurisdictions
    - V/C ratio consistent with ODOT

2010 Existing Intersection Operations

Intersection		Critical[1] Movement	2010 PM Peak Hour V/C Ratio[2]	LOS[2]	Delay[2] (sec.)	Operational Standards[3]
West of White City	1. OR 99 @ I-5 SB Ramps	Overall	0.85	B	42	0.85
	2. Blackwell @ I-5 NB Ramps	WB L	0.82	F	31	0.85
	3. Kirtland @ Blackwell	EB L/R	>1.0	F	>50	0.85
	4. Kirtland @ High Banks	NB L/T/R	0.06	B	4	0.85
White City	5. Kirtland @ W Antelope	NB L/T/R	0.19	B	5	0.85
	6. Kirtland @ Table Rock	Overall	0.37	B	12	0.85
	7. Kirtland @ Pacific Avenue	EB L/T/R	0.33	B	10	0.85
	8. Avenue G @ 5th	NB L/R	0.05	B	4	0.85
	9. Avenue G @ 8th	NB L/R	0.04	B	3	0.85
	10. Avenue G @ 11th	NB L/T/R	0.06	B	5	0.85
	11. Avenue G @ Agate	NB L/T/R	0.26	B	12	0.85
	12. Agate @ Antelope	Overall	0.54	B	11	0.85
	13. Agate @ Leigh	WB L	0.30	B	11	0.85
	14. Leigh/OR 140 @ OR 62	Overall	**0.93**	D	47	0.80
	15. OR 140 @ Lakeview	SB L/T/R	0.11	B	5	0.80
East of White City	16. OR 140 @ Kershaw	NB L/T/R	0.29	C	8	0.80
	17. OR 140 @ Riley	NB L/T/R	0.12	B	5	0.80
	18. OR 140 @ Meridian	SB L/T/R	0.02	A	6	0.80
	19. OR 140 @ Brownsboro Meridian	WB L/T/R	0.01	B	7	0.70
	20. OR 140 @ Brownsboro-Eagle Point	EB L/T	0.09	A	1	0.70

2010 Existing Intersection Queuing

Existing (2010) 95th Percentile Queues Exceeding Available Storage

Intersection	Approach & Movement	95th Percentile Queue (ft.)	Available Storage (ft.)	Percent Time Blocked[1]
5. Leigh Way/OR 140 @ OR 62 (Signalized)	EB L/T	175	150[3]	4
	NB L	275	275[3]	18
	NB T	975	400[2]	34
	NB R	250	175[3]	1
	SB T/R	825	425[2]	22

1. Percent time block reflects the percentage of time when the queue either extends out of a storage bay and interferes with the adjacent through travel lane or extends past the next upstream intersection.
2. Storage distance reflects spacing to the next public access point.
3. Storage distance reflects length of travel lane or turn bay.

Crash History

- January 1, 2005 through December 31, 2009 Data
- 145 Crashes reported in Corridor
- Crash Rates on OR 140

Segment	Reported Crashes: All Types	Reported Crashes: Fatal/ Severe Injury	Crash Rate: All Types (crashes/mvm)	Crash Rate: Fatal/ Severe Injury (crashes/100mvm)
West of OR 62	42	8	0.51	**9.61**
East of OR 62	49	3	**0.82**	5.02
Statewide Non-Freeway	-	-	1.22	5.12
Rural Non-Freeway	-	-	0.78	5.44

Segment crash rates exclude north/south crashes on OR 62

Crash Severity by Year (2005 - 2009)

Year	Crash Severity			Total # of Crashes	% by Year	Number of Fatalities/Injuries			
	Fatal/ Injury A	Injury B/C	PDO			Fatalities	Injury A	Injury B	Injury C
2005	3	24	21	**48**	33%	0	4	20	19
2006	3	17	13	**33**	23%	0	4	6	13
2007	3	15	4	**22**	15%	1	3	19	7
2008	1	9	11	**21**	14.5%	0	2	2	10
2009	2	12	7	**21**	14.5%	0	3	4	19
Total	**12**	**77**	**56**	**145**	**100%**	**1**	**16**	**51**	**68**
% by Severity	8%	53%	39%						

Fatal crash occurred on Blackwell Road 0.1 miles south of Kirtland Road – one vehicle, speed was a factor

Crash History (continued)

- Collision Types
  - Four Types account for 91% of all crashes
    - Turning, Fixed Object, Rear End, Angle
  - No Pedestrian or Bicycle collisions
- Segments (between intersections)
  - 51 crashes
  - Highest crash segments
    - Blackwell from Frontage to Kirtland (12 crashes – 1 fatal, 1 severe)
    - Kirtland from High Banks to Table Rock (10 crashes)
    - Kirtland from Blackwell to High Banks (9 crashes – 1 severe)

Crash History (continued)

- Intersections
  - 94 crashes
  - Highest crash intersections
    - OR 62 @ OR 140 (33 crashes – 1 severe)
      - *5 in east/west direction*
      - *28 in north/south direction including the severe injury*
    - Kershaw @ OR 140 (15 crashes – 2 severe)
    - Table Rock @ Kirtland (13 crashes – 2 severe)
      - *11 of 13 occurred in 2005 & 2006 – signal installed spring of 2006*
    - Kirtland @ Blackwell (7 crashes – 2 severe)
      - *Intersection reconfigured in 2010, turn lanes added*
    - Riley @ OR 140 (6 crashes – 1 severe)

Crash History (continued)

- Safety Priority Index System
  - No top 10% locations
- Safety Investment Program
  - West of OR 62
    - No ratings available
    - 4 fatal/severe crashes Blackwell & Kirtland in 3 years
    - Equivalent to a Category 3* ranking
  - East of OR 62
    - Category 1 and 2 rankings

*Funding is generally targeted at locations with Category 3 through 5 rankings

Next Steps

- Future Conditions Analysis
  - 2034 Baseline Condition – Forecasting
- Upcoming Meeting Dates -
  - TAC and Citizen Meetings
  - Public Open House
  - End of July

OR 140 CORRIDOR PLAN

Technical Advisory Committee Meeting #2

10:00 AM to 12:00 PM

July 28, 2011

ODOT White City Office
Conference Room B & C
100 Antelope Road
White City, OR 97503

AGENDA

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1. Introductions	Tom Guevara, ODOT
2. Work Completed	Jennifer Danziger, DEA
• Future Baseline Conditions	Shelly Alexander, DEA
• Draft Deficiency Matrix	
3. Project Discussion	All
• Concept Development	
4. Project Update	Jennifer Danziger, DEA
• Schedule	Tom Guevara, ODOT
• Upcoming meetings	
5. Next Steps	Jennifer Danziger, DEA Tom Guevara, ODOT

OR 140 Corridor Plan

Technical Advisory Committee

Meeting #2 – July 28, 2011

Draft Meeting Notes

Attendees: See Attached List

Introductions

Tom Guevara opened the TAC meeting as the ODOT project manager and identified the consultant team. We then went around the room and everyone in attendance stated their name and their affiliation.

Tom and Jennifer Danziger, the Consultant project manager, provided an overview of the Open House which was held the previous night. The highlights of the Open House included concerns in the following areas:

- Blackwell Road: regarding access, widening, and property impacts.
- High Banks Road: regarding volumes, mailbox location, school bus stop locations, and the aggregate/asphalt plant on the south side of OR 140. Specifically the large trucks that access OR 140 from High Banks due to the County limiting access for heavy vehicles on adjacent routes.
- High Banks and Brownsboro Roads: regarding turn lanes to separate/provide a refuge from mainline OR 140 traffic.
- Foothills Road: regarding a perceived crash issue along OR 140 in the vicinity of where the Foothills Road alignment will likely intersect.

Before the presentation of the future baseline analysis, Tom requested that all comments on Technical Memorandum 5 be submitted to him by August 22, 2011. Tom will consolidate the comments and send to DEA on or before September 1. Jennifer requested that any geometric or operational concerns/questions also be sent to her for consideration in the concept development work.

Overview of Work Completed

Tom reiterated that the OR 140 project is coordinating with the Interchange Area Management Plan (IAMP) 35 work and will only address widening (if needed) along Blackwell Road. Access management and other improvements along Blackwell Road will be addressed as part of the IAMP 35 project.

Jennifer provided a brief update on the existing conditions presented at the first TAC meeting. She also provided an outline of the remainder of the meeting which included: a review of the

future baseline analysis, a summary of the deficiencies identified, and a facilitated discussion regarding potential concept development to be considered for the next phase of the project.

The information she covered is contained in slides 2 through 14 of the attached presentation.

On slide 3 at the Blackwell/Kirtland Road intersection, Jennifer noted that the existing conditions presented at the previous meeting was overestimating how traffic peaked during the hour. The peaking factor has been to better reflect current operations and be more consistent with adjacent intersections.

Comments/questions during the presentation are documented below in the future baseline conditions discussion.

Future Baseline Analysis Conditions Discussion

The following comments/questions were received during the meeting:

- It was mentioned that Senate Bill 264 in expected to take effect in January of 2012. This is the bill that addresses access management.
- Members commented on the traffic distribution (slide 7-OR 140: Kirtland Road west of Antelope Road) that the "green" distribution (to/from White City) makes sense. With regard to slides 7 and 8, the group suggested that the public perception of the OR 140 route is very much different than the trip distributions shown in 'green'. *Jennifer noted that this information is based on the forecasting model and not on surveys of route users but said that we'd verify the origin/destination data to confirm the numbers shown.*
- Concern was expressed regarding the OR 62 extension north of the JTA project, where it passes the Veterans Affairs Hospital. *Review of the potential alignments after the meeting shows that OR 62 would overlap the current OR 140 route as it runs along Agate. The OR 62 alignment would prohibit a connection between Agate Road and Leigh Way and between Agate Road and Avenue G. The alternatives analysis will need to consider changes to the OR 140 corridor routing should this later phase of the OR 62 project be constructed. At this time, the project is not funded and timing for construction is indefinite.*
- Concern was expressed regarding the lack of signage on the section of OR 140 west of OR 62. When the signs are eventually in place, will it change the traffic patterns?
- Concerns were expressed regarding the perceived large volume of trips that want to travel North-South east of OR 62, possible access issues, and the possible Foothill Road extension and existing Kershaw Road alignments. Discussion included potential benefit to OR 62 if an alternative North-South route was provided.
- Two projects were identified as studied during previous work (unrelated to the OR 140 project). Cost estimates were also created. The projects include: Blackwell Road from Kirtland Road to I-5 (upgrade/overhaul-shoulders, bus turnout, etc.), and the intersection of Agate Road and Leigh Way.
- Questions were raised about the assumed lane configuration for the OR 62/OR 140 intersection. Is Right of Way a problem (80 feet)? What OR 62 improvements can be

assumed for the next phase of OR 140? East-west permitted/protected left-turns? Need to maintain access to the regional Shopping Center.

- Concerns were expressed regarding travel speeds on OR 140 in the vicinity of the possible Foothill Road connection. Currently it is posted 55 mph, this may need to be revisited if this connection comes to fruition.
- Concerns were also expressed for multi-modal access and connectivity, specifically pedestrian access and multi-use opportunities/connections. Could we utilize any of the BPA ROW for a multi-use trail? There was also mention of future sign upgrades along OR 62 to facilitate transit signal priority for RVTD.
- The group agreed that the following projects should be considered during the conceptual design/improvement phase:
    - Realignment or changes to intersection of Avenue G and Agate Road
    - Widening and possible realignment of Blackwell Road
    - Realignment an reorientation of intersection of Agate Road and Leigh Way (County scoped this project a couple of years ago and may be able to share the findings)
    - Delineation on OR 140 between Interchange 35 and OR 62
    - Improvements to Avenue G (Agate Road to OR 62)
    - Improvements to the Agate Road railroad crossing
    - Updates/modifications to roadway classifications along the OR 140 route west of OR 62.

  Comments: Can the upgrading of the segment of Avenue G (between OR 62 and Agate Road) help relieve freight congestion experienced as a result of the sharp corner at the Leigh Way/Agate Road intersection? If so, a purpose and need statement may be needed as part of this project to assist in applying for funding.

Next Steps

DEA is currently working on the concept development analysis for the corridor. This will be discussed at the next meeting.

The next round of meetings (TAC, Citizen Committee, and Public Open Houses) is anticipated in late October or early November. We will provide as much notice as possible about the schedule for those meetings.

Attachments:
Agenda
Attendance Sheet
PowerPoint Presentation

DAVID EVANS AND ASSOCIATES INC.

JOB DESCRIPTION OR 140 TAC #2

CALCULATION FOR

JN.

BY DATE 7/28/11

SHEET OF SHEETS

CHECKED BY DATE

NAME	JURISDICTION	PH / EMAIL
Shelly Alexander	DAVID EVANS & ASSOCIATES	503.499.0241 sm@deainc.com
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Michael Wong	ODOT	541-774-6316
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H. RONALD HUGHES	ODOT	541-957-5696

OR 140 Corridor Plan

Technical Advisory & Citizen Committees Meeting #2– July 28, 2011

DAVID EVANS AND ASSOCIATES INC

Presentation Topics

1. Update on Existing Conditions
2. Review of Future Baseline Analysis
   - Traffic Volumes
   - Operations
3. Summary of Deficiencies
4. Concept Development Discussion

Update on Existing Conditions

- Additional Goal
  - Economic Vitality – Develop integrated transportation facilities and services that can adequately support travel for business and recreation opportunities.
- Blackwell/Kirtland Road Intersection
  - Previous analysis showed eastbound approach of Blackwell/Kirtland as failing under design hour conditions
  - Peaking characteristics were too conservative within the design hour
  - **Revised v/c ratio for the eastbound approach is 0.77 under 2010 design hour conditions**
- Kershaw Road Crash Rate Follow Up
  - Kershaw @ OR 140 (15 crashes – 2 severe)
  - 9 crashes in 2005, 6 crashes in next 4 years
  - Intersection improvements were completed in 2006

Future Baseline Condition Analysis

- Future Traffic Volumes
  - 2034 Regional Transportation Plan (RTP)
  - Average Daily Volumes on Segments
  - Peak Hour Volumes at Intersections
  - Traffic Distribution Analysis
- Operational Analysis
  - Intersections (V/C, LOS, Queues)

Future Traffic – 2034 RTP Scenario

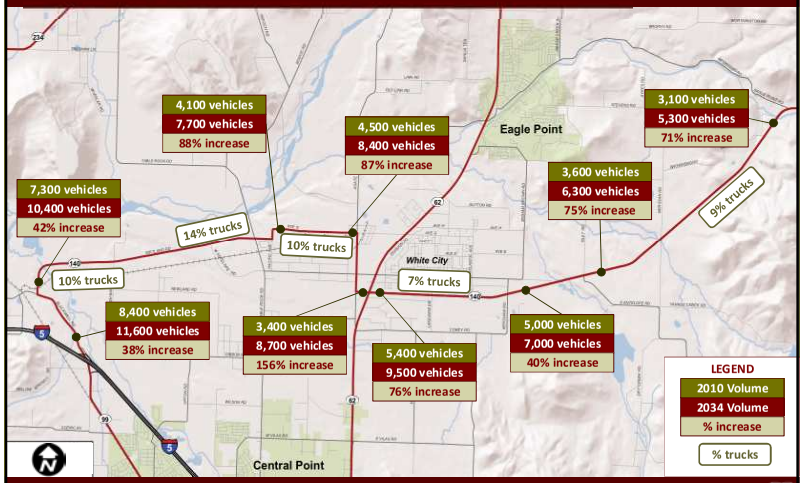
- Serves as the future baseline condition for OR 140
- Based on Regional Travel Demand Model:

Regional	2009	2034
Population	172,665	248,324
Employment	115,430	150,666

Source: 2009-2034 Regional Transportation Plan

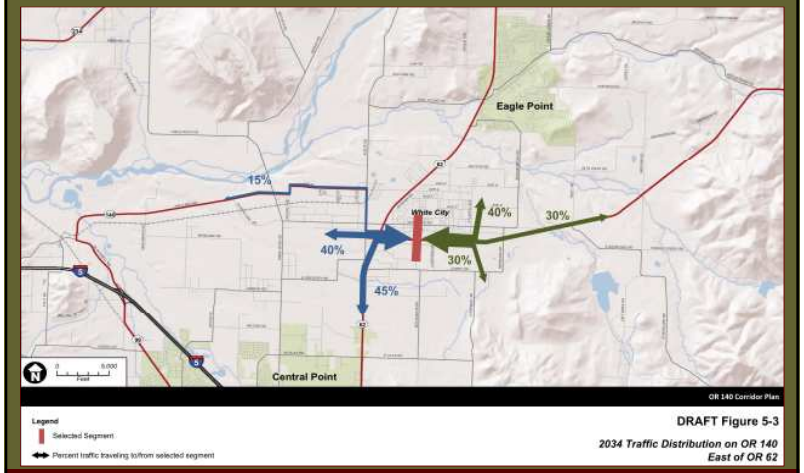
- Network used is the financially-constrained RTP network with some OR 62 Expressway elements added

Average Daily Traffic Volumes



Future Traffic Distribution

Future Traffic Distribution



2034 Existing Intersection Operations

Intersection		Critical Movement	2034 PM Peak Hour V/C Ratio	LOS	Delay (sec.)	Operational Standards
West of White City	1. OR 99 @ I-5 SB Ramps	Overall	1.04	D	110	0.85
	2. Blackwell @ I-5 NB Ramps	WB L	0.90	F	43	0.85
	3. Kirtland @ Blackwell	EB L	0.99	F	38	0.85
	4. Kirtland @ High Banks	NB L/T/R	0.08	C	7	0.85
White City	5. Kirtland @ W Antelope	NB L/R	0.28	C	9	0.85
	6. Kirtland @ Table Rock	Overall	0.53	B	19	0.85
	7. Kirtland @ Pacific Avenue	NB L/R	0.24	C	8	0.85
	8. Avenue G @ 5th	NB L/R	0.19	B	6	0.85
	9. Avenue G @ 8th	NB L/R	0.14	B	5	0.85
	10. Avenue G @ 11th	NB L/T/R	0.09	B	7	0.85
	11. Avenue G @ Agate	EB T/R	0.71	C	17	0.85
	12. Agate @ Antelope	Overall	0.69	C	24	0.85
	13. Agate @ Leigh	WB L	0.66	D	18	0.85
	14. Leigh/OR 140 @ OR 62	Overall	1.32	F	>200	0.80
	15. OR 140 @ Lakeview	SB L/T/R	0.22	C	>200	0.80
East of White City	16. OR 140 @ Kershaw	SB L/T/R	0.45	D	11	0.80
	17. OR 140 @ Riley	NB L/T/R	0.15	C	9	0.80
	18. OR 140 @ Meridian	EB L/T/R	0.02	A	9	0.80
	19. OR 140 @ Brownsboro Meridian	NB L/T/R	0.01	A	14	0.70
	20. OR 140 @ Brownsboro-Eagle Point	SB L/R	0.05	A	3	0.70
New	21. OR 140 @ Foothills	NB L/T/R	2.25	F	111	0.80

2034 Existing Intersection Queuing

Intersection	Approach & Movement	95th Percentile Queue (ft.)	Available Storage (ft.)	Percent Time Blocked[1]
7. Kirtland Rd @ Table Rock Rd	EB T/R	225	150 [2]	3%
12. Agate Rd @ Antelope Rd (Signalized)	SB L	175	150 [3]	
14. Leigh Way/OR 140 @ OR 62 (Signalized)	EB L	225	130 [3]	4%
	EB R	225	130 [3]	2%
	WB L	350	200 [3]	96%
	WB T	6750		1%
	NB L	300	130 [3]	68%
	NB T	2675	400 [2]	35%
	NB R	325	175 [3]	11%
	SB L	275	200 [3]	
	SB T/R	2275	425 [2]	
15. OR 140 @ Lakeview Drive	SB L/T/R	500	300 [2]	

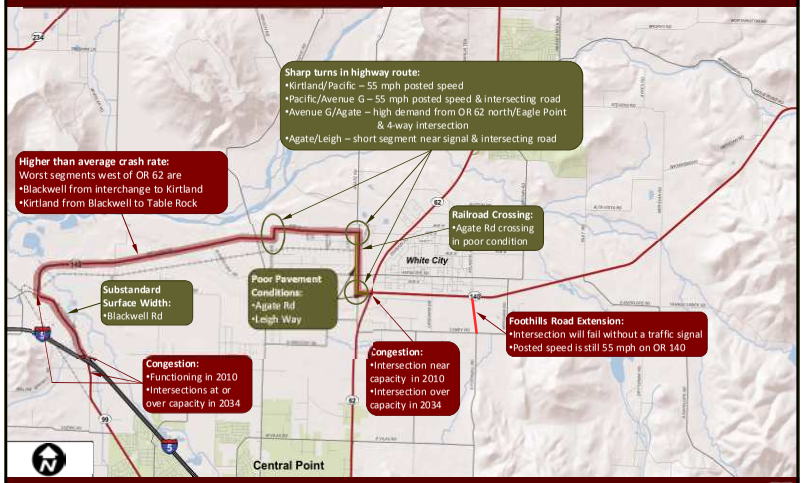
1. Percent time block reflects the percentage of time when the queue either extends out of a storage bay and interferes with the adjacent through travel lane or extends past the next upstream intersection.
2. Storage distance reflects spacing to the next public access point.
3. Storage distance reflects length of travel lane or turn bay.

Potential Design Constraints

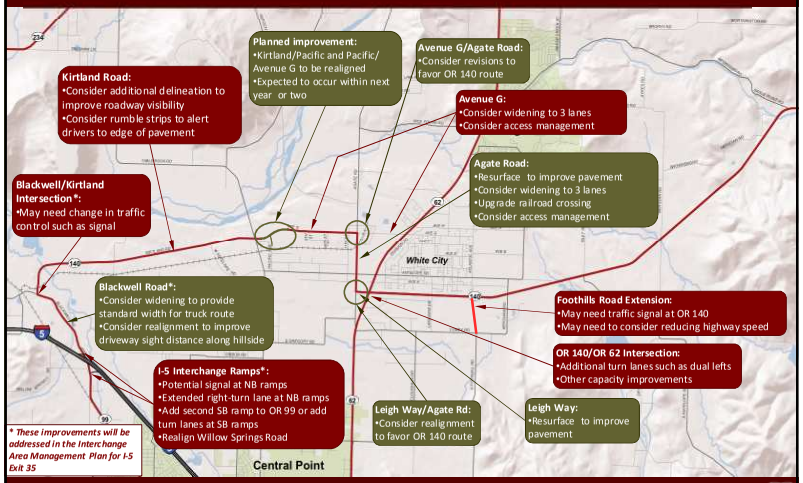
Tech Memo #2 includes an Environmental and Land Use "Red Flag" Summary of Potential Design Constraints

- Wetlands (Goal 5 Resource)
  - High-value vernal pools adjacent to right-of-way
  - Threatened species (vernal pool fairy shrimp and dwarf wooly meadow-foam)
- Historical and Archaeological Resources
  - Unlisted but potentially eligible historic resources
  - Potential archaeological (identified and unidentified) resources

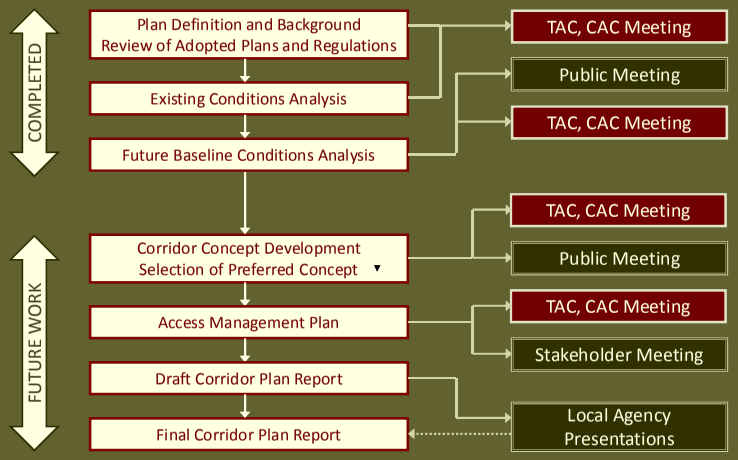
Identified Issues



Potential Solutions to be Considered



Corridor Planning Process



Next Steps

- Concept Analysis and Evaluation
- Selection of Preferred Concepts
- Upcoming Meeting Dates
  - TAC and Citizen Meetings
  - Public Open House
  - Potentially October

OR 140 CORRIDOR PLAN

Technical Advisory Committee Meeting #3

10:00 AM to 12:00 PM

November 17, 2011

ODOT White City Office
Conference Room B & C
100 Antelope Road
White City, OR 97503

AGENDA

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1. Introductions	Tom Guevara, ODOT
2. Alternatives Analysis	Jennifer Danziger, DEA
• Concept Development	Shelly Alexander, DEA
• Concept Analysis & Evaluation	
3. Concept Discussion	All
4. Next Steps	Jennifer Danziger, DEA Tom Guevara, ODOT

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OR 140 Corridor Plan

Techinical Advisory Committee

Meeting #3 – November 17, 2011

Draft Meeting Notes

Attendees: See Attached List

Introductions

Tom Guevara opened the TAC meeting as the ODOT project manager, identified the consultant team, and went around the room for everyone in attendance to state their name.

Tom passed out copies of the draft Technical Memorandum #6-Concept Development and the Evaluation Matrix for review by the committee. Comments from the committee are due January 1, 2012. He expects a draft plan by April of 2012.

Tom provided a high-level picture of the project to-date and topics to keep in mind while reviewing the concepts. He challenged the committee to consider the need for an alternative secondary corridor to OR 62 which serves the suburbs; specifically OR 140 via Interstate 5 (I-5) and OR 140. Would the secondary corridor provide a larger regional perspective? Is this perspective desirable? He also mentioned the need for shovel-ready lands for development, posing the question should we develop "reserve" capacity? This idea could help in the decision-making process when weighing the merits of a 2-lane facility versus a 3-lane facility. He finally reiterated that at the end of the concept development phase, a final "preferred concept" must be chosen. Part of the documentation of the "preferred concept would include project categories to assist in identifying funding options." The categories could include: modification, safety, operations, bridge, and pedestrian and/or bicycle. Tom suggested preparing a purpose and need statement for each project.

Tom and Jennifer Danziger, the Consultant project manager, provided an overview of the Open House which was held a couple nights earlier.

Overview of Work Completed

Jennifer provided an outline of the remainder of the meeting and a brief update of the planning process as shown on slides 2 and 3 of the attached presentation.

Concept Development

Jennifer presented four types of improvements including: Highway Redesignation, Jackson County Reclassification, Segment Improvements, and Intersections Improvements. The first two (redesignation and reclassification) are process improvements including paperwork, while the latter two improvements are physical changes to the pavement on the ground. All of the concepts assume the JTA improvements associated with OR 62 through Cory Road. Additional concepts respond to the completion of the full OR 62 corridor improvements. Finally, Jennifer

reviewed the concept evaluation criteria. Concept development information can be found in slides 4 through 6.

The following comments/questions were received during this part of the presentation:

- The County expressed concerns with OR 62 splitting the community of White City.

Concept Analysis and Evaluation

Jennifer first presented the concepts associated with redesignation and reclassification (slide 7). These concepts generated conversation among committee members including concern for the potential impacts to Biomass (located along Avenue G between Agate Road and OR 62) and discussion of urban standards compared to rural standards. There was mention of the new pedestrian and bicycle facilities along Antelope Road and the limited use by non-vehicle modes, raising the question of whether it makes sense to build urban standard roadways in the industrial area. Tom mentioned that he'd talk to DLCD about the cross-section that they'd require for OR 140 and posed the idea of creating a new rural arterial standard. He suggested working with Jackson County on the improvements to Avenue G (between OR 62 and Agate Road) to access the opportunity of the project qualifying for state/federal funding.

Next she presented the segment improvements followed by the intersection improvements. These concepts can be found in slides 8-24 of the attached presentation.

The following comments/questions were received during this part of the presentation:

- Jackson County indicated that in general, their functional classifications of OR 42 defer to the state. Where they do not, the state needs to tell Jackson County what designation to use. They raised some concerns Avenue G between Agate Road and OR 62. The classification, and thus necessary cross section, may have impacts to Biomass. These impacts need to be weighed when comparing the opportunity to connecting two state facilities. The County does not want to choose at this time, but acknowledges that it makes sense to include improvements to this section of roadway as it connects to state facilities. Others indicated that the team may need to talk to ODOT rail (CORP or WCTU) to establish if upgrades or needed to adjacent rail crossings on this stretch of roadway.
- Senate bill 264 (access management) may have impacts to this project. It will require working with local jurisdictions and compliance between TSPs and the TPR. This bill was of particular interest for the section of Avenue G west of Agate Road, specifically how many access points will be allowed (2 versus 5) and the effect on the resale of the land.
- With respect to <u>Blackwell Road</u>, the members believe it is a good candidate for a 3-lane section, but may want to have ROW for a future 5-lane improvement, if needed, to respond to "shovel ready" needs. The members discussed how the cost opinion was allocated (primarily new structure and ROW), desirable ROW (80 feet versus 100 feet), and design speed (45 mph versus 55 mph). The group debated the merits of using a design speed of 55 mph or reducing impacts by using a lower design speed since the posted speed is 45 mph.
- Members expressed interest in possible options along <u>Kirtland Road</u>. Specifically, the possibility of using profiled striping (textured paint) typical on urban or no shoulder

roadways, and concern with inroad reflectors indicating maintenance/cleaning issues. The group didn't see much "bang for the buck" with the conversion from 2 to 3 lanes; they listed cost, environmental impacts, bridge reconstruction, and high water profile as concerns. *They requested additional text for the report; please add "Access and roadway width may be issues if this section of roadway is redeveloped."*

- Tom shared that along Avenue G and other roadways within the White City Urban Unincorporated Boundary, DLCD will want to see urban standards, regardless of the nature of the roadway. Members expressed concern with the urban standard on this stretch of roadway. They feel that sidewalk and gutter doesn't make sense in this area and have the sense that the public feels the same way. The group considered amending the TSP to indicate that rural standards are appropriate for this section of roadway or staging the improvements starting with the rural section and reservation of the appropriate ROW to convert to an urban section in the future, if needed. A two-way, multi-use path may be an option to get around the need for sidewalk and gutter and keep with the rural nature of the roadway. The committee recommended a 3-lane segment that will transition at the Table Rock intersection. Jackson County improvements in the vicinity of Pacific Avenue will have match the existing 2-lane cross section.
- Recently, development has occurred near <u>High Banks Road</u> including a Ready Mix plant (within the last year) and asphalt plant (within last 6 months). Members expressed agreement with the idea of left-turn lanes at this intersection. They added that Newland is weight restricted by the County. *The consultant team will consider turn lanes (acceleration and deceleration) and/or flashing beacons at High Banks and consider County crash data (to be provided by William Fitzgerald) and potential sight distance issues.*
- TAC members agreed that projects along <u>Agate Road</u> should limit the amount of "throw-away" and hazardous material treatment. They were supportive of intersection improvements at Agate Road/Avenue G. They requested that 11th and 14th Street improvements be added to the corridor concepts as local road improvements. *(These projects are currently part of the OR 62 Full Corridor improvement.)* At a minimum, they agreed that safety improvements were necessary. *Tom was going to talk to management about this recommendation. The conversation may result in DEA adding a 2-lane section for concept evaluation.*
- The section of <u>Avenue G (County)</u> has an awkward, angled approach along OR 62 as raised by the CAC. Some additional consideration to facilitating the eastbound right-turn and northbound left-turn movements will be considered.
- Along W Antelope Road, the group agreed that consideration be given to RVTD's service expansion to serve Amy's Kitchen, Amy's Kitchen expansion (additional employment opportunities), and providing a receiving merge lane for northbound to westbound trucks.
- Members expressed a desire to prioritize movements (not a roadway) at the intersection of <u>Agate Road at Avenue G</u>. The group felt that it didn't make sense to prioritize based on volumes. They liked the channelized turn with signal option. They suggested another option of improving the southwest corner for trucks with a signal.

- At the intersection of Agate Road and Leigh Way the members expressed concern with the prioritization of OR 140 as it would go right through La Quinta Hotel. They suggested revisiting JTA volumes, but felt that the practical solution was to channelize with a merge lane (slide 24).
- The group expressed concern with the Lakeview improvements, specifically feeling that they may not be needed with the Foothill connection.
- The Atlantic/Foothill connection was assumed because it was included as a Tier 1 (funded) project in the RTP. There was not a clear consensus as to the type of control (signal, STOP-control, grade-separated) for the connection. The group was not in favor of full closure of Kershaw Road but right-in, right-out limitations could be supported.
- The group expressed concern about potential bridge impacts (or design exception) along OR 140 near Meridian Road.
- The group expressed interest in adding a second westbound left-turn to the OR 140/OR 62 intersection and having it listed in the STIP (2014/2015) as safety related, not JTA related.
- The need for passing lanes on the OR 140 was also raised, particularly on the Kirtland Road segment.
- Tom raised some questions about the need for lighting and possibly guard rails in the corridor and asked DEA to check on standards for when these measures should be implemented.
- Tom reminded members that design exceptions may be needed to fit within existing ROW for segment improvements.

Next Steps

DEA is waiting on comments from the Citizen and Technical Advisory committees, due January 1, 2012. They will then conduct analysis of modified or additional concepts, and with direction from the state, stakeholders, and input from the advisory groups select a preferred concept to be presented at the next Citizen and Technical Advisory committee meetings.

The next round of meetings (TAC, Citizen Committee, and Public Open Houses) is anticipated in late February or early March. We will provide as much notice as possible about the schedule for those meetings.

Attachments:
Agenda
Attendance Sheet
PowerPoint Presentation

DAVID EVANS AND ASSOCIATES INC.

JOB DESCRIPTION TAC #3

CALCULATION FOR OR 140 Corridor Plan

JN.

BY DATE 11/17/11

SHEET OF SHEETS

CHECKED BY DATE

Tom G.
William F
Michael W
Pam Dorrell
Chris Zelmer
Roger A
Leslie Elbon
Jerry Vogt
John Vial
JED / SMA

OR 140 Corridor Plan

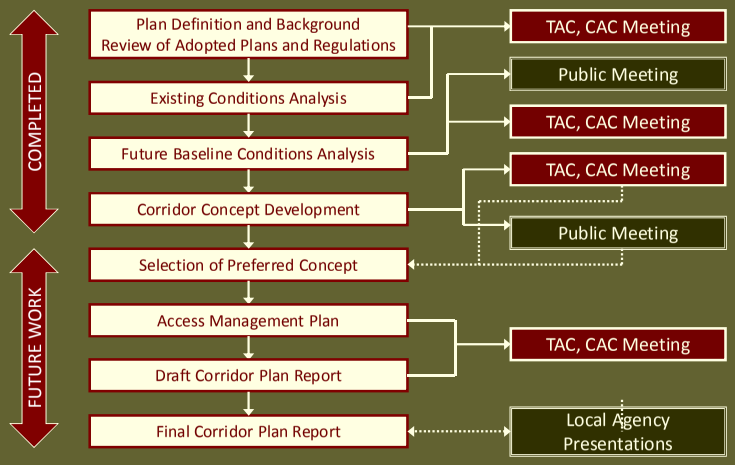
Technical Advisory Committee Meeting #3 – November 17, 2011

DAVID EVANS AND ASSOCIATES INC

Presentation Topics

1. Concept Development
2. Concept Alternatives Analysis
3. Discussion
   - Ideas for modifications to concepts or additional concepts that could be evaluated
   - Input for selection of preferred concepts

Corridor Planning Process



Concept Development

- Type of Improvements
  - **Highway Redesignation** – address consistency in statewide classification or respond to system changes imposed by other projects
  - **Jackson County Reclassification** – address consistency between the state and county
  - **Segment Improvements** – address geometric, safety, or operational deficiencies in the OR 140 corridor
  - **Intersection Improvements** – address geometric, safety, or operational deficiencies at individual intersections

Concept Development

- Roadway Network Assumptions
  - All concepts assume that OR 62 Phase 1 and 2 improvements (Jobs in Transportation Act) are constructed (through Cory Road)
  - Some concepts respond to the completion of the full corridor improvement identified in the OR 62 Corridor Solutions Environmental Impact Statement (EIS)

Concept Evaluation Criteria

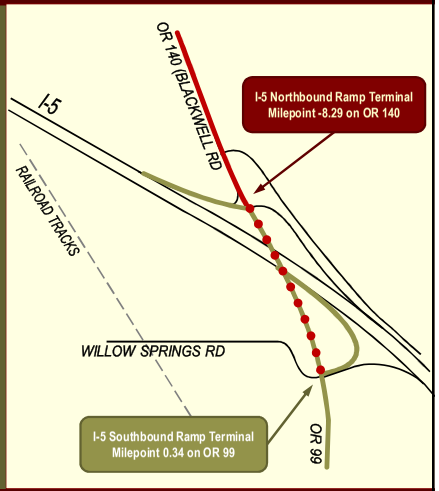
- Traffic Operations and Safety
  - Does the improvement address existing operational or safety concerns?
  - Will it cause additional concerns?
- Basic Roadway Geometry and Right of Way (ROW)
  - How might the improvement look?
  - Would it require additional right of way?
- Environmental and Land Use
  - Would the improvement have any potential impact to land uses or environmental resources?
- Cost Opinion*
  - How much would it cost?

** Cost opinions do not include estimates of ROW costs or mitigation.*

Highway Redesignation

Concept HR-1: Extension of OR 140 to I-5 Southbound Ramps

- OR 140 and statewide designation currently ends at I-5 NB ramp terminal
- OR 99 and district designation currently extends through interchange to I-5 NB ramp terminal
- OHP Mobility standards:
  - 0.85 at ramps
  - 0.85 on statewide in MPO



Highway Redesignation

Concept HR-2: Extension of Freight Route Designation

- OR 140
  - Statewide Freight Route east of OR 62
  - Statewide Route west of OR 62
- OHP Mobility Standards
  - 0.85 on statewide in MPO
  - 0.80 on statewide freight in MPO
- Freight route designation applied to OR140 ending at MP -8.29
  - I-5 northbound ramp mobility standard changes to 0.80
  - I-5 southbound ramp mobility standard remains at 0.85
- Combined with HR-1: Extension of OR 140 to I-5 Southbound Ramps
  - I-5 northbound & southbound ramp mobility standards change to 0.80

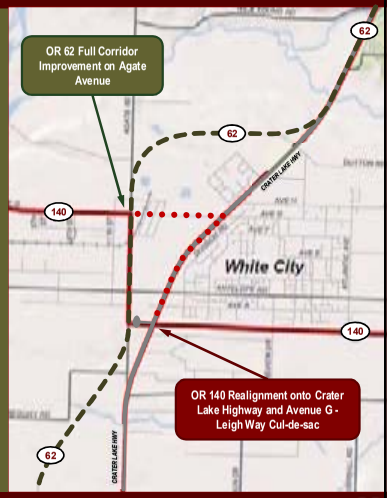
Note: Even if freight route designation is extended to southbound ramps, if district designation isn't changed, then mobility standard would remain at 0.85

Highway Redesignation

Concept HR-3: OR 140 Reroute

- OR 62 full corridor improvements which will use Agate Road with no connection to Avenue G and create a cul-de-sac on Leigh Way
- Reroute OR 140 along Crater Lake Highway and Avenue G when OR 62 full corridor improvements are implemented
- Antelope Road considered but discarded for same reasons as identified with original OR 140 routing
- Operations with Reroute:
  - Ave G & Crater Lake – v/c < 0.6*
  - Antelope & Crater Lake – v/c ~ 0.9*

**with signal timing modifications*

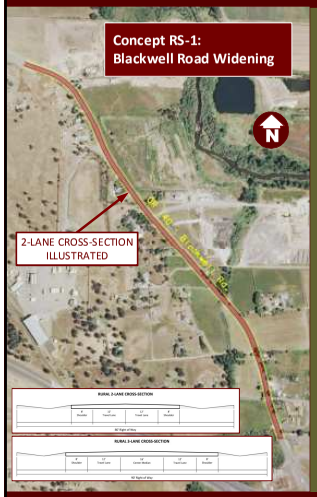


Jackson County Reclassification

- Changes to Transportation System Plan for consistency with OR 140
- JCR-1 through JCR-5 all address existing segments of OR 140
- JCR-6 upgrades the county section of Avenue G between Agate Road & OR 62 from industrial collector to minor arterial to reflect high through demand between OR 62 north and OR 140
- JCR-7 addresses same segment of Avenue G in response to OR 140 reroute with full corridor improvements for OR 62

Blackwell Road Improvements

Concept RS-1: Blackwell Road Widening



Purpose: Safety, Capacity, Consistency with Statewide Design Standard

Options: 2-Lane Rural Cross-Section
3-Lane Rural Cross-section

Traffic Operations:
2-Lane – Some congestion without left-turn lanes
3-Lane – Center median provides left-turn refuge

Safety:
2-Lane – Some benefit from wider shoulders
3-Lane – Center lane for left-turning vehicles & wider shoulders

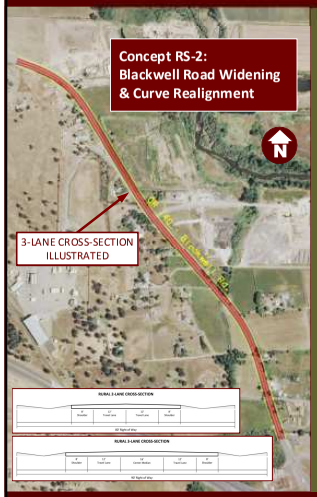
Basic Roadway Geometry & Right of Way (ROW):
Keeps alignment on current centerline but modifications possible
Does not modify "breaking" curves
ROW requirements could be less than shown

Environmental & Land Use:
2-Lane – Up to 20' additional ROW needed, close to some structures
3-Lane – Up to 30' additional ROW needed, close to some structures
Crosses Willow Creek

Cost Opinions:
2-Lane – $1.4 million
3-Lane – $3.6 million

Blackwell Road Improvements

Concept RS-2: Blackwell Road Widening & Curve Realignment



Purpose: Safety, Capacity, Consistency with Statewide Design Standard

Options: 2-Lane Rural Cross-Section
3-Lane Rural Cross-section

Traffic Operations:
Same as Concept RS-1

Safety:
Same as Concept RS-1 but smooth curves & higher design speed could reduce run-off-road crashes

Basic Roadway Geometry & Right of Way (ROW):
Realigns sections of roadway to smooth curves and meet 55 mph design speed
Could not be constructed within existing ROW
ROW requirements could be less than shown

Environmental & Land Use:
More ROW needed than Concept RS-1
Roadway alignment avoids structures
Crosses Willow Creek

Cost Opinions:
2-Lane – $6.2 million
3-Lane – $8.7 million

Kirtland Road Improvements

Concept RS-3: Kirtland Road Safety Improvements

Purpose: Safety – 19 crashes in 5 years – 9 involved a single vehicle that ran off the road

Safety:
Delineators - Crash research indicates benefits of delineators may be offset by increased likelihood of fixed object collisions

Basic Roadway Geometry & Right of Way (ROW):
Delineators – Installed in outside paved shoulder

Environmental & Land Use:
Delineators - No impacts

Cost Opinions:
Delineators - $15,000

Safety:
Rumble Strips - Crash research indicates rumble strips can provide measurable reduction single vehicle, run of the road crashes

Basic Roadway Geometry & Right of Way (ROW):
Rumble Strips – Only where shoulders are more than 4' wide which is 85% of Kirtland

Environmental & Land Use:
Rumble Strips – Intermittent noise when vehicles drive over them – may be heard by some residences

Cost Opinions:
Rumble Strips - $10,000

Kirtland Road Improvements

Purpose: Consistency with Statewide Design Standard

Traffic Operations:
2-lane cross-section can accommodate future demand

Safety:
2' to 4' shoulder widening provides slightly more vehicle maneuvering room

Basic Roadway Geometry & Right of Way (ROW):
Keeps alignment along centerline, may be accommodated in existing ROW

Environmental & Land Use:
Several creeks and canals including Bear Creek and Whetstone Creek
Adjacent wetlands (Palustrine, Emergent) that may contain high value vernal pools

Cost Opinions:
Road Widening - $2.4 million

Avenue G Improvements (State Section)

Purpose: Consistency with Statewide Design Standard

Traffic Operations:
2-Lane Rural – Some congestion without left-turn lanes
3-Lane Rural – Center median provides left-turn refuge
3-Lane Urban – Center median plus sidewalks

Basic Roadway Geometry & Right of Way (ROW):
Keeps alignment along centerline
Existing ROW is 100' – can accommodate all options

Cost Opinions:
2-Lane Rural – $1.3 million
3-Lane Rural – $4.4 million
3-Lane Urban – $7.6 million

Options: 2-Lane Rural Cross-Section
3-Lane Rural Cross-Section
3-Lane Urban Cross-Section

Safety:
2-Lane Rural – Some benefit from wider shoulders
3-Lane Rural – Center lane for left-turning vehicles and wider shoulders
3-Lane Urban – Center lane plus sidewalks & curbs

Environmental & Land Use:
Area zoned industrial
Potential economic benefit for adjacent properties from higher capacity road with turn lanes
No natural resources mapped in area

Agate Road Improvements

Purpose: Safety, Capacity, Consistency with Statewide Design Standard

Options: 3-Lane Rural Cross-Section
3-Lane Urban Cross-section

Traffic Operations:
3-Lane Rural – Center median provides left-turn refuge
3-Lane Urban – Center median plus sidewalks

Safety:
3-Lane Rural – Center lane for left-turning vehicles
3-Lane Urban – Center lane plus sidewalks & curbs

Basic Roadway Geometry & Right of Way (ROW):
Keeps alignment along centerline
Existing ROW is 100' – can accommodate all options
Full upgrade of railroad crossing

Environmental & Land Use:
Area zoned industrial
Potential economic benefit for adjacent properties from higher capacity road with turn lanes
No natural resources mapped in area

Cost Opinions:
3-Lane Rural – $3.9 million
3-Lane Urban – $6.0 million

Avenue G Improvements (County Section)

Purpose: High demand traveling to OR 140 from White City and OR 62 to north

Traffic Operations:
- Industrial Collector – Center median provides left-turn refuge
- Minor Arterial – Center median plus sidewalks

Basic Roadway Geometry & Right of Way (ROW):
- Keeps alignment along centerline
- Existing ROW is 80' – can likely accommodate all options
- Full upgrade of railroad crossing

Cost Opinions:
- Industrial Collector (3 lanes) – $2.6 million
- Minor Arterial – $5.0 million

Options: 3-Lane Industrial Collector (County Standard)
Minor Arterial (County Standard)

Safety:
- Industrial Collector – Center lane for left-turning vehicles
- Minor Arterial – Center lane plus sidewalks & curbs

Environmental & Land Use:
- Area zoned industrial
- Potential economic benefit for adjacent properties from higher capacity road with turn lanes
- No natural resources mapped in area

Avenue G Improvements (OR 140 Rerouted)

Purpose: Widen Avenue G to meet state standards in response to OR 140 Reroute and OR 62 Full Corridor

Traffic Operations:
- 3-Lane Rural – Center median provides left-turn refuge
- 3-Lane Urban – Center median plus sidewalks

Basic Roadway Geometry & Right of Way (ROW):
- Keeps alignment along centerline
- Existing ROW is 80' – can likely accommodate all options
- Full upgrade of railroad crossing

Cost Opinions:
- 3-Lane Rural – $2.6 million
- 3-Lane Urban – $5.0 million

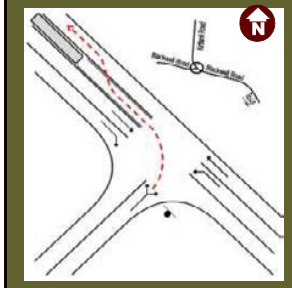
Options: 3-Lane Rural Cross-Section
3-Lane Urban Cross-section

Safety:
- 3-Lane Rural – Center lane for left-turning vehicles
- 3-Lane Urban – Center lane plus sidewalks & curbs

Environmental & Land Use:
- Area zoned industrial
- Potential economic benefit for adjacent properties from higher capacity road with turn lanes
- No natural resources mapped in area

Blackwell Road & Kirtland Road Improvements

Concept I-1: Blackwell Road and Kirtland Road Traffic Signal



Purpose: Capacity

Traffic Operations:
- Opportunity for 2-stage left turn (illustrated to left)
- Long term operations depends on frequency of 2-stage left turn – intersection demand could be greater than capacity if not happening
- Current traffic volumes do not meet traffic signal criteria but future volumes would meet traffic signal criteria
- Intersection would operate well with traffic signal

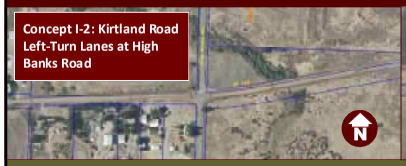
Safety:
- Traffic signals frequently have higher crash rates than STOP signs although the type and severity of the crashes differs

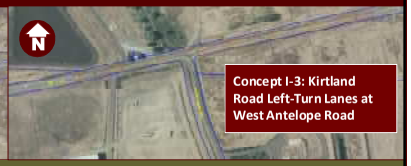
Basic Roadway Geometry & Right of Way (ROW):
- Installed within ROW
- Persistent congestion should be present & traffic volumes should meet warrants before a traffic signal is installed

Environmental & Land Use:
- Some access points nearby
- No natural resources mapped in area

Cost Opinion: $0.5 million

Kirtland Road Intersection Improvements





Purpose: Safety

Traffic Operations:
- Left-turn lane criteria not met by current or future traffic volumes

Safety:
- Left-turn lane would provide refuge for vehicles stopped to make left turn onto High Banks
- 1 collision related to left turns in 5 years

Basic Roadway Geometry & Right of Way (ROW):
- Eastbound and westbound left-turn lanes added within existing ROW

Environmental & Land Use:
- Some nearby driveways
- Wetlands (vernal pools) in southeast quadrant

Cost Opinion: $1.5 million

Purpose: Safety & Future Transit Service

Traffic Operations:
- Left-turn lane criteria not met by current or future traffic volumes
- Potential RVTD loop on Kirtland to West Antelope

Safety:
- Left-turn lane would provide refuge for vehicles stopped to make left turn onto West Antelope
- No collisions reported in 5 years

Basic Roadway Geometry & Right of Way (ROW):
- Westbound left-turn lane added within existing ROW

Environmental & Land Use:
- Some nearby driveways
- No natural resources mapped in area

Cost Opinion: $1.2 million

Avenue G & Agate Road Intersection Improvements

Concept I-4: Avenue G & Agate Road Intersection Realignment

Purpose: Priority for Highway Movements

Traffic Operations:
- Heaviest traffic movements: north-south & east-west
- Realignment would result in high turning movements and very low through traffic
- Some movements would operate worse than current configuration
- Conflicts with OR 140 Reroute to Avenue G for OR 62 full corridor improvements

Safety:
- Two closely spaced intersections

Basic Roadway Geometry & Right of Way (ROW):
- Two intersections created from one
- Additional ROW needed

Environmental & Land Use:
- Driveways could require reconstruction, relocation, or closure
- ROW impacts in southwest quadrant
- No natural resources mapped in area

Cost Opinion: $1.3 million

Avenue G & Agate Road Intersection Improvements

Concept I-5: Avenue G & Agate Road Right-Turn Channelization & Traffic Signal

Purpose: Capacity and improved flow for highway movements

Traffic Operations:
- Heaviest traffic movements: north-south & east-west (same as I-4)
- Vehicles can turn right at higher speeds
- Acceleration and merge lane allows right turns without stopping
- Some traffic movements would eventually have long delays with 4-way STOP
- Current traffic volumes do not meet traffic signal criteria but future volumes would meet traffic signal criteria
- Intersection would operate well with traffic signal

Basic Roadway Geometry & Right of Way (ROW):
- Adds eastbound right-turn lane on Avenue G, channelizing island for right-turn movement, and acceleration and merge lane on Agate
- Additional ROW needed
- Persistent congestion should be present & traffic volumes should meet warrants before a traffic signal is installed

Environmental & Land Use:
- One driveway located in merge lane
- Minor ROW impacts in southwest quadrant
- No natural resources mapped in area

Cost Opinion:
- $1.6 million for channelization and merge lane
- $0.5 million for traffic signal

Agate Road & Leigh Way Intersection Improvements

Concept I-6: Agate Road & Leigh Way Intersection Realignment

Purpose: Priority for Highway Movements

Traffic Operations:
- Current traffic patterns favor north-south movement
- Patterns will change with OR 62 Phase 1 & 2 to favor OR 140
- Coordination between projects recommended

Basic Roadway Geometry & Right of Way (ROW):
- Intersection realigned to stop south leg of Agate
- Design speed of 45 mph
- 3-lane urban section with curbs & sidewalks
- Additional ROW needed

Environmental & Land Use:
- ROW impacts in northeast quadrant
- Power lines in northeast quadrant may be impacted
- No natural resources mapped in area

Cost Opinion: $5.4 million

Agate Road & Leigh Way Intersection Improvements

Concept I-7: Agate Road & Leigh Way Right-Turn Channelization & Traffic Control

Purpose: Improved flow for highway movements

Traffic Operations:
- Current traffic patterns favor north-south movement (same as I-6)
- Patterns will change with OR 62 Phase 1 & 2 to favor OR 140
- Vehicles can turn right at higher speeds without stopping
- Change in traffic control – Agate northbound stops, Leigh left stops,
- Coordination between projects recommended

Safety:
- Non-standard traffic control may be confusing
- Potential for more turning or angle conflicts

Basic Roadway Geometry & Right of Way (ROW):
- Adds channelizing island for westbound right turn on Leigh
- Changes STOP sign locations
- Additional ROW needed

Environmental & Land Use:
- Minor ROW impacts in northeast quadrant
- No natural resources mapped in area

Cost Opinion: $0.5 million

OR 140 Intersection Improvements

Purpose: Safety

Traffic Operations:
Left-turn lane criteria are met by current traffic volumes

Safety:
Left-turn lane would provide refuge for vehicles stopped to make left turn onto Lakeview
1 collision related to left turns in 5 years

Basic Roadway Geometry & Right of Way (ROW):
Eastbound and westbound left-turn lanes added within existing ROW

Environmental & Land Use:
Some adjacent wetlands (vernal pools)

Cost Opinion: $1.2 million

Purpose: Safety

Traffic Operations:
Left-turn lane criteria are met by current traffic volumes

Safety:
Left-turn lane would provide refuge for vehicles stopped to make left turn onto Riley
2 collisions related to left turns in 5 years

Basic Roadway Geometry & Right of Way (ROW):
Eastbound and westbound left-turn lane added within existing ROW

Environmental & Land Use:
Some adjacent wetlands (vernal pools)

Cost Opinion: $1.2 million

OR 140 Intersection Improvements

Purpose: Safety

Traffic Operations:
Left-turn lane criteria not met by current or future traffic volumes

Safety:
Left-turn lane would provide refuge for vehicles stopped to make left turn onto Meridian
2 collisions related to left turns in 5 years

Basic Roadway Geometry & Right of Way (ROW):
Eastbound and westbound left-turn lane added within existing ROW
Bridge of Antelope Creek located ~100 feet to west – structure could accommodate 3 travel lanes but shoulders would be limited to less than 3 feet

Environmental & Land Use:
Antelope Creek is existing habitat for Coho Salmon

Cost Opinion: $1.3 million

OR 140 Intersection Improvements

Purpose: Safety

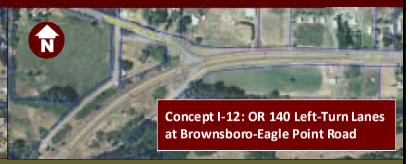
Traffic Operations:
Left-turn lane criteria not met by current or future traffic volumes

Safety:
Left-turn lane would provide refuge for vehicles stopped to make left turn onto Meridian
No collisions reported in 5 years

Basic Roadway Geometry & Right of Way (ROW):
Eastbound and westbound left-turn lanes added within existing ROW

Environmental & Land Use:
No natural resources mapped in area

Cost Opinion: $1.7 million



Purpose: Safety

Traffic Operations:
Left-turn lane criteria not met by current or future traffic volumes

Safety:
Left-turn lane would provide refuge for vehicles stopped to make left turn onto Brownsboro-Eagle Point
No collisions reported in 5 years

Basic Roadway Geometry & Right of Way (ROW):
Eastbound and westbound left-turn lane added within existing ROW

Environmental & Land Use:
No natural resources mapped in area

Cost Opinion: $1.3 million

Additional Considerations

- OR 140/OR 62 intersection
  - Planned improvements
  - Do we want to investigate options?
- Foothill Connection to OR 140
  - Received guidance to assume signalized intersection at Foot Hill/OR 140 and right-in/ right-out at Kershaw
  - Do we want to investigate options?

Comments from CAC Meeting

- Concerns about changing designation from industrial collector to minor arterial on county section of Avenue G (JCR-6)
  - Biomass business needs – crosses equipment across Avenue G
  - Restrictions of curbs
- More justification for improvements at High banks (I-2)
  - Johnny Cat expansion
  - Higher demand in both directions
  - Additional aggregate mining in area
- Additional considerations
  - Imbedded reflectors
  - Lighting
  - Guardrail
  - Flashing yellow beacons
  - Merge lanes

Next Steps

- Analysis of modified or additional concepts
- Selection of preferred concepts
- Upcoming meeting dates
  - TAC and Citizen Meetings
  - Potentially February

OR 140 CORRIDOR PLAN

Technical Advisory Committee Meeting #4

10:00 AM to 12:00 PM

June 6, 2012

ODOT White City Office
Conference Room B & C
100 Antelope Road
White City, OR 97503

AGENDA

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1. Introductions	Tom Guevara, ODOT
2. Preferred Alternative	Jennifer Danziger, DEA
• Concepts presented at last meeting	Shelly Alexander, DEA
• Additional concept considerations	
3. Access Management Plan	Jennifer Danziger, DEA Shelly Alexander, DEA
4. Discussion	All
5. Next Steps	Jennifer Danziger, DEA Tom Guevara, ODOT

OR 140 Corridor Plan

Technical Advisory Committee

Meeting #4 – June 6, 2012

Draft Meeting Notes

Attendees: See Attached List

Introductions

Tom Guevara opened the TAC meeting as the ODOT project manager and identified the consultant team Jennifer Danziger and Shelly Alexander.

Tom passed out copies of the draft Technical Memorandum #7-Preferred Alternative, and draft Technical Memorandum #8 Access Management Plan for review by the committee. Comments from the committee are due June 29, 2012. He expects consolidated comments to send to DEA in early-mid July.

Tom described the layout of the draft OR 140 Corridor Plan including a matrix that ties the Preferred Alternative projects to STIP funding sources. Additionally he has two clarifications regarding the draft TM 7:

- The roadway between the Interchange 35 northbound and southbound ramp terminals will be OR 140 but will not change ODOT Highway number (i.e., it will remain ODOT Highway 63 but will be designated at OR 140). *Need to make certain that Corridor Plan language is consistent with OTC adoption.*
- The ramps between Interstate 5 and the northbound/southbound ramp terminals are not part of the interstate, they are connection roads. *The interchange area management plan (IAMP) for Exit 35 need ramp classification clarification that can be carried forward to the OR 140 Corridor Plan.*

Jennifer started the meeting with an overview of the presentation topics: the preferred alternative and the access management plan. Next she updated the group on the project progress, current status, and remaining work. (See slides 1-3 of the attached presentation.)

Preferred Alternative

Shelly revisited the concepts that were presented at the last (November 2011) TAC meeting and identified those that were recommended as part of the preferred alternative. Additionally, she provided rationale for concepts that are not selected and additional concepts in response to concerns raised in November. The highlights include:

- All three <u>highway redesignation</u> concepts are recommended, two of which went before the Oregon Transportation Commission (OTC) in May 2012, the third is a contingency project based on OR 62 improvements and funding. *(See slides 4-6 of the attached presentation.)*

- All seven Jackson County Reclassification (JCR) concepts are recommended. JCR-1 through 5 are recommended when area TSPs or RTP updates occur for consistency between the documents. JCR-6 is recommended in the short-term, while JCR-7 is contingent on OR 62 corridor improvements. (*See slides 7 of the attached presentation.*)
- Of the 8 roadway segment (RS) concepts, 5 are recommended for the preferred alternative. (*See slides 8 through 15 of the attached presentation for more details.*)
- There are 12 intersection (I) improvement concepts of which 9 are recommended for inclusion into the preferred alternative. (*See slides 16 through 24 of the attached presentation for more details.*)
- Seven additional (A) improvement concepts were introduced in response to concerns raised during the previous TAC meeting (November 2011). Four of the additional concepts are recommended as part of the preferred alternative. (*See slides 25 through 28 of the attached presentation for more details.*)

Participants were encouraged to ask questions throughout the preferred alternative presentation. The following comments/questions were received during this part of the presentation (*See slides 1 through 28 of the attached presentation*):

- Members wanted to know if a design exception would be required for any of the roadway segment concepts. *Based on the analysis/preliminary design assumptions design exceptions are not expected at this time. However, during the full design, decisions may be made to minimize impacts that would result in a design exception.*
- Members pointed out that rumble strips would narrow the current bike facilities along Kirtland Road; even so there was general support for inclusion of the concept in the preferred alternative.
- Members expressed concern about a full urban design standard along Avenue G. Is Denman adjacent? *No, Denman is not adjacent. Tom related that Douglas County has a transitional design standard allowing for sidewalks on one side as an interim standard and suggested that Jackson County should pursue a similar interim standard. Chris Zelmer (ODOT) is willing to support this approach and John Vial (Jackson County) is willing to consider it.* ***DEA*** *can provide multiple cross-sections for consideration: multi-use path or curb, gutter, and sidewalk for the full urban cross-section with interim sections that show the pedestrian amenities on only on side.*
- Members supported the urban cross section along Agate Road. They were not in support of a multi-use path for this section.
- In response to RS-7/RS-8 (Avenue G Improvements along the County section), members supported placing this in the management measures section. *All plan elements related to actions on the part of Jackson County will be included in the management measures section of the document.*
- Members support concept I-5 (Avenue G/Agate Road improvements) as long as bicycle/pedestrian connections are addressed properly.

- Peter Schuytema expressed his concerns with the alternative traffic control presented in concept I-7 (Agate Road/Leigh Way improvements) stating that the state is generally removing these types of installations. He would prefer standard control, with channelized westbound right turns with a yield sign. He doesn't think an acceleration lane at this location would be needed once the OR 62 Unit 2 improvements are completed. In response to these comments, the suggestion was made to keep the northbound acceleration lane in the plan but only construct it if needed. Members supported this modification to I-7 for inclusion to the preferred alternative.
- Members were interested in the Foothill connection and if it would change the need for concept I-8: Lakeview Road (or I-9: Riley Road). ***DEA*** *will add a note to I-8 regarding priority of project and consideration of Foothill connection improvements. The group consensus is that Riley will not need the note.*
- At Meridian Road (concept I-10) the group raised concerns about the need for a design exception. *The current alignment of Meridian will likely result in the need for a design exception or bridge widening. The group did consider realignment of the intersection to avoid the bridge as an alternative. These options can be explored further when the project is pursued further.*
- The group questioned whether Kershaw would need to be signalized. The intersection is currently a flashing yellow beacon. *The Foothill connection is currently planned as the signalized intersection for the area. A signal a Kershaw may need to be considered if the Foothill connection is discarded/delayed.*
- The group discussed the inclusion of a multi-use path on Blackwell Road. *Blackwell Road is a fair distance from the proposed alignment connections of the Bear Creek and Rogue Valley Greenways, though could provide improved facilities. This improvement could be considered with the Blackwell Road improvements (RS-2) and should be coordinated with improvements to the Bear Creek and Rogue Valley Greenways.*
- The group raised some concerns about the recommendation to install rumble strips on Blackwell Road and on the sections of OR 140 east of OR 62. It was noted that rumble strips are generally not installed on horizontal curves which is where the run off the road crashes currently occur on Blackwell Road. William noted that the eastern section of OR 140 may already have textured lines that serve a similar purpose as rumble strips. The group didn't think rumble strips should be added unless a pattern of run off the road crashes is present. *DEA will look into the textured paint and revise the recommendation to better reflect ODOT's policy on rumble strips.*
- Members agreed to not address improvements to the Dry Creek Landfill Access as part of the OR 140 Corridor Plan.
- Tom suggested considering a park & ride location in the area to access the stop on OR 62 just north of OR 140. Members were generally supportive. The bingo parking lot was suggested as a potential location.

Access Management Plan

Jennifer presented on the access management plan associated with the preferred alternative. She gave an overview of goals, features, updates, applicable spacing standards, and the approval process for private approaches. After sharing the background information regarding access management she discussed the existing access inventory including: 279 total access points,6 recently relocated off the OR 140 route in conjunction with the Blackwell/Kirtland Road improvements, 20 accesses with permits solely located on the east side of OR 62, and summaries per side of the roadway. Overall, few driveways meet current spacing standards.

Next she discussed access management techniques and implementation followed by the Access Management Plan (AMP) for the corridor broken into four segments. The first segment is overlaps the Interchange 35 Area Management Plan study area and has consistent management measures. Management measures for the remaining three segments include moving toward achieving access spacing standards and consideration of left-turn lanes or deceleration lanes.

Adam Stallsworth provided an interoffice memorandum addressing the negotiated access spacing along the north side of Avenue G between Pacific Avenue and Agate Road. DEA will follow up with Adam to attain the accompanying map and incorporate the information into the access spacing standard description in TM #8. Adam also mentioned that the Foothill connection would meet access spacing standards.

See slides 29 through 41 of the attached presentation.

Next Steps

DEA is waiting on comments from the Citizen and Technical Advisory committees, due June 29, 2012. They will then draft the OR 140 Corridor Plan.

Attachments:
Agenda
Attendance Sheet
PowerPoint Presentation

OR 140 Corridor Plan

TAC Sign-In Sheet
6/6/2012

Name	Agency	Phone No.	E-Mail	Sign-In
TAC Members				
Thomas Guevara Jr.	ODOT Project Manager	541-957-3692	Thomas.Guevara@odot.state.or.us	
Jennifer Danziger	DEA Project Manager	503-499-0381	Jed@deainc.com	
Shelly Alexander	DEA Traffic Engineer	503-499-0241	Sma@deainc.com	SMA
Jeremiah Griffin	ODOT District 8	541-774-6352	Jeremiah.M.Griffin@odot.state.or.us	
Peter Schuytema	ODOT Transp. Planning Analysis	503-986-4110	Peter.L.Schuytema@odot.state.or.us	
Michael Wang	ODOT Traffic Engineer	541-774-6316	Wei.Wang@odot.state.or.us	WW
Ed Moore	DLCD	971-239-9454	Ed.w.moore@state.or.us	
Vicki Guarino	Rogue Valley MPO	541-423-6674	Vguarino@rvcog.org	
John Vial	Jackson County	541-774-8184	VialJN@jacksoncounty.org	
Matt Samitore	City of Central Point	541-664-3321 x205	Matt.Samitore@centralpointoregon.gov	
Adam Stellsmith	ODOT Dist	774-6324		
Project Resources				
Leslie Elbon	ODOT Motor Carrier	541-776-6004	Leslie.A.Elbon@odot.state.or.us	
Michael Swede Hays	ODOT Rail	503-986-4322	Michael.D.Hays@odot.state.or.us	
Ronald Hughes	ODOT Access Management	541-957-3696	Ronald.H.Hughes@odot.state.or.us	
Robin Marshburn	ODOT Freight	503-986-3696	Robin.L.Marshburn@odot.state.or.us	
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Chris Zelmer	ODOT Roadway Design	541-864-8812	Chris.R.Zelmer@odot.state.or.us	CZ
Daniel Vandyke	ODFW	541-826-8774	Daniel.J.Vandyke@state.or.us	
Paige Townsend	RVTD	541-608-2429	P.townsend@rvtd.org	
Ian Horlick	ODOT	541-774-6399		

OR 140 Corridor Plan

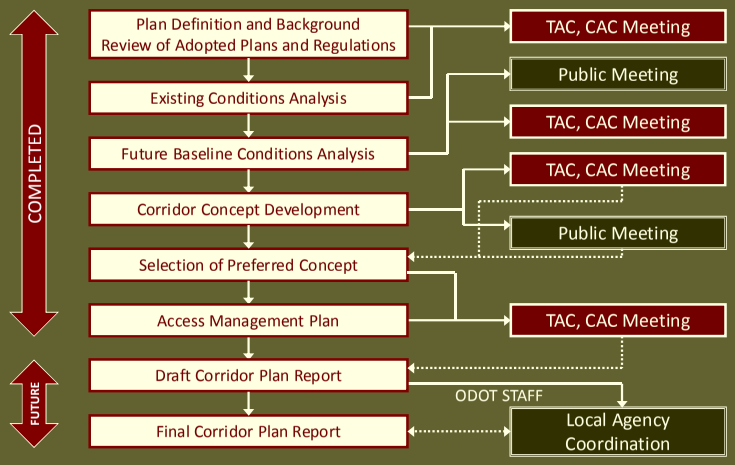
Technical Advisory Committee Meeting #4 – June 6, 2012

DAVID EVANS AND ASSOCIATES INC

Presentation Topics

1. Preferred Alternative
   - Concepts presented previously
   - Additional concept considerations
2. Access Management Plan
3. Discussion
   - Final recommendations for corridor plan

Corridor Planning Process



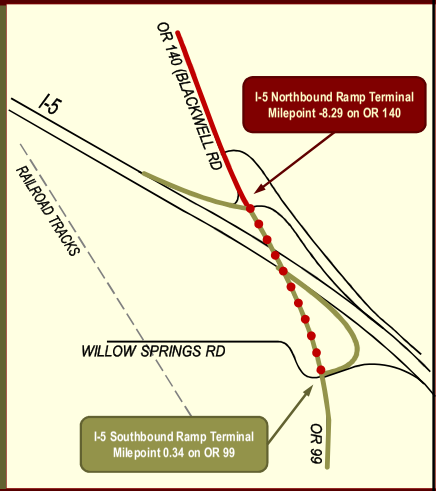
Highway Redesignation

Concept HR-1: Extension of OR 140 to I-5 Southbound Ramps

Recommended: Yes, in process

Highlights:

- OTC is scheduled to adopt section between ramps as a statewide route in May 2012



Highway Redesignation

Concept HR-2: Extension of Freight Route Designation

Recommended: Yes, in process

Highlights:

- OTC is scheduled to adopt this designation in May 2012

Highway Redesignation

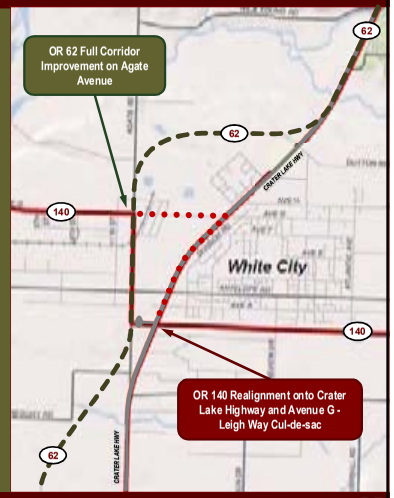
Concept HR-3: OR 140 Reroute

Recommended: Yes , as a contingent improvement

Highlights:

- Dependent on OR 62 improvements beyond currently funded phases

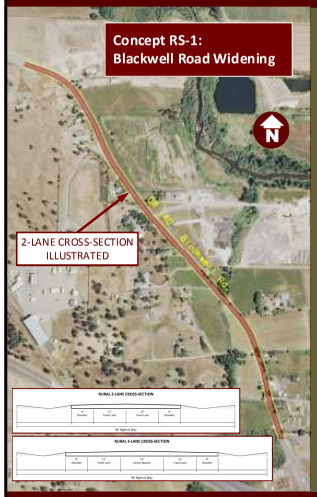
Priority: Contingent on OR 62 improvements



Jackson County Reclassification

- OR 140 Plan *recommends* the following improvements :
  - Each of the following should be addressed during the next Jackson County and White City TSP Update and the RTP Update
    - JCR-1 – Blackwell Road Reclassification
    - JCR-2 – Kirtland Road Reclassification (Rural Section)
    - JCR-3 – Kirtland Road Reclassification (White City Section)
    - JCR-4 – Avenue G Reclassification (State Section)
    - JCR-5 – Agate Road Reclassification
  - JCR-6 – Avenue G Reclassification (County Section) – should be short-term, higher priority to implement minor arterial street standard
  - JCR-7 - Avenue G Reclassification with Rerouted OR 140 (contingent on the OR 62 corridor improvements

Blackwell Road Improvements

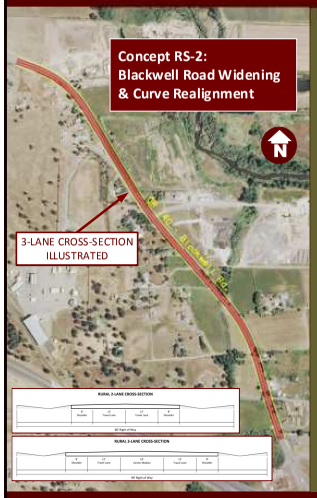


Recommended: No

Highlights:

- Does not address crash history
- RS-2 has greater safety benefits

Blackwell Road Improvements



Recommended: Yes

Highlights:

- Addresses crash history (curve realignment for 55 mph design speed)
- Construct as 3-lane rural roadway
- Include setbacks to allow for widening to 5-lanes or construction of right-turn deceleration lanes

Priority: High because of high crash rate and high volumes

Kirtland Road Improvements

Concept RS-3:
Kirtland Road Safety
Improvements

Recommended: Yes

Highlights:

- Already under design
- Add rumble strips if a pattern of single vehicle, run-off-the-road crashes continues

Priority: Delineators – under design; Rumble strips – medium priority but should be elevated if high crash rates persist

Kirtland Road Improvements

Recommended: No

Highlights:

- Minimal benefit to roadway users
- Raises a number of environmental concerns

Avenue G Improvements (State Section)

Recommended: Yes

Highlights:

- Construct as 3-lane urban section because it is in White City UUC boundary
- Phased implementation possible, first· center turn lane and wider shoulders, then urban features (curb, gutter, and sidewalks)
- Can tie some improvements to development of adjacent lands (e.g., construct sidewalk or turn lanes as part of development approval)

Priority: Phased implementation

Agate Road Improvements

Recommended: Yes

Highlights:

- Construct as 3-lane urban section because it is in White City UUC boundary
- Phased implementation possible, first center turn lane and wider shoulders, then urban features (curb, gutter, and sidewalks)
- Can tie some improvements to development of adjacent lands (e.g., construct sidewalk or turn lanes as part of development approval)

Priority: Phased implementation

Avenue G Improvements (County Section)

Recommended: Yes

Highlights:

- Construct to minor arterial standards when development permits
- Phased implementation possible, first center turn lane, then urban features (curb, gutter, and sidewalks)

Priority: Phased implementation

Avenue G Improvements (OR 140 Rerouted)

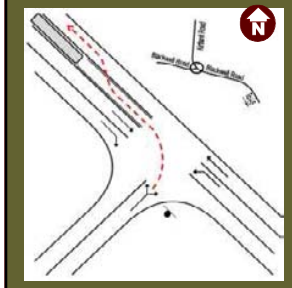
Recommended: No

Highlights:

- If RS-7 implemented, RS-8 not necessary

Blackwell Road & Kirtland Road Improvements

Concept I-1: Blackwell Road and Kirtland Road Traffic Signal

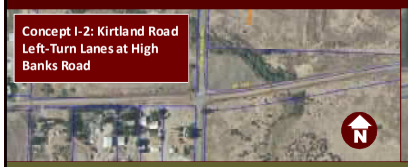


Recommended: Not at this time

Highlights:

- Future consideration of a traffic signal may be necessary if the City of Central Point expands the UGB to include the Tolo urban reserve area

Kirtland Road Intersection Improvements



Recommended: Yes

Highlights:

- Addresses existing safety concerns
- Accommodates future growth

Priority: Lower priority, unless traffic volume growth or an increase in left-turn crashes occurs

Recommended: Yes

Highlights:

- Would address long-term safety concerns
- Supports RVTD service expansion

Priority: Lower priority, unless traffic volume growth or RVTD service expansion occurs

Avenue G & Agate Road Intersection Improvements

Recommended: No

Highlights:

- Fails to meet state mobility standards
- Raises safety concerns not present today

Avenue G & Agate Road Intersection Improvements

Recommended: Yes

Highlights:

- Can be implemented at any time

Priority: Right-turn lane – medium priority; Traffic signal – when volume warrants are met

Agate Road & Leigh Way Intersection Improvements

Recommended: No

Highlights:

- Substantially higher cost than I-7

Agate Road & Leigh Way Intersection Improvements

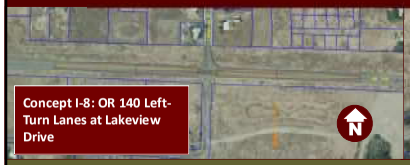
Recommended: Yes

Highlights:

- Can be implemented at any time

Priority: Traffic control modifications – high priority; Right-turn lane – medium priority

OR 140 Intersection Improvements



Recommended: Yes

Highlights:

- Current volumes appear to meet warrants
- Addresses existing crash history

Priority: Medium-high priority

Recommended: Yes

Highlights:

- Current volumes appear to meet warrants
- Addresses existing crash history

Priority: Medium-high priority

OR 140 Intersection Improvements

Recommended: Yes

Highlights:

- Addresses existing safety concerns

Priority: Lower priority, unless traffic volume growth or an increase in left-turn crashes occurs

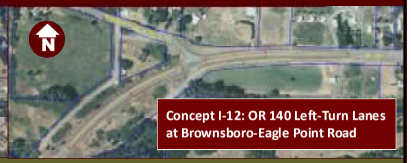
OR 140 Intersection Improvements

Recommended: Yes

Highlights:

- Addresses existing safety concerns

Priority: Lower priority, unless traffic volume growth or an increase in left-turn crashes occurs



Recommended: Yes

Highlights:

- Addresses existing safety concerns

Priority: Lower priority, unless traffic volume growth or an increase in left-turn crashes occurs

Additional Improvements

Concept A-1: Right-turn Deceleration Lanes

Concept A-2: Right-turn Acceleration Lanes

Description: Concept A-1 considers deceleration lanes for traffic turning from OR 140 onto a side street to separate slowing traffic from through movements

Purpose: Improve safety

Evaluation: 11 study area intersections

Recommended: Yes, at one intersection- Riley/E Antelope to be implemented with the additional left-turn lanes

Description: Concept A-2 considers acceleration lanes for traffic turning right from a side street and merging onto the highway

Purpose: Improve safety

Evaluation: 11 study area intersections, may require a design exception

Recommended: No

Additional Improvements

Concept A-3: Flashing Yellow Beacons

Concept A-4: Additional Roadway Delineation

Description: Concept A-3 considers flashing yellow beacons at unsignalized intersections

Purpose: Improve safety

Evaluation: Unsignalized intersections with documented crash history

Recommended: No

Description: Concept A-4 considers additional roadway delineation (reflective markers and rumble strips) throughout the corridor study area

Purpose: Improve safety

Evaluation: Along rural roadways

Recommended: Yes, Blackwell Road – high priority; east of OR 62 (rumble strips) – medium- to low-priority

Additional Improvements

Concept A-5: Truck Weigh Stations

Concept A-6: Recreational Trail Connections

Description: Concept A-5 considers portable scale locations in the westbound direction

Purpose: Enhance truck traffic operations along OR 140

Evaluation: Milepoints 1.0 or 2.5

Recommended: Yes, to support Motor Carrier's needs – location to be determined when funding available

Description: Concept A-6 considers connecting multi-modal improvements along Blackwell Road with nearby recreational trail system

Purpose: Provide connection between on-street improvements and future trail

Evaluation: ~ Milepoint -7.0

Recommended: Yes, in conjunction with Concept RS-2 improvements

Additional Improvements

Concept A-7: Dry Creek Landfill Access

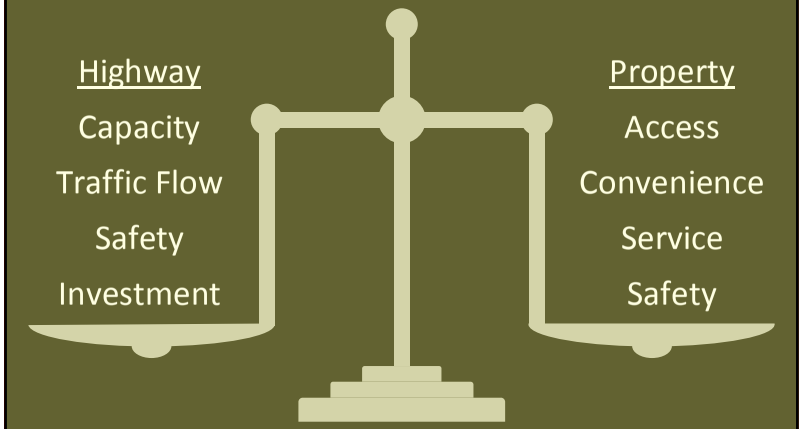
Description: Concept A-7 considers options to improve access to the Dry Creek Landfill
1) Improve geometry of intersection by adding turning lanes or
2) Connect westward to Kershaw Road via Thunder Road or new local Road

Purpose: Address potential safety concerns

Evaluation: Milepoint 2.81

Recommended: No, not as a component of the OR 140 Plan; however, should be considered with land use changes

Access Management



Oregon Highway Plan and Division 51

- Oregon Highway Plan addresses access management in Goal 3
  - Supporting policies regarding classification and spacing standards, medians, interchanges, deviations, and appeals
  - Appendix C: Access Spacing Standards
  - Revised to address Senate Bill 264 which suggested revisions to Oregon's management of access on state highways
- Oregon Administrative Rule (OAR) 734-051 (Division 51)
  - Detailed requirements, action definitions, and the access spacing standards for state highways

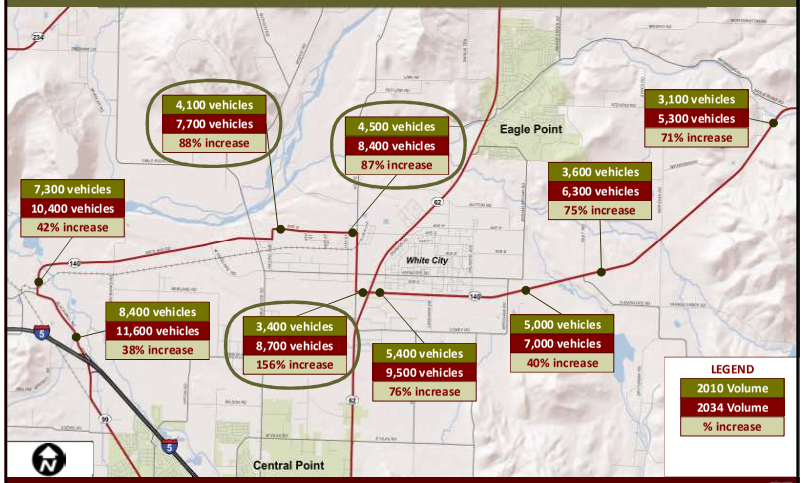
Access Spacing Standards

Table 8-1. Access Spacing Standards for Statewide Highways

Segment Speed	Access Spacing Standard Annual Average Daily Traffic ≤ 5,000[1]		Access Spacing Standard Annual Average Daily Traffic > 5,000[2]	
	Rural Areas	Urban Areas	Rural Areas	Urban Areas
40 & 45 mph	990 feet	360 feet	990 feet	800 feet
55 mph	1,320 feet	1,320 feet	1,320 feet	1,320 feet

Notes:
1. Table 3: Access Management Spacing Standards for Highway Segments with Annual Average Daily Traffic ≤ 5,000, OAR 734-51 Temporary Rules – Effective January 1, 2012 Amended May 3, 2012 (Table 13 in the revised OHP)
2. Table 4: Access Management Spacing Standards for Statewide Highways with Annual Average Daily Traffic > 5,000, OAR 734-51 Temporary Rules – Effective January 1, 2012 Amended May 3, 2012 (Table 14 in the revised OHP)

Average Daily Traffic Volumes



Private Approaches

OAR 734-051-4020, Standards and Criteria for Approval of Private Approaches:

(8)(c) The spacing standards in Tables 3 through 6 do not apply to approaches in existence prior to January 1, 2012, except when:

(A) A new approach road is requested or an existing approach permit is subject to change of use under ORS 374.312 and

(B) Where infill development or infill redevelopment occurs the approach road spacing standards will be a department determination; the department shall determine whether the approach road spacing or safety is improved by moving in the direction of the spacing standards in Tables 3 through 6; and

(C) Where a highway or interchange project occurs the approach road spacing standard will be a department determination; the department shall consider whether the approach road spacing or safety is improved by moving in the direction of the applicable spacing standards in Tables 3 through 6.

Existing Access Inventory

- ODOT's Official Project Access List (OPAL)
  - Public street intersections
  - Public/private approaches
  - 279 accesses
    - 139 on the left side
    - 140 on the right side
  - 20 accesses east of OR 62 currently have permits
- Access spacing along segments assessed
  - 18 segments on the right side
  - 15 segments on the left side
  - Few driveways meet current spacing standards

Access Management Techniques

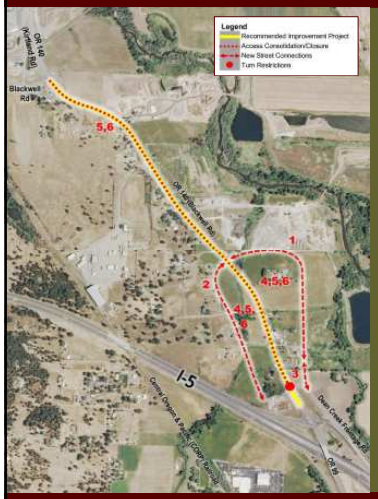
- Controlling Intersection Spacing
  - Improved flow, less congestion
- Managing Driveway Spacing
  - Fewer conflicts, more orderly traffic flow
- Adding Turn Lanes
  - Separates turning and through traffic
- Installing Median Treatments
  - Separates turning traffic, can restrict some movements
- Improving the Local Street Network
  - Alternative access and routes available

Access Management Implementation

Access management actions would be taken when one or more of the following triggers occurs:

- Applications for land use changes or development are submitted
  Example: *"Consolidation or closure of driveways should be considered when properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street."*
- Future highway improvements move into design and construction
  Example: *"Right-turn deceleration lanes should be considered when 3-lane improvements are constructed on OR 140 (Avenue G or Agate Road)."*
- Safety and or operational problems arise
  Example: *"Consolidation or closure of driveways should be considered when the annual accident rate is greater than the statewide annual average accident rate for similar roadways or the section has an ODOT Safety Priority Index System (SPIS) rating in the top 10 percent."*

AMP – I-5 to Kirtland Rd



1. Construct a local road parallel and east of Blackwell Road to serve development with connections to Blackwell Road that meet the minimum ¼-mile access spacing from the interchange as well as spacing standards for a statewide freight route (OR 140). This new road should intersect OR 140 opposite the new road west of Blackwell Road.
2. Construct a local road parallel and west of Blackwell Road to serve development with connections to Blackwell Road that meet the minimum ¼-mile access spacing from the interchange as well as spacing standards for a statewide freight route (OR 140). This new road should intersect OR 140 opposite the new road east of Blackwell Road.
3. Extend existing Dean Creek Frontage Road to connect with the new local road east of Blackwell Road and close or restrict access at the current connection immediately north of the interchange.
4. Orient new driveway connections towards these newly created parallel routes north of the interchange.
5. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
6. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.

AMP – Blackwell Rd to Pacific Ave

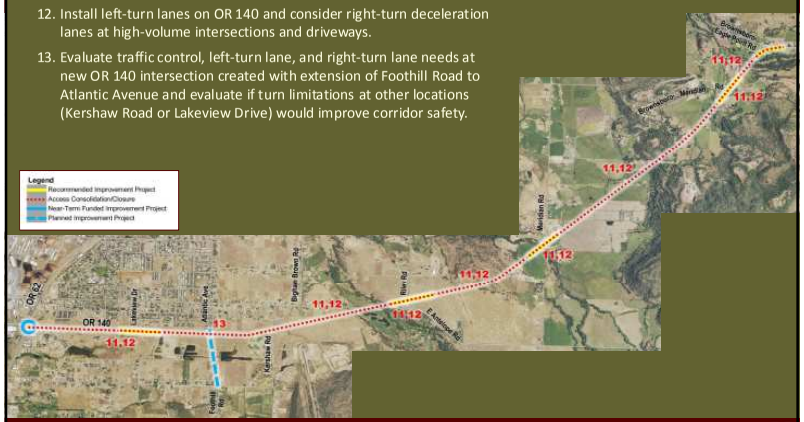
7. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
8. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.

AMP – Pacific Ave to OR 62

9. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
10. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.

AMP – OR 62 to Brownsboro-Eagle Point Road

11. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
12. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.
13. Evaluate traffic control, left-turn lane, and right-turn lane needs at new OR 140 intersection created with extension of Foothill Road to Atlantic Avenue and evaluate if turn limitations at other locations (Kershaw Road or Lakeview Drive) would improve corridor safety.



Next Steps

- Prepare Draft OR 140 Corridor Plan
  - Late July 2012
  - Review period
  - Agency coordination/outreach through ODOT
- Finalize OR 140 Corridor Plan

OR 140 CORRIDOR PLAN

Technical Advisory Committee Meeting #5

10:00 AM to 12:00 PM

November 6, 2012

ODOT White City Office
Conference Room B & C
100 Antelope Road
White City, OR 97503

AGENDA

1.	Introductions	Tom Guevara, ODOT
2.	Draft Corridor Plan	Jennifer Danziger, DEA
	• Modifications since last meeting	Shelly Alexander, DEA
	• Overview of report layout and project list	
	• Comments from CAC Meeting and Open House	
3.	Discussion	All
4.	Next Steps	Jennifer Danziger, DEA
	• Adoption	Tom Guevara, ODOT
	• Thank You	

Filename: OR 140 TAC5 DRAFT Agenda 110612.docx

OR 140 Corridor Plan

Technical Advisory Committee

Meeting #5– November 6, 2012

Draft Meeting Notes

Attendees: See attached

Introductions

Tom Guevara opened the TAC meeting as the ODOT project manager, identified the consultant team (Jennifer Danziger and Shelly Alexander), and went around the room for everyone in attendance to state their name.

Tom passed out copies of the draft OR 140 Corridor Report for review by the committee. Comments from the committee are due November 30, 2012. He mentioned that this would be the final TAC meeting for the OR 140 project.

Jennifer gave a brief overview of the CAC meeting and Open House held the previous day. In summary, the CAC members were very concerned about surges in demand for aggregate and the needs of aggregate-laden trucks pulling onto the highway, particularly with some of the upcoming large construction projects (Fern Valley and OR 62 were cited). CAC members wanted to make certain that monitoring would occur periodically and that triggers would be present in the Plan. (See slides 1-3 of the attached presentation.)

She went on to describe the layout of the draft OR 140 Corridor Plan. The Plan has two volumes. Volume 1 includes the recommended plan while Volume 2 includes all supplemental data such as technical memoranda, and meeting minutes. She indicated that this meeting will focus on Volume 1 material. (See slides 4-8 of the attached presentation.)

OR 140 Corridor Plan

Jennifer shared the OR 140 project sheets (see slides 9-23) with the TAC and mentioned that 2010 AADT counts are down (vs. 2009 reported in the existing conditions analysis) and thus a range of AADT is provided on the sheets. Traffic counts, when used as triggers, are recommended every 3-5 years. Improvement projects that include turn lanes must meet turn-lane criteria or demonstrate safety issues. Once a project is approaching the trigger criteria, the STIP priority may increase. The TAC suggested embedding project sheets earlier in the document. (.)

Access management for the corridor was also discussed, but primarily focused on the Avenue G and Leigh Way. The group agreed with codifying the 800' spacing for both sides on Avenue G as suggested by the CAC. They also discussed the applicable access standards along Leigh Way, which currently has no posted speed. (See slides 24-32 of the attached presentation.)

Jennifer concluded the presentation touching on management actions, Transportation System Management (TSM) and Transportation Demand Management (TDM), next steps for the Plan, and thanked the committee for their time and input. (See slides 33-38 of the attached presentation.)

Group Discussion topics:

- For project sheet #1 (Blackwell Road widening), the group noted that if access control is purchased it will trigger other Access Management Plan improvements. It is not clear at this time if access control will be purchased with improvements.
- TAC members also discussed how much right of way (ROW) ODOT can purchase when widening a roadway, and if they can purchase more than is needed at the time of the project to plan for future needs. Tom mentioned that for a freight route, it may be desirable to have uniform ROW width. Other group members thought that it is timely to get all ROW (including setbacks) now. There was concern with showing ROW dimensions, but a range may be OK. *DEA will modify the project sheet to show both 3-lane (interim) and 5-lane (triggered by Tolo) cross sections.*
- Another discussion point regarding Blackwell Road focused on rural vs. urban standards. When the Tolo urban reserve is annexed into the Central Point UGB it will be subject to urban standards. The City is open to ideas on how to implement urban standards that adequately serve the types of development that are expected. The current thought is that a path may be more functional than a full curb/gutter/sidewalk cross section. Additional consideration should be given to the Bear Creek and Rogue River Greenways and connection opportunities.
- With regard to the left-turn lane on Kirtland Road at W Antelope Road, one group member relayed that complaints of conflicts have been received near the treatment plant offset from Antelope Road along Kirtland Road.
- TAC members discussed the aggregate transportation needs of the corridor, including the source location, triggers, and concerns. The group discussed the merit of safety vs. development demand and funding options for the improvement. They also noted that aggregate for planned roadway projects could come from a number of sources and that it may be difficult to focus improvements on a single location. Development of new sources would likely be subject to traffic impact review and developers could be responsible for funding required improvements.
- DEA shared that TPAU is not a strong supporter of the acceleration lanes along Agate Road (either southbound from Ave G, or northbound from Leigh Way). When JTA improvements sever the direct connection between Agate Road and OR 62, the northbound movement will only serve traffic Gregory Lane and may not warrant an acceleration lane traffic turning north from Leigh Way. *Tom responded that ODOT management had requested that the acceleration lanes remain as part of the improvement projects at this time. Additional consideration may be given when improvements are implemented.*

- Two additional projects (slides 16 and 17)for the OR 62/OR 140 intersection are included because the STIP improvement is not expected to provide enough long-term capacity increase to meet demand as forecast based on 2009/2010 traffic demand. An alternative mobility standard at the intersection was considered but discarded as an option. Tom stated that this project was added because funding for the OR 62 Full Corridor Improvement (from Corey to Dutton Road along the Agate Road alignment) is considered unlikely. Jennifer noted that a change in striping for the STIP project could increase the longevity of the project and reduce the need for an additional lane on the westbound approach of OR 140. For the OR 62 improvements were identified as extending from south or OR 140 to the north side of Antelope Road. *DEA will add the turn lanes included in the PowerPoint slide to the project sheet in the draft report. Note: Recent traffic data provided by District 8 traffic indicates that demand is currently down on OR 62, which may delay the need for any capacity improvements on OR 62 itself*.
- The group indicated that the report should include a note regarding the need for a design exception. Design exception notes are needed when the improvement is expected within 5-10 years, 10-15 years may require a letter of concurrence. *Chris Zelmer will check on the process. Note: DEA received design exception form from Chris.*
- Add a project sheet for the Foothill project, a County project. Verify project with County and collect other information for the sheet. Include implementation considerations such as turn restrictions at adjacent intersections.
- In discussing access management, Jennifer noted that there is currently no posted speed on Leigh Way. It was suggested that someone check the original Jackson County files for Leigh Way to determine a posted speed. The group guessed that the speed was likely to be 35 or 45 mph. The 800' spacing standard for 45 mph may be difficult to achieve with undeveloped parcels and suggested a lower spacing standard for the short segment of Leigh Way. *Adam Stallsworth said he could look into the files at Jackson County for the posted speed. DEA to check spacing standard for 35 mph and see if it would be appropriate for this segment.*
- Jennifer raised a suggestion from the CAC that the AMP standards be referenced in the project sheets. *DEA will add spacing references.*
- Given the importance of traffic and safety monitoring in identifying projects, Tom suggested moving Monitoring from TSM section into a new Implementation section that would also discuss financing options. *DEA will create a new report section that incorporates these recommended changes.*

Next Steps

DEA is waiting on comments for the draft OR 140 Corridor Plan from the Citizen and Technical Advisory committees and general public, due November 30, 2012. The final plan will be completed by the end of the year.

Attachments:
Attendance sheet
PowerPoint Presentation

OR 140 Corridor Plan

TAC Sign-In Sheet
11/6/2012

Name	Agency	Phone No.	E-Mail	Sign-In
TAC Members				
Thomas Guevara Jr.	ODOT Project Manager	541-957-3692	Thomas.Guevara@odot.state.or.us	
Jennifer Danziger	DEA Project Manager	503-499-0381	Jed@deainc.com	
Shelly Alexander	DEA Traffic Engineer	503-499-0241	Sma@deainc.com	
Jeremiah Griffin	ODOT District 8	541-774-6352	Jeremiah.M.Griffin@odot.state.or.us	for district
Peter Schuytema	ODOT Transp. Planning Analysis	503-986-4110	Peter.L.Schuytema@odot.state.or.us	
Michael Wang	ODOT Traffic Engineer	541-774-6316	Wei.Wang@odot.state.or.us	WW
Ed Moore	DLCD	971-239-9454	Ed.w.moore@state.or.us	
Vicki Guarino	Rogue Valley MPO	541-423-6674	Vguarino@rvcog.org	
John Vial	Jackson County	541-774-8184	VialJN@jacksoncounty.org	
Matt Samitore	City of Central Point	541-664-3321 x205	Matt.Samitore@centralpointoregon.gov	
Project Resources				
Leslie Elbon	ODOT Motor Carrier	541-776-6004	Leslie.A.Elbon@odot.state.or.us	
Michael Swede Hays	ODOT Rail	503-986-4322	Michael.D.Hays@odot.state.or.us	
Ronald Hughes	ODOT Access Management	541-957-3696	Ronald.H.Hughes@odot.state.or.us	
Robin Marshburn	ODOT Freight	503-986-3696	Robin.L.Marshburn@odot.state.or.us	
Jayne Randleman	ODOT Project Delivery	541-774-6394	Jayne.A.Randleman@odot.state.or.us	JR
Joseph Thomas	ODOT Survey & R/W	541-774-6357	Joseph.R.Thomas@odot.state.or.us	
Jerry Vogt	ODOT Environmental	541-864-8823	Jerry.Vogt@odot.state.or.us	
Chris Zelmer	ODOT Roadway Design	541-864-8812	Chris.R.Zelmer@odot.state.or.us	CZ
Daniel Vandyke	ODFW	541-826-8774	Daniel.J.Vandyke@state.or.us	
Paige Townsend	RVTD	541-608-2429	P.townsend@rvtd.org	
Dan W. Darrell	ODOT	774-6354	Dan.W.Darrell@ODOT.state.or.us	

Permit Number	Seq No.	Permit Type	Specl Type	Applicant	Dist.	Cnty	Hwy	Beg MP/ End MP	Station	Facility Type	Side	Approved/ Completion Date	Cancelled/ Expired Date	Cancelled By	Comments
35482		A		BOYD, LEE	08	15	270	5.90	407+00	AR2	N	04/22/1997			
7456		A		PROSSER, R & R	08	15	270	6.00	263+00	AR	S	11/09/1956			
26824		A		DODSON, JOHN	08	15	270	8.83	546+79	AR1	S				
35174		A		SUTTON, F & L	08	15	270	8.98	561+07	AR2	N	09/20/1991			

OR 140 Corridor Plan

Technical Advisory Committee
Meeting #5 – November 6, 2012

DAVID EVANS AND ASSOCIATES INC.

Presentation Topics

1. CAC and Open House Summaries
2. Draft Plan
   - Organization
   - Recommended Improvements
   - Access Management
   - Other Management Actions
3. Discussion
   - Final recommendations for corridor plan

CAC and Open House Summary

- CAC Meeting
  - Want to make certain that monitoring and triggers will occur
  - Very concerned about surges in aggregate demand and the needs of aggregate-laden trucks pulling onto the highway
- Open House
  - 5 visitors

Draft Plan Organization

VOLUME 1

1. INTRODUCTION
2. EVALUATION OF BASELINE CONDITIONS
3. CORRIDOR PLAN IMPROVEMENTS
4. ACCESS MANAGEMENT PLAN
5. OTHER MANAGEMENT ACTIONS

PROJECT SHEETS

VOLUME 2
- Technical material
- Detailed process documentation
- Summary of Public Outreach

Draft Plan Organization

VOLUME 2

- Tech Memos 1 through 8
  - Updated to address comments received
- Summary of Public Outreach
  - Through meetings this week

Corridor Plan Improvements

- Corridor Plan Summary Table
  - 19 Improvements
  - Description
  - Implementation (Priority, Triggers)
  - General Funding Categories
- Project Sheets
  - 15 prepared, none for signals or delineation
  - Generally two pages
    - Page 1 – Descriptive
    - Page 2 – Illustrative

Corridor Plan Improvements

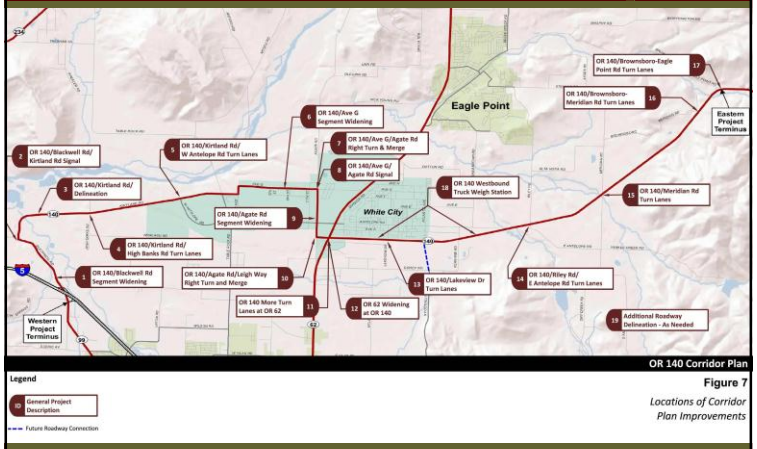
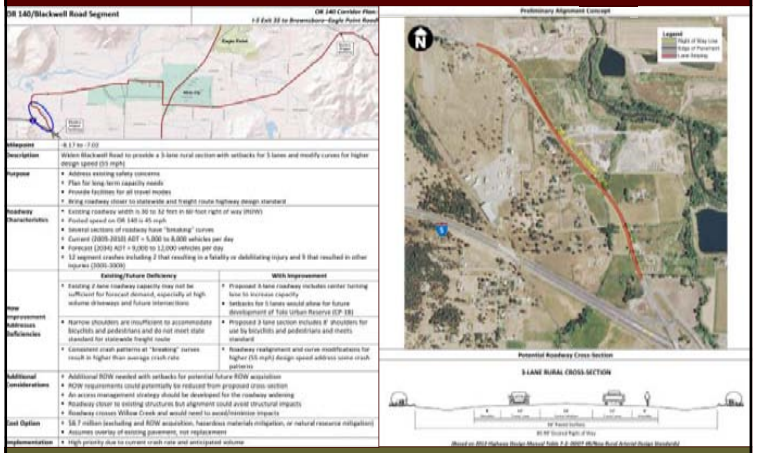


Figure 7
Locations of Corridor Plan Improvements

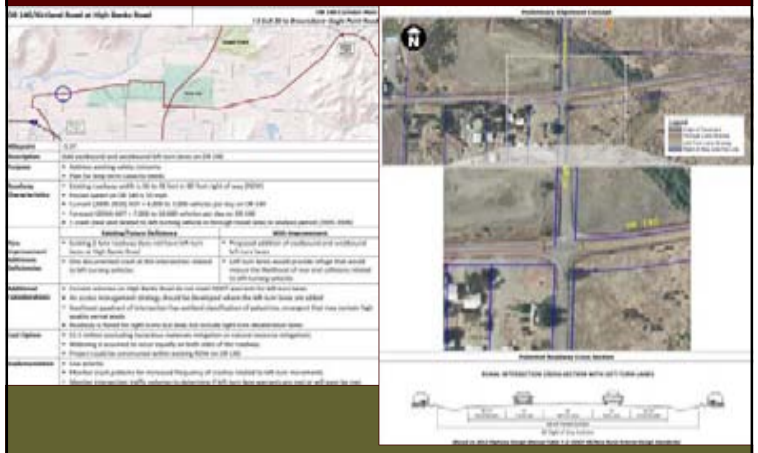
Corridor Plan Projects Not Illustrated

- Project 2 – OR 140/Blackwell Rd/Kirtland Rd Signal
  - Investigate striping options (under Management Actions)
  - Low priority triggered by traffic signal warrants
- Project 3 – OR 140/Kirtland Rd Delineation
  - Install additional roadway delineation such as textured striping or rumble strips
  - Medium priority triggered by continued pattern of run-off-the-road crashes
- Project 8 – OR 140/Ave G/Agate Rd Signal
  - Low priority triggered by traffic signal warrants
- Project 19 – Additional Roadway Delineation
  - Locations as needed
  - Documented pattern of run-off-the-road crashes
  - Repaving projects

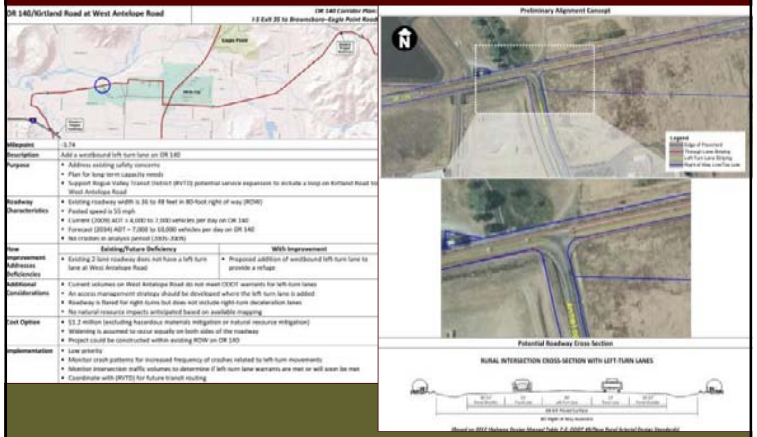
Corridor Plan Project Sheet 1



Corridor Plan Project Sheet 4



Corridor Plan Project Sheet 5



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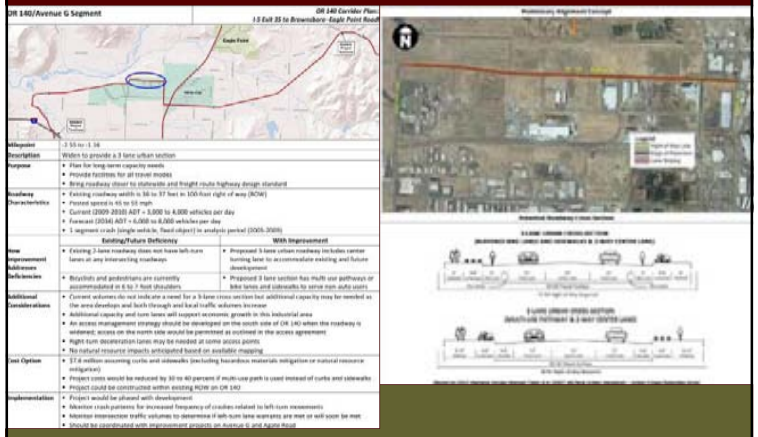

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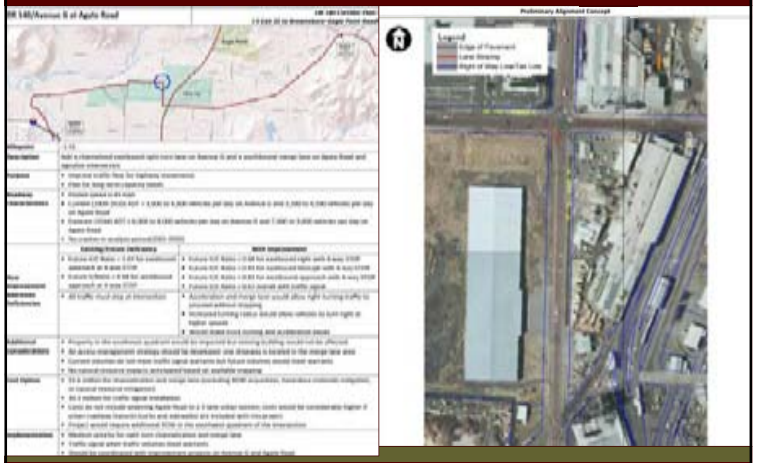
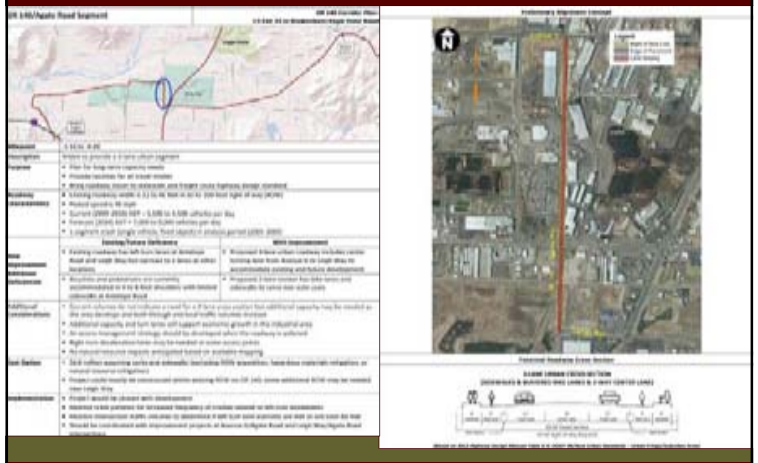
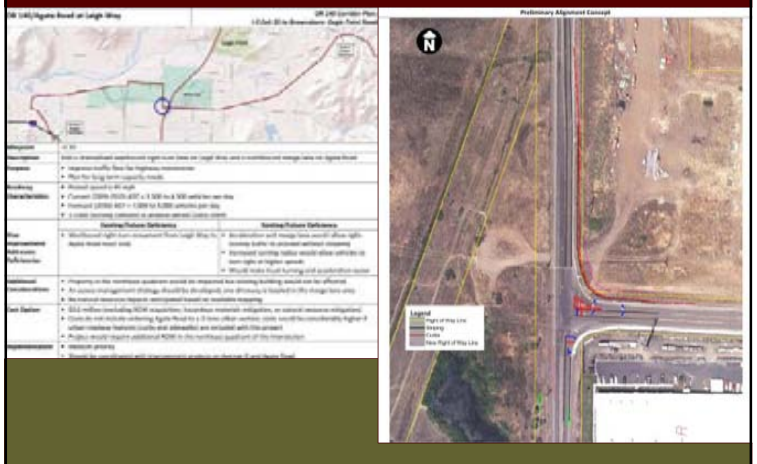


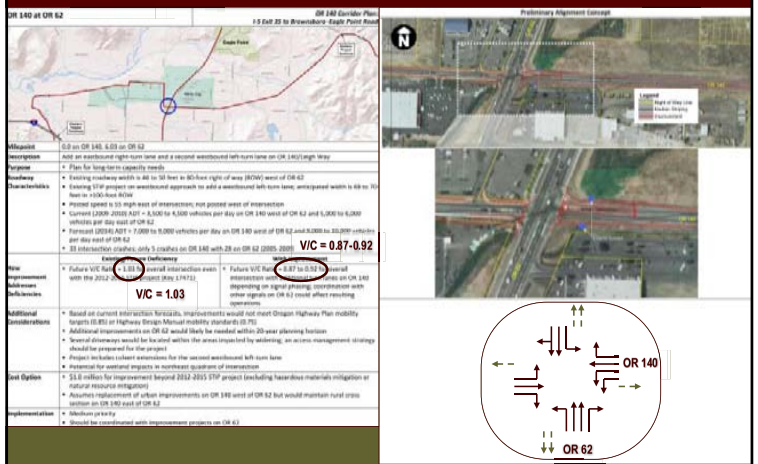
Corridor Plan Project Sheet 9



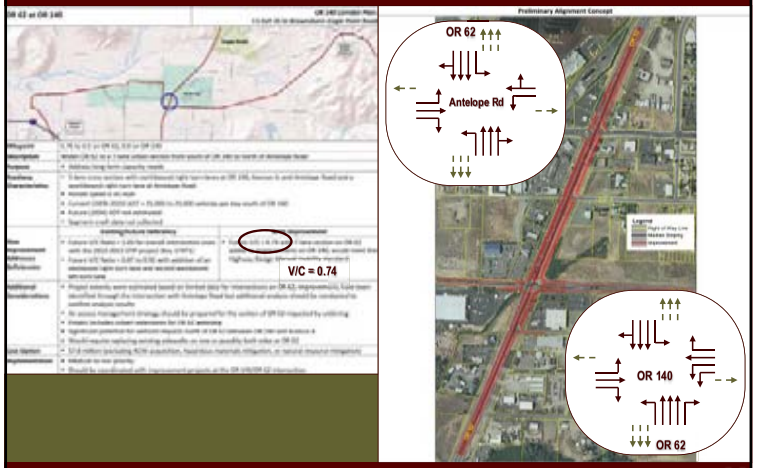
Corridor Plan Project Sheet 10



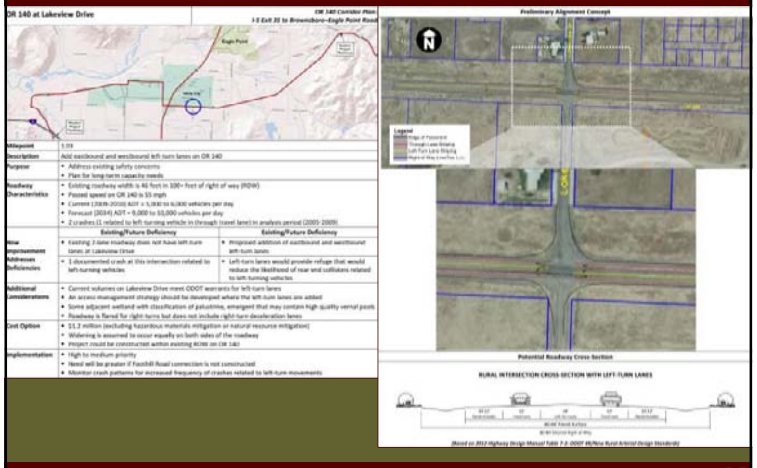
NEW - Corridor Plan Project Sheet 11



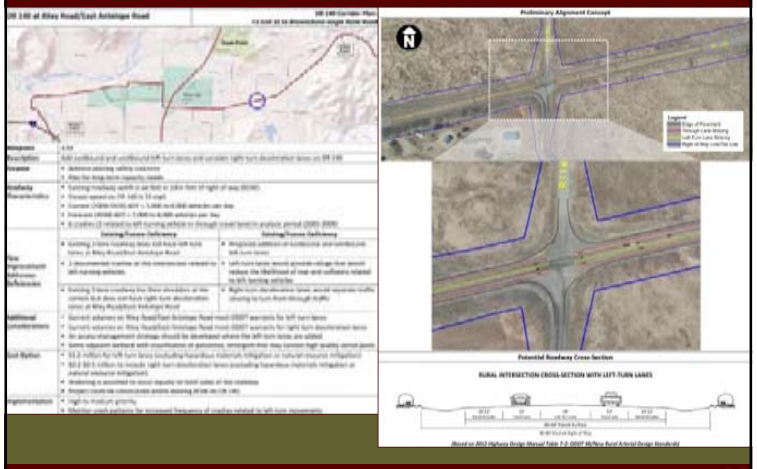
NEW - Corridor Plan Project Sheet 12



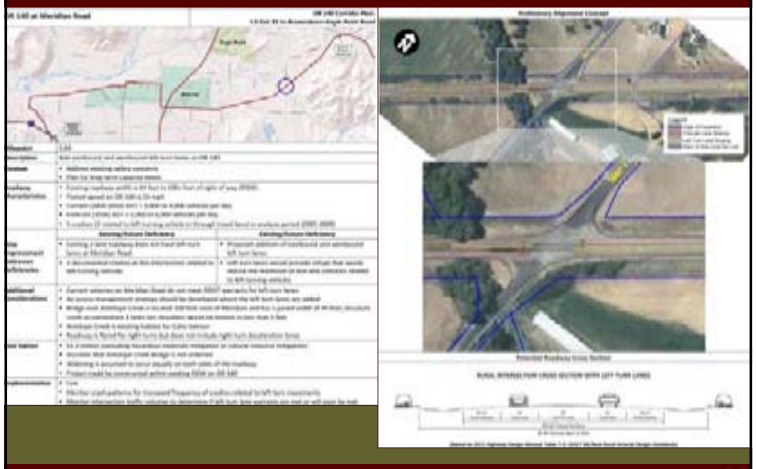
Corridor Plan Project Sheet 13



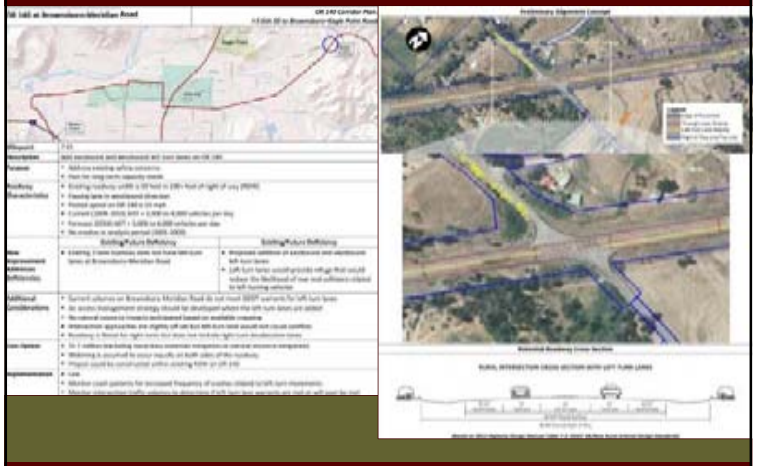
Corridor Plan Project Sheet 14



Corridor Plan Project Sheet 15



Corridor Plan Project Sheet 16



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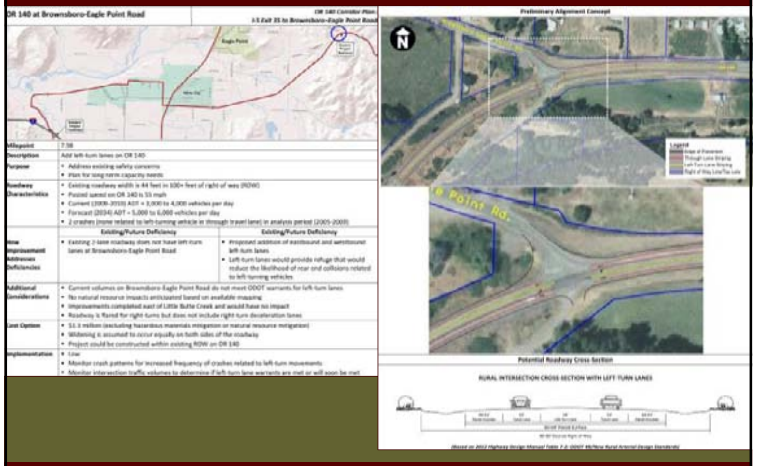
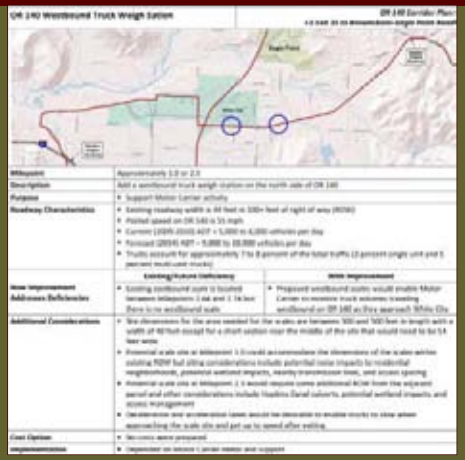


Corridor Plan Project Sheet 18



Access Management Plan

- Access Management Standards
  - Standards specified in the plan are codified with adoption by the OTC
- Access Management Actions
  - Access management techniques would be implemented when one or more of the following triggers occur:
    - Applications for land use changes or development are submitted
    - Future highway improvement projects move into design and construction
    - Safety and/or operational problems arise
  - Approval or delay of implementation may be determined by the Region Access Management Engineer.

Private Approaches

OAR 734-051-4020, Standards and Criteria for Approval of Private Approaches:

(8)(c) The spacing standards in Tables 3 through 6 do not apply to approaches in existence prior to January 1, 2012, except when:

(A) A new approach road is requested or an existing approach permit is subject to change of use under ORS 374.312; and

(B) Where infill development or infill redevelopment occurs the approach road spacing standards will be a department determination; the department shall determine whether the approach road spacing or safety is improved by moving in the direction of the spacing standards in Tables 3 through 6; and

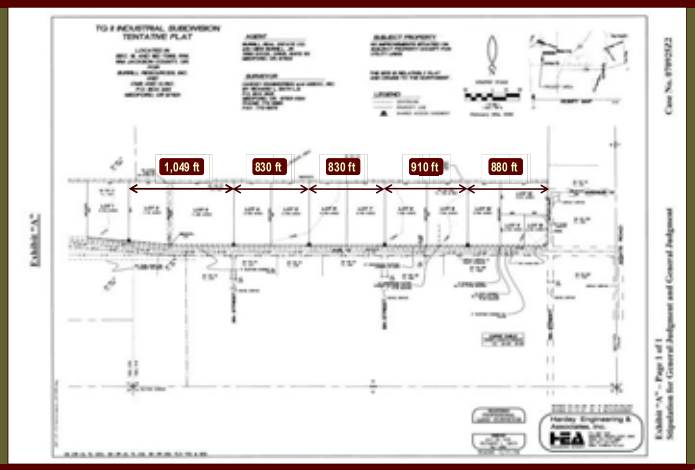
(C) Where a highway or interchange project occurs the approach road spacing standard will be a department determination; the department shall consider whether the approach road spacing or safety is improved by moving in the direction of the applicable spacing standards in Tables 3 through 6.

OR 140 Access Standards

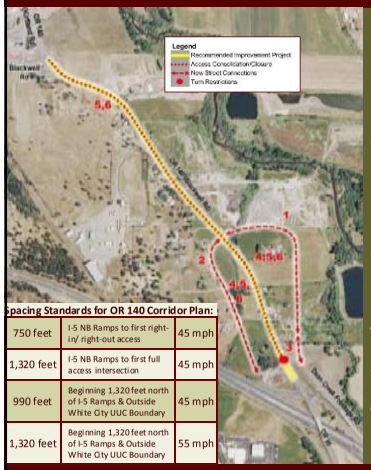
Table 1. Minimum Access Spacing Standards for OR 140

Milepoints	Segment Description	Posted Speed	Minimum Spacing
West of White City UUC Boundary			
MP -8.29 to -7.02	OR 140/Blackwell Rd: I-5 to Kirtland Rd	45 mph	990 feet
MP-7.02 to -4.33	OR 140/Kirtland Rd: Blackwell Rd to Pacific Ave	45/55 mph	990/1,320 feet
White City (within UUC Boundary)			
MP-4.33 to -2.71	OR 140/Kirtland Rd: Blackwell Rd to Pacific Ave	45/55 mph	800/1,320 feet
MP -2.71 to -2.55	OR 140/Pacific Ave: Kirtland Rd to Ave G	55	1,320 feet
MP -2.55 to -1.16	OR 140/Ave G: Pacific Ave to Agate Rd	45/55	800/800 feet
MP -1.16 to -0.20	OR 140/Agate Rd: Ave G to Leigh Way	45	800 feet
MP -0.20 to 0.0	OR 140/Leigh Way: Agate Rd to OR 62	Not Posted	800 feet
MP 0.0 to 1.75	OR 140: OR 62 to Brownsboro- Eagle Point Rd	55	1,320 feet
East of White City UUC Boundary			
MP 1.75 to 7.98	OR 140: OR 62 to Brownsboro- Eagle Point Rd	55	1,320 feet

Approved Access on North Side of Avenue G



AMP – I-5 to Kirtland Rd



Spacing Standards for OR 140 Corridor Plan:

750 feet	I-5 NB Ramps to first right-in/ right-out access	45 mph
1,320 feet	I-5 NB Ramps to first full access intersection	45 mph
990 feet	Beginning 1,320 feet north of I-5 Ramps & Outside White City UUC Boundary	45 mph
1,320 feet	Beginning 1,320 feet north of I-5 Ramps & Outside White City UUC Boundary	55 mph

1. Construct a local road parallel and east of Blackwell Road to serve development with connections to Blackwell Road that meet the minimum ¼-mile access spacing from the interchange as well as spacing standards for a statewide freight route (OR 140). This new road should intersect OR 140 opposite the new road west of Blackwell Road.
2. Construct a local road parallel and west of Blackwell Road to serve development with connections to Blackwell Road that meet the minimum ¼-mile access spacing from the interchange as well as spacing standards for a statewide freight route (OR 140). This new road should intersect OR 140 opposite the new road east of Blackwell Road.
3. Extend existing Dean Creek Frontage Road to connect with the new local road east of Blackwell Road and close or restrict access at the current connection immediately north of the interchange.
4. Orient new driveway connections towards these newly created parallel routes north of the interchange.
5. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
6. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.

AMP – Blackwell Rd to Pacific Ave

7. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
8. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.

Spacing Standards for OR 140 Corridor Plan:

990 feet	Outside White City UUC Boundary	45 mph
1,320 feet	Outside White City UUC Boundary	55 mph
800 feet	Inside White City UUC Boundary	45 mph
1,320 feet	Inside White City UUC Boundary	55 mph

AMP – Pacific Ave to OR 62

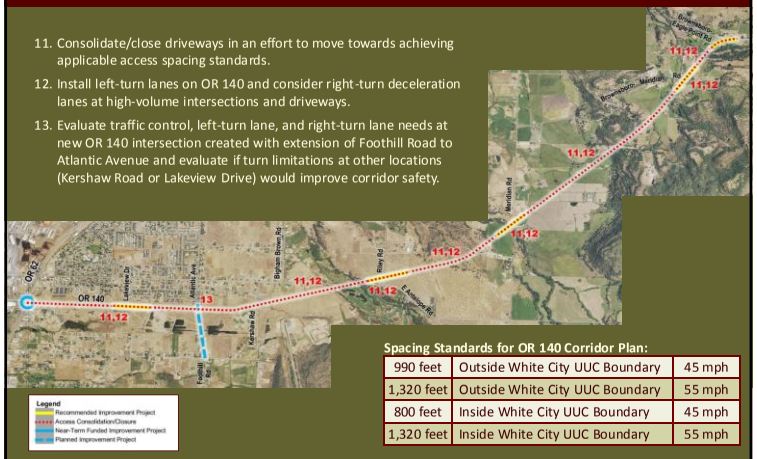
9. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
10. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.

Spacing Standards for OR 140 Corridor Plan:

800 feet	Inside White City UUC Boundary	45 mph
800 feet	Inside White City UUC Boundary	55 mph

AMP – OR 62 to Brownsboro-Eagle Point Road

11. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
12. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.
13. Evaluate traffic control, left-turn lane, and right-turn lane needs at new OR 140 intersection created with extension of Foothill Road to Atlantic Avenue and evaluate if turn limitations at other locations (Kershaw Road or Lakeview Drive) would improve corridor safety.



Spacing Standards for OR 140 Corridor Plan:

990 feet	Outside White City UUC Boundary	45 mph
1,320 feet	Outside White City UUC Boundary	55 mph
800 feet	Inside White City UUC Boundary	45 mph
1,320 feet	Inside White City UUC Boundary	55 mph

Management Actions

- Highway Classification and Designations
- Transportation Plan Coordination
- Transportation System Management Measures
- Transportation Demand Management Measures

Highway Classification and Designations

- Statewide Highway Classification (between I-5 Ramps)
- Freight Route Designation
- OR 140 Contingency Rerouting

Transportation Plan Coordination

- The 2009 OHP amendment to extend OR 140 extension from OR 62 to I-5 included a change in the federal functional classifications for the roadways that constitute the OR 140 extension from Rural Minor Arterial or Rural Minor Collector to Rural/Urban Principal Arterial.
  - When Jackson County next updates its TSP, the functional classification of the roadways that constitute OR 140 between I-5 and OR 62 should be upgraded for consistency with federal functional classifications for this statewide highway.
  - When the RVMPO next updates the RTP, the functional classification of the roadways that constitute OR 140 between I-5 and OR 62 should be upgraded for consistency with federal functional classifications for this statewide highway.

Transportation System Management Measures

- Traffic Monitoring Measures
  - Traffic Signals
    - Traffic volumes for traffic signal warrants
  - Left-Turn Lanes
    - Crash patterns related to left-turn movements
    - Traffic volumes for left-turn lane warrants
  - Right-Turn Lanes
    - Crash patterns related to right-turn movements
    - Traffic volumes for right-turn lane warrants
- OR 140/Blackwell Rd/Kirtland Rd Restriping
  - Investigate striping modifications to facilitate "two-stage" left turns from the eastbound STOP-controlled approach

Transportation Demand Management Measures

- Bicycle and Pedestrian Facilities
  - Plan includes the addition of improved bicycle and pedestrian facilities in the corridor through roadway modernization
- Park and Ride Facility
  - Support RVTD Bus Route 60 which travels along OR 62
  - Investigate locations for a future park-and-ride facility at OR 140/OR 62 intersection
    - Potentially take advantage of existing parking that is underutilized during the day
    - Potentially incorporate into future shared-use development
    - Potentially construct as a standalone parking lot.

Appendix 9-B

Citizen Advisory Committee Meeting Materials

OR 140 CORRIDOR PLAN

Citizen Advisory Committee Meeting #1

5:00 PM to 7:00 PM

June 16, 2011

ODOT White City Office
Conference Room B & C
100 Antelope Road
White City, OR 97503

AGENDA

1.	Introductions	Tom Guevara, ODOT
2.	Project Overview	Jennifer Danziger, DEA Shelly Alexander, DEA
3.	Review of Existing Conditions	Jennifer Danziger, DEA Shelly Alexander, DEA
4.	Existing Conditions Discussion	All
5.	Next Steps	Jennifer Danziger, DEA Tom Guevara, ODOT

OR 140 Corridor Plan

Citizen Advisory Committee

Meeting #1 – June 16, 2011

Draft Meeting Notes

Attendees: See Attached List

Introductions

Tom Guevara opened the first CAC meeting with a general overview of the project. He introduced himself as the ODOT project manager and identified the consultant team. We then went around the room and everyone in attendance stated their name and their affiliation.

Tom requested that all comments on Technical Memoranda (1-4) be submitted to him by July 28, 2011, the next TAC meeting date.

Project Overview

To set the stage for the meeting material Tom reference two adjacent area projects including: Interchange 35 Area Management Plan (IAMP 35) and the OR 62 Corridor Project. He clarified that the OR 140 Corridor project is coordinating with the two projects and the IAMP 35 project will address any improvements needed up to and including Blackwell Road.

Jennifer Danziger, the Consultant project manager, provided a brief overview of the OR 140 Corridor purpose, process, goals, planning area, and environmental and land use reconnaissance. She highlighted two environmental and land use "red flag" locations: high-value vernal pools and threatened species (vernal pool fairy shrimp and dwarf wooly meadow-foam). The information she covered is contained in slides 2 through 10 of the attached presentation. Ms. Danziger requested that the CAC members review the goals and objectives and provide comments or suggestions as appropriate.

Review of Existing Conditions

Ms. Danziger also presented a summary of the existing conditions data collection and analysis that has been completed to date. The information she covered is contained in slides 11 through 28 of the attached presentation.

Comments/questions during the presentation are documented below in the existing conditions discussion.

Existing Conditions Discussion

The following comments/questions were received during the meeting:

- Slides 17 and 20 have different peak hours shown. Which is it? Seems like it should be closer to 5:00 pm. *The observed PM peak hour is 3:30-4:30.*
- In general the truck traffic seemed higher before the recession. Personal observations at Brownsboro-Meridian Road.
- How will truck traffic be accounted for in the future conditions modeling effort? Will it include truck levels comparable to pre-recession levels?
- Knife River has two accesses on their property. One directly onto Kirtland Road, which is right-in. One onto Blackwell Road, full access. During the peak hour there is a back up along Blackwell Road at the intersection with Kirtland Road.
- It is difficult to see along Kirtland Road when weather is bad. Jennifer noted that a TAC member had mentioned that delineators were being considered because of frequently foggy conditions. The group agreed that delineators might help and expressed concern for one driveway near High Banks Road for consideration during the potential project.
-
- The CAC questioned the route selection for OR 140, specifically that it makes more sense to have the alignment along Antelope Road, not the Agate Road/Avenue G/Pacific Avenue alignment. Antelope Road is a more direct route while along the alignment chosen, the corner of Avenue G (next to the Fire House) is really sharp and slow (5 mph). She's concerned this will be an issue for trucks. Additional questions about a direct connection to I-5 as the ultimate route were raised. Jennifer distributed copies of the zoning and comprehensive plan land use figures for context regarding the alignment selection to illustrate the amount of industrial potential. John McDonald (ODOT) provided a history of how the alignment of OR 140 was selected. This included the high cost and environmental issues associated with a direct route to I-5 and high number of access points along Antelope Road. While direct access to adjacent properties may seem beneficial, too many access points can impact both the safety and capacity of a roadway. ODOT was concerned about managing accesses in the Antelope corridor including the potential cost of purchasing access rights as well as the potential business impacts. The selected route has comparatively fewer accesses to address.
- One CAC member commented that when it rains, the OR 140 alignment west of OR 62 is nearly impossible to see or travel safely.
- John McDonald provided an overview of the role of the CAC in developing the plan. He asked them to think about what they want from the plan and to provide input throughout the process but particularly about the goals and objectives. Their input will be used to help guide the types of alternatives considered and selected during the process. For example, if promoting economic development in the corridor is important to the committee members, then they should suggest a goal specifically about economic development be added to the plan.
- The CAC group was interested in how the OR 140 corridor will work once the OR 62 by-pass is built as well as the timeline associated with the by-pass improvements. Jennifer commented that the OR 140 study will coordinate with the OR 62 Corridor work including possible modifications to the OR 140/OR 62 intersection. John McDonald

commented that there is only partial funding for the improvements associated with the OR 62 by-pass project.

- Anecdotal information regarding safety was provided pertaining to several roll-over crashes on Blackwell Road.
- John McDonald mentioned that the County is planning to alter alignment of Pacific Avenue to smooth the curves at Avenue G and at Kirtland Road. Other projects that may happen in the future to improve the alignment of OR 140 include: an improved transition from Agate Street to Avenue G (providing a smoother curve), and from Leigh Way to Agate Street (providing a smoother curve). These projects may result in limited travel along what is currently known as Pacific Avenue. Some concerns involve the vernal pools and will require further analysis to determine if these are a fatal flaw.
- John McDonald also mentioned improvements associated with IAMP 35. Specifically, widening of the road starting approximately one-mile north of the northbound ramp terminal as well as possible realignment. It was also recommended to shift a portion of the road eastward to improve sightlines where the high banks inhibit sight distance. John McDonald challenged the CAC to consider adding a Goal or Objective to reflect the desires of the community, if needed.

Next Steps

DEA is currently working on the future conditions analysis for the corridor.

The next round of meetings (TAC, Citizen Committee, and Public Open Houses) is anticipated on July 27/28. We will provide as much notice as possible about the schedule for those meetings. Tom requested that members review technical memorandum #5 (Future Baseline Conditions) prior to attending the next CAC meeting and be ready to discuss or provide ideas for the concept development, the next phase of this study.

Attachments:
Attendance Sheet
PowerPoint Presentation

OR 140 Corridor Plan

CAC Sign-In Sheet
6/16/2011

Name	Agency	Phone No.	E-Mail	Sign-In
Thomas Guevara Jr.	ODOT Project Manager	541-957-3692	Thomas.Guevara@odot.state.or.us	Thomas Guevara Jr.
Jennifer Danziger	DEA Project Manager	503-499-0381	Jed@deainc.com	
Shelly Alexander	DEA Traffic Engineer	503-499-0241	Sma@deainc.com	
Curt Burrill	Burrill Real Estate	541-776-1311	Curtb@burrillco.com	
Mona Chisum	Cross Creek Trucking	541-773-3700 Ext. 128	Monac@crosscreektrucking.com	Mona Chisum
Wade Denny	Rogue Valley Sewer Services	541-664-6300	Wdenny@rvss.us	
Mark Gibson	Siskiyou Transportation Inc.	541-488-2755	Tllmark@mindspring.com	
Bert Morgan	Triple S Mt. Ranch 530-905-0622	~~541-973-0622~~	Morgan@triple-s-ranch.com	Bert Morgan
Mike Montero	Montero and Associates	541-779-0771	Montero-associates@charter.net	
Tom Gruszczenski	Knife River	541-941-0833	Tom.Gruszczenski@Kniferiver.com	
Jim Hofstrand	Amy's Kitchen Inc.	541-831-3053	jimhofstrand@amyskitchen.net	Jim Hofstrand

OR 140 Corridor Plan

Technical Advisory & Citizen Committees
Meeting #1 – June 16, 2011

DAVID EVANS AND ASSOCIATES INC

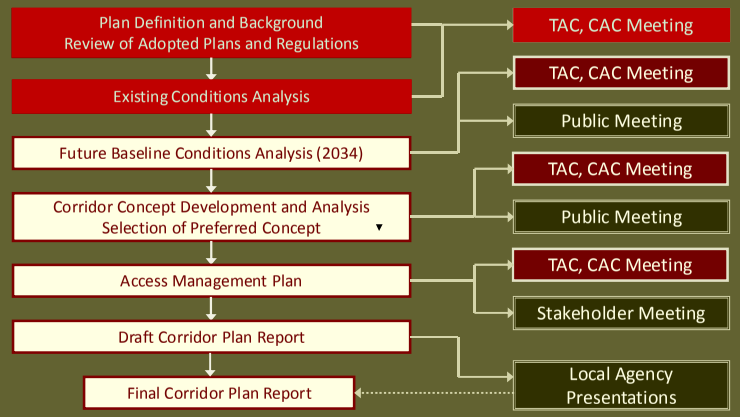
Presentation Topics

1. Project Overview
   - Purpose
   - Process
   - Goals & Objectives
2. Work Completed
   - Environmental and Land Use Reconnaissance
   - Existing Conditions Analysis
3. Next Steps

Project Purpose

- Determine how the existing highway functions
  - Existing conditions – Year 2010
  - Future conditions – Year 2034
- Identify strategies/improvements to enhance safety and capacity within the corridor
  - Demand and System Management
  - Additional Infrastructure
- Build upon other transportation projects
  - Highway 62 Corridor Project
  - I-5 Exit 35 Interchange Area Management Plan

Corridor Planning Process



Draft Corridor Goals

Four Goals with Supporting Objectives:

Goal 1: Mobility

Develop and implement management measures and physical improvements that maximize the efficiency of existing roadway facilities through 2034.

Goal 2: Freight Operations

Develop a plan that facilitates freight mobility in the corridor.

Draft Corridor Goals (continued)

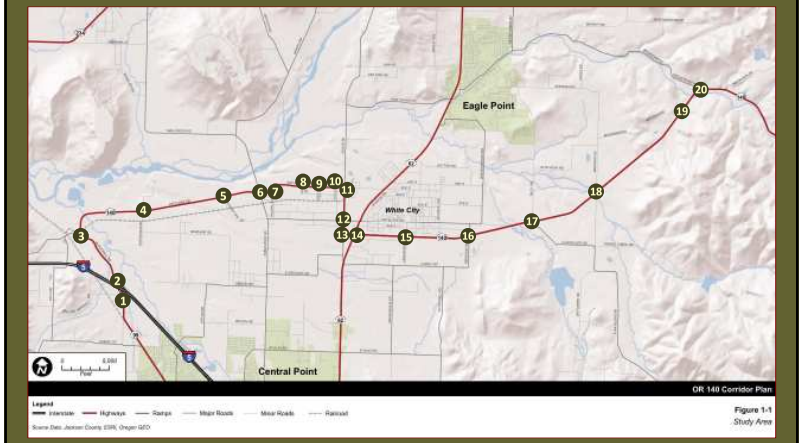
Goal 3: Safety

Promote the safety of current and future travel modes for all users.

Goal 4: Coordination

Coordinate planning efforts for OR 140 with other plans and projects in the study area.

Corridor Planning Area



Environmental and Land Use Reconnaissance

Reconnaissance was performed to understand existing environmental and land use issues and to help inform the process of developing conceptual alternatives.

- Environmental Reconnaissance
  - Natural resources such as riparian corridors, wetlands, wildlife habitat, and recreation trails
  - Wildlife crossings and threatened and endangered species
  - Floodplains and floodways
  - Air and noise quality
  - Hazardous materials
  - Visual resources

Environmental and Land Use (continued)

- Land Use Summary
  - Zoning and Comprehensive Plan designations
  - Community features
    - Parks and recreation areas
    - Historical and Archaeological Resources
    - Section 4(f) and 6(f) resources
  - Right-of-way
  - Canals and Culverts
- Socioeconomic and Environmental Justice

Potential Design Constraints

Tech Memo #2 includes an Environmental and Land Use "Red Flag" Summary of Potential Design Constraints

- Wetlands (Goal 5 Resource)
  - High-value vernal pools adjacent to right-of-way
  - Threatened species (vernal pool fairy shrimp and dwarf wooly meadow-foam)
- Historical and Archaeological Resources
  - Unlisted but potentially eligible historic resources
  - Potential archaeological (identified and unidentified) resources

Existing Transportation Analysis

- Transportation System Inventory
  - Roadways
  - Pedestrian and Bicycle Facilities
  - Transit
  - Freight
  - Intelligent Transportation Systems (ITS)
  - Rail
- Traffic Conditions
  - Design Hourly Volumes - 2010
  - Traffic Operations – 20 intersections
  - Crash History – 2005 through 2009

OR 140 Corridor Inventory

OR 140 Segment	Functional Classification		Posted Speed (mph)	No. of Lanes
	Federal[1]	Jackson County		
Blackwell Rd: I-5 to Kirtland Rd	Rural Principal Arterial - Other	Major Collector	45	2
Kirtland Rd: Blackwell Rd to Pacific Ave	Rural Principal Arterial	Major/Industrial Collector	45-55	2
Pacific Ave: Kirtland Rd to Ave G	Rural Principal Arterial	Industrial Collector	55	2
Ave G: Pacific Ave to Agate Rd	Rural Principal Arterial	Industrial Collector	35-55	2
Agate Rd: Ave G to Leigh Way	Rural Principal Arterial – Other	Industrial Collector	45	2
Leigh Way: Agate Rd to OR 62	Urban Principal Arterial	Major Arterial	Not Posted	2
OR 62 to Brownsboro-Eagle Point Rd	Urban/Rural Principal Arterial	Major Arterial	55	2-3

Inventory also addresses travel lane width, pavement width, and right-of-way

Local Road Inventory

Intersecting Roads		Functional Classification	Traffic Control at OR 140	Posted Speed (mph)	No. of Lanes
West of White City	High Banks Rd	Local	STOP Sign	55	2
White City	W Antelope Rd	Minor Arterial	STOP Sign	55	2
	Table Rock Rd	Minor Arterial	Traffic Signal	55	2
	5th St	Local	STOP Sign	55	2
	8th St	Local	STOP Sign	45	2
	11th St	Rural Major/ Urban Collector	STOP Sign	45	2
	Antelope Rd	Minor Arterial	Traffic Signal	45	2
	OR 62	Statewide	Traffic Signal	45	4
	Lakeview Dr	Local	STOP Sign	55	2
East of White City	Kershaw Rd	Rural Major/ Urban Collector	STOP Sign/Beacon	55	2
	Weigh Station EB	--	--	--	--
	Riley Rd/Antelope Rd	Minor Collector	STOP Sign	55	2
	Meridian Rd	Local	STOP Sign	55	2
	Brownsboro- Meridian Rd	Local	STOP Sign	55	2
	Brownsboro-Eagle Point Rd	Rural Major/ Urban Collector	STOP Sign	55	2

Pavement Conditions

MP -2.51
Avenue G

Section Name	Begin Milepoint	End Milepoint	Length (miles)	2010 Rating
Blackwell Rd: Junction with I-5 - Kirtland Rd	-8.29	-7.02	1.27	Very Good
Kirtland Rd: Blackwell Rd - Pacific Ave	-7.02	-2.71	4.31	Fair
Ave G: Pacific Ave - Agate St	-2.55	-1.16	1.39	Fair
Agate St: Ave G - Leigh Way	-1.16	-0.20	0.96	Poor
Leigh Way: Agate St – Junction OR 62	-0.20	0.00	0.20	Poor
Junction OR 62 – Brownsboro-Eagle Point Rd	0.00	7.98	7.98	Good

MP -1.055
Agate St

MP -0.3
Leigh Way

Pedestrian and Bicycle Facilities

- Sidewalks
  - Leigh Way & OR 62
- Crosswalks
  - Blackwell Road/I-5 SB ramps
  - Agate Road/Antelope Road
  - OR 140/OR 62
- Bike Facilities
  - No bike lanes
  - East of OR 62, shoulders are generally 8 to 10 feet
  - Other roadways such as Kirtland, Avenue G, and Agate, have some shoulders that are greater than 4 feet but most are not contiguous.

Other Facilities

- Bridges
  - 5 bridges with no deficiencies identified
- Transit Facilities
  - One route (#60) on OR 62 operated by RVTD
  - 30-minute headways, 5:00 AM to 6:30 PM, Monday through Friday
- Rail
  - Central Oregon and Pacific Railroad (CORP)
  - White City Terminal and Utility (WCTU) Railway
  - Two Crossings
    - Kirtland Road: north of Blackwell Road
    - Agate Road: south of Avenue G

Existing Traffic Volumes

- 20 Intersections along OR 140
- Turning movement data collected for 4-hour, 16-hour, or 24-hour periods
  - 3 counts from 2004
  - 1 count from 2007
  - 16 counts from 2010
- Common peak hour between 3:30 and 4:30 PM
- Converted to design hourly volumes (DHV) = 30th highest hour

Recent Traffic Volume Trends

Mile-point	Count Location	Average Annual Daily Traffic (AADT) Volume						Change
		2004[1]	2005	2006	2007[1]	2008	2009[2]	Total
-8.07	0.10 miles NW of Frontage Rd	-	-	-	-	-	8,400	NA
-6.97	0.05 miles N of Blackwell Rd	-	-	-	-	-	7,300	NA
-2.76	0.05 miles W of Pacific Avenue	-	-	-	-	-	4,100	NA
-1.21	0.05 miles W of Agate Rd	-	-	-	-	-	4,500	NA
-0.05	0.05 miles W of OR62	-	-	-	-	-	3,400	NA
0.12	0.12 miles E of OR62	5,400	5,300	5,200	5,800	5,200	5,400	0.0%
2.31	0.02 miles E of Kershaw Rd	4,300	4,200	4,100	5,400	4,900	5,000	16.3%
3.69	0.10 miles E of Riley Rd	4,800	4,700	4,600	3,900	3,500	3,600	-25.0%
7.96	0.02 miles SW of Brownsboro-Eagle Point Rd	3,500	3,400	3,400	3,300	2,900	3,100	-11.4%

1. Actual counts on OR 140 east of OR 62 were collected in 2004 and 2007.
2. Actual counts on OR 140 west of OR 62 were collected in 2009.

Note: Year 2010 AADT data is not available yet.

Recent Traffic Volume Trends (continued)

- No good history of former county roads
- Mix of increases and decreases east of OR 62

How does this affect future volumes?

Freight Traffic Volumes

Location	3:30 PM – 4:30 PM			Other Periods			
	Trucks[1]	Total Volume	Truck %	Trucks[1]	Total Volume	Truck %	Count Period[2]
West of High Banks Rd	49	420	12%	136	1,328	10%	4-hour
West of Table Rock Rd	37	282	13%	482	3,436	14%	16-hour
East of Table Rock Rd	26	261	10%	295	3,076	10%	16-hour
West of OR 62	16	410	4%	248	3,755	7%	24-hour
East of OR 62	34	621	5%	483	6,938	7%	24-hour
West of Brownsboro-Eagle Point Rd	19	264	7%	335	3,723	9%	16-hour

1. Trucks include single unit and tractor trailers.
2. All counts from 2010

Intersection Operations Evaluation

- Performance Measures
  - Volume/Capacity Ratio
    - *Volume = Traffic Demand*
    - *Capacity = Maximum Throughput*
  - Level of Service A through F based on delay
  - 95th Percentile Queues
- Performance Standards
  - ODOT Standards
    - V/C ratio of 0.85 statewide highway in MPO (west of OR 62)
    - V/C ratio of 0.80 statewide freight route in MPO (east of OR 62)
    - V/C ratio of 0.70 statewide freight route rural (east of Meridian)
  - Other Jurisdictions
    - V/C ratio consistent with ODOT

2010 Existing Intersection Operations

Intersection		Critical[1] Movement	2010 PM Peak Hour V/C Ratio[2]	LOS[2]	Delay[2] (sec.)	Operational Standards[3]
West of White City	1. OR 99 @ I-5 SB Ramps	Overall	0.85	B	42	0.85
	2. Blackwell @ I-5 NB Ramps	WB L	0.82	F	31	0.85
	3. Kirtland @ Blackwell	EB L/R	>1.0	F	>50	0.85
	4. Kirtland @ High Banks	NB L/T/R	0.06	B	4	0.85
White City	5. Kirtland @ W Antelope	NB L/T/R	0.19	B	5	0.85
	6. Kirtland @ Table Rock	Overall	0.37	B	12	0.85
	7. Kirtland @ Pacific Avenue	EB L/T/R	0.33	B	10	0.85
	8. Avenue G @ 5th	NB L/R	0.05	B	4	0.85
	9. Avenue G @ 8th	NB L/R	0.04	B	3	0.85
	10. Avenue G @ 11th	NB L/T/R	0.06	B	5	0.85
	11. Avenue G @ Agate	NB L/T/R	0.26	B	12	0.85
	12. Agate @ Antelope	Overall	0.54	B	11	0.85
	13. Agate @ Leigh	WB L	0.30	B	11	0.85
	14. Leigh/OR 140 @ OR 62	Overall	**0.93**	D	47	0.80
	15. OR 140 @ Lakeview	SB L/T/R	0.11	B	5	0.80
East of White City	16. OR 140 @ Kershaw	NB L/T/R	0.29	C	8	0.80
	17. OR 140 @ Riley	NB L/T/R	0.12	B	5	0.80
	18. OR 140 @ Meridian	SB L/T/R	0.02	A	6	0.80
	19. OR 140 @ Brownsboro Meridian	WB L/T/R	0.01	B	7	0.70
	20. OR 140 @ Brownsboro-Eagle Point	EB L/T	0.09	A	1	0.70

2010 Existing Intersection Queuing

Existing (2010) 95th Percentile Queues Exceeding Available Storage

Intersection	Approach & Movement	95th Percentile Queue (ft.)	Available Storage (ft.)	Percent Time Blocked[1]
5. Leigh Way/OR 140 @ OR 62 (Signalized)	EB L/T	175	150[3]	4
	NB L	275	275[3]	18
	NB T	975	400[2]	34
	NB R	250	175[3]	1
	SB T/R	825	425[2]	22

1. Percent time block reflects the percentage of time when the queue either extends out of a storage bay and interferes with the adjacent through travel lane or extends past the next upstream intersection.
2. Storage distance reflects spacing to the next public access point.
3. Storage distance reflects length of travel lane or turn bay.

Crash History

- January 1, 2005 through December 31, 2009 Data
- 145 Crashes reported in Corridor
- Crash Rates on OR 140

Segment	Reported Crashes: All Types	Reported Crashes: Fatal/ Severe Injury	Crash Rate: All Types (crashes/mvm)	Crash Rate: Fatal/ Severe Injury (crashes/100mvm)
West of OR 62	42	8	0.51	**9.61**
East of OR 62	49	3	**0.82**	5.02
Statewide Non-Freeway	-	-	1.22	5.12
Rural Non-Freeway	-	-	0.78	5.44

Segment crash rates exclude north/south crashes on OR 62

Crash Severity by Year (2005 - 2009)

Year	Crash Severity			Total # of Crashes	% by Year	Number of Fatalities/Injuries			
	Fatal/ Injury A	Injury B/C	PDO			Fatalities	Injury A	Injury B	Injury C
2005	3	24	21	**48**	33%	0	4	20	19
2006	3	17	13	**33**	23%	0	4	6	13
2007	3	15	4	**22**	15%	1	3	19	7
2008	1	9	11	**21**	14.5%	0	2	2	10
2009	2	12	7	**21**	14.5%	0	3	4	19
Total	**12**	**77**	**56**	**145**	**100%**	**1**	**16**	**51**	**68**
% by Severity	8%	53%	39%						

Fatal crash occurred on Blackwell Road 0.1 miles south of Kirtland Road – one vehicle, speed was a factor

Crash History (continued)

- Collision Types
  - Four Types account for 91% of all crashes
    - Turning, Fixed Object, Rear End, Angle
  - No Pedestrian or Bicycle collisions
- Segments (between intersections)
  - 51 crashes
  - Highest crash segments
    - Blackwell from Frontage to Kirtland (12 crashes – 1 fatal, 1 severe)
    - Kirtland from High Banks to Table Rock (10 crashes)
    - Kirtland from Blackwell to High Banks (9 crashes – 1 severe)

Crash History (continued)

- Intersections
  - 94 crashes
  - Highest crash intersections
    - OR 62 @ OR 140 (33 crashes – 1 severe)
      - *5 in east/west direction*
      - *28 in north/south direction including the severe injury*
    - Kershaw @ OR 140 (15 crashes – 2 severe)
    - Table Rock @ Kirtland (13 crashes – 2 severe)
      - *11 of 13 occurred in 2005 & 2006 – signal installed spring of 2006*
    - Kirtland @ Blackwell (7 crashes – 2 severe)
      - *Intersection reconfigured in 2010, turn lanes added*
    - Riley @ OR 140 (6 crashes – 1 severe)

Crash History (continued)

- Safety Priority Index System
  - No top 10% locations
- Safety Investment Program
  - West of OR 62
    - No ratings available
    - 4 fatal/severe crashes Blackwell & Kirtland in 3 years
    - Equivalent to a Category 3* ranking
  - East of OR 62
    - Category 1 and 2 rankings

*Funding is generally targeted at locations with Category 3 through 5 rankings

Next Steps

- Future Conditions Analysis
  - 2034 Baseline Condition – Forecasting
- Upcoming Meeting Dates -
  - TAC and Citizen Meetings
  - Public Open House
  - End of July

OR 140 CORRIDOR PLAN

Citizen Advisory Committee Meeting #2

2:00 PM to 4:00 PM

July 28, 2011

ODOT White City Office
Conference Room B & C
100 Antelope Road
White City, OR 97503

AGENDA

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1. Introductions	Tom Guevara, ODOT
2. Work Completed	Jennifer Danziger, DEA
• Future Baseline Conditions	Shelly Alexander, DEA
• Draft Deficiency Matrix	
3. Project Discussion	All
• Concept Development	
4. Project Update	Jennifer Danziger, DEA
• Schedule	Tom Guevara, ODOT
• Upcoming meetings	
5. Next Steps	Jennifer Danziger, DEA Tom Guevara, ODOT

OR 140 Corridor Plan

Citizen Advisory Committee

Meeting #2 – July 28, 2011

Draft Meeting Notes

Attendees: See Attached List

Introductions

Tom Guevara opened the CAC meeting as the ODOT project manager, identified the consultant team, new committee member Bill Leavens, and went around the room for everyone in attendance to state their name and affiliation.

Tom and Jennifer Danziger, the Consultant project manager, provided an overview of the Open House which was held the previous night. The highlights of the Open House included concerns in the following areas:

- Blackwell Road: regarding access, widening, and property impacts.
- High Banks Road: regarding volumes, mailbox location, school bus stop locations, and the aggregate/asphalt plant on the south side of OR 140. Specifically the large trucks that access OR 140 from High Banks due to the County limiting access for heavy vehicles on adjacent routes.
- High Banks and Brownsboro Roads: turn lanes are needed to separate/provide a refuge from mainline OR 140 traffic.
- Foothills Road: regarding a perceived crash issue along OR 140 in the vicinity of where the Foothills Road alignment will likely intersect.

Before the presentation of the future baseline analysis, Tom requested that all comments on Technical Memorandum 5 be submitted to him by August 22, 2011. Tom will consolidate the comments and send to DEA on or before September 1. Jennifer requested that any geometric or operational concerns/questions also be sent to her for consideration in the concept development work.

Overview of Work Completed

Tom reiterated that the OR 140 project is coordinating with the Interchange Area Management Plan (IAMP) 35 work and will only address widening (if needed) along Blackwell Road. Access management and other improvements along Blackwell Road will be addressed as part of the IAMP 35 project.

Jennifer provided a brief update on the existing conditions presented at the first TAC meeting. She also provided an outline of the remainder of the meeting which included: a review of the

future baseline analysis, a summary of the deficiencies identified, and a facilitated discussion regarding potential concept development to be considered for the next phase of the project.

The information she covered is contained in slides 2 through 14 of the attached presentation.

On slide 3 at the Blackwell/Kirtland Road intersection, Jennifer noted that the existing conditions presented at the previous meeting was overestimating how traffic peaked during the hour. The peaking factor has been to better reflect current operations and be more consistent with adjacent intersections.

Comments/questions during the presentation are documented below in the future baseline conditions discussion.

Baseline Analysis Conditions Discussion

The following comments/questions were received during the meeting:

- Can the ADT slide be made available for committee members?
- Members commented on the traffic distribution (slide 7-OR 140: Kirtland Road west of Antelope Road). With regard to slides 7 and 8, the group suggested that the public perception of the OR 140 route is very much different than the trip distributions shown in 'green'. The group was specifically interested if all of the I-5 is heading northbound on OR 62. *Jennifer noted that this information is based on the forecasting model and not on surveys of route users. She said that we'd verify the origin/destination data, but the model is not showing it as the predominant movement.*
- Quarries along the OR 140 route provide the majority of the aggregate for Jackson County and therefore see large (day-to-day) surges of heavy vehicles to meet the demand. *Jennifer suggested that while the day-to-day fluctuation may be present, the trends are reasonable predictions of travel patterns.*
- Conflict with OR 140 identified issues along Agate Road (Leigh/Avenue G) and Avenue G (Agate/OR 62) versus the OR 62 Phase 3 improvements. OR 62 plans may negate OR 140 project/improvements. *Review of the potential alignments after the meeting shows that OR 62 would overlap the current OR 140 route as it runs along Agate. The OR 62 alignment would prohibit a connection between Agate Road and Leigh Way and between Agate Road and Avenue G. The alternatives analysis will need to consider changes to the OR 140 corridor routing should this later phase of the OR 62 project be constructed. At this time, the project is not funded and timing for construction is indefinite.*
- Comments supported the possible Foothill Road connection. Can OR 140 speeds be lower at the Foothill connection? Has a Foothill overpass been considered over OR 140 that connects to Atlantic? As an alternative can Kershaw be improved instead since it is a more rural road (Atlantic serves residential)?
- Discussion regarding funding opportunities included: CMAC funds, Freight corridor improvements, and improvements to address freight bottlenecks.

- Dry Creek landfill and rock pit exist between Kershaw Road and Riley/E Antelope possibly accounting for the change in ADT/growth/truck percentages in this area.
- Turn lanes (acceleration/deceleration/center lane) would be helpful at numerous intersections throughout the corridor including: the Dry Creek landfill driveway, RVTD expansion area (westbound onto Antelope), High Banks Road, and Meridian. *Can the OR 140 project receive a goal exception to acquire EFU land for Right-of-way?*
- The Fernhill Viaduct improvements will likely alter traffic patterns in the OR 140 study area. It is currently in the freight plan as bottleneck relief. Can pavement funds be reoriented to DSTIP projects or corridor outreach?
- The group agreed that the following projects should be considered during the conceptual design/improvement phase:
    - Realignment or changes to intersection of Avenue G and Agate Road
    - Widening and possible realignment of Blackwell Road
    - Realignment an reorientation of intersection of Agate Road and Leigh Way (County scoped this project a couple of years ago and may be able to share the findings)
    - Delineation on OR 140 between Interchange 35 and OR 62
    - Improvements to Avenue G (Agate Road to OR 62)
    - Improvements to the Agate Road railroad crossing
    - Updates/modifications to roadway classifications along the OR 140 route west of OR 62.

  Comments: Can updating the Wheatstone Bridge also be considered as a project? Can the upgrading of the segment of Avenue G (between OR 62 and Agate Road) help relieve freight congestion experienced as a result of the sharp corner at the Leigh Way/Agate Road intersection? If so, a purpose and need statement may be needed as part of this project to assist in applying for funding.

Next Steps

DEA is currently working on the concept development analysis for the corridor. This will be discussed at the next meeting.

The next round of meetings (TAC, Citizen Committee, and Public Open Houses) is anticipated in late October or early November. We will provide as much notice as possible about the schedule for those meetings.

Attachments:
Agenda
Attendance Sheet
PowerPoint Presentation

DAVID EVANS AND ASSOCIATES INC.

JOB DESCRIPTION OR 140 CAC #2

CALCULATION FOR

JN.

BY DATE 7/28/11

SHEET OF SHEETS

CHECKED BY DATE 2-4

NAME	REPRESENTING	PH/EMAIL
SHELLY ALEXANDER	DAVID EVANS, ASSOCIATES	503.499.0241 sma@deainc.com
JENNIFER DANZIGER	"	503.223.6663 jed@deainc.com
Thomas Guevara	ODOT	541.957.3692
KELLY WORTHINGTON	ODOT	541 776 6004
MONA Chisum	Cross Creek Trucking	541-423-1346
Curt Burrill	Burrill Real Estate	541-776-1311
Bert Morgan	Triple S Ranch	541-831-1625
MIKE MONTERO	MONTERO & ASSOC LLC	541-779-0771
BILL LEADENS	L&S ROCK PRODUCTS	541-840-7290
MARK Gibson	Siskiyou Transportation	541-488-2755 mark@siskiyoutrans.com
TOM GRUSZCZENSKI	KNIFE RIVER	541-770-2960 TOM.GRUSZCZENSKI @KNIFERIVER.COM

OR 140 Corridor Plan

Technical Advisory & Citizen Committees Meeting #2– July 28, 2011

DAVID EVANS AND ASSOCIATES INC

Presentation Topics

1. Update on Existing Conditions
2. Review of Future Baseline Analysis
   - Traffic Volumes
   - Operations
3. Summary of Deficiencies
4. Concept Development Discussion

Update on Existing Conditions

- Additional Goal
  - Economic Vitality – Develop integrated transportation facilities and services that can adequately support travel for business and recreation opportunities.
- Blackwell/Kirtland Road Intersection
  - Previous analysis showed eastbound approach of Blackwell/Kirtland as failing under design hour conditions
  - Peaking characteristics were too conservative within the design hour
  - **Revised v/c ratio for the eastbound approach is 0.77 under 2010 design hour conditions**
- Kershaw Road Crash Rate Follow Up
  - Kershaw @ OR 140 (15 crashes – 2 severe)
  - 9 crashes in 2005, 6 crashes in next 4 years
  - Intersection improvements were completed in 2006

Future Baseline Condition Analysis

- Future Traffic Volumes
  - 2034 Regional Transportation Plan (RTP)
  - Average Daily Volumes on Segments
  - Peak Hour Volumes at Intersections
  - Traffic Distribution Analysis
- Operational Analysis
  - Intersections (V/C, LOS, Queues)

Future Traffic – 2034 RTP Scenario

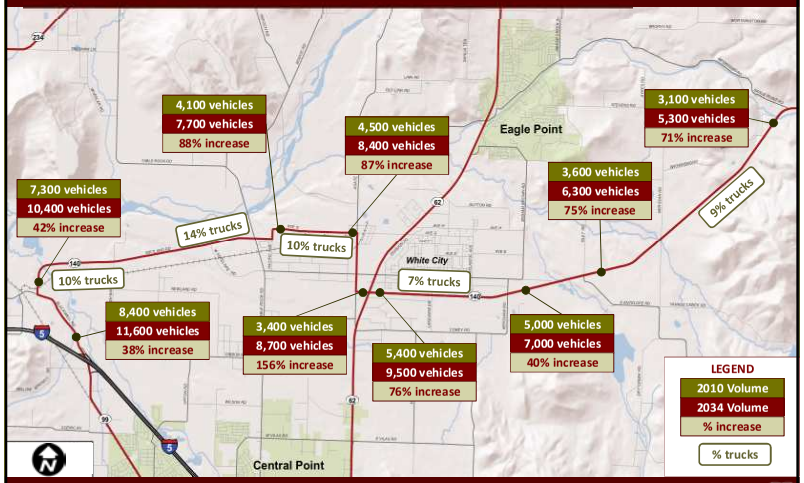
- Serves as the future baseline condition for OR 140
- Based on Regional Travel Demand Model:

Regional	2009	2034
Population	172,665	248,324
Employment	115,430	150,666

Source: 2009-2034 Regional Transportation Plan

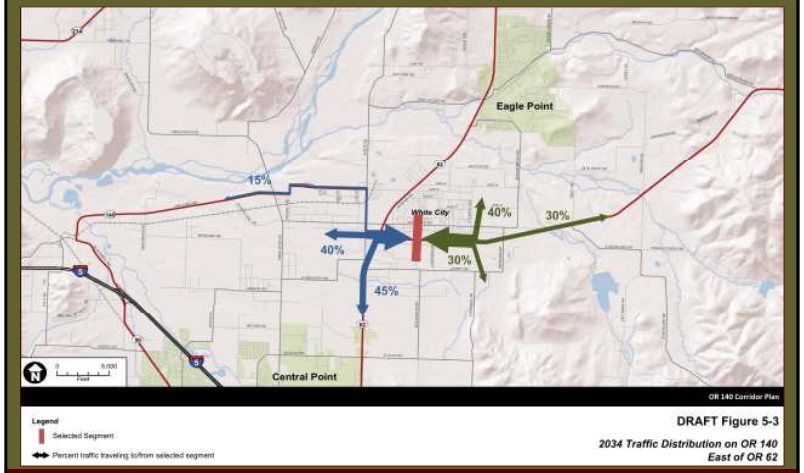
- Network used is the financially-constrained RTP network with some OR 62 Expressway elements added

Average Daily Traffic Volumes



Future Traffic Distribution

Future Traffic Distribution



2034 Existing Intersection Operations

Intersection		Critical Movement	2034 PM Peak Hour V/C Ratio	LOS	Delay (sec.)	Operational Standards
West of White City	1. OR 99 @ I-5 SB Ramps	Overall	1.04	D	110	0.85
	2. Blackwell @ I-5 NB Ramps	WB L	0.90	F	43	0.85
	3. Kirtland @ Blackwell	EB L	0.99	F	38	0.85
	4. Kirtland @ High Banks	NB L/T/R	0.08	C	7	0.85
White City	5. Kirtland @ W Antelope	NB L/R	0.28	C	9	0.85
	6. Kirtland @ Table Rock	Overall	0.53	B	19	0.85
	7. Kirtland @ Pacific Avenue	NB L/R	0.24	C	8	0.85
	8. Avenue G @ 5th	NB L/R	0.19	B	6	0.85
	9. Avenue G @ 8th	NB L/R	0.14	B	5	0.85
	10. Avenue G @ 11th	NB L/T/R	0.09	B	7	0.85
	11. Avenue G @ Agate	EB T/R	0.71	C	17	0.85
	12. Agate @ Antelope	Overall	0.69	C	24	0.85
	13. Agate @ Leigh	WB L	0.66	D	18	0.85
	14. Leigh/OR 140 @ OR 62	Overall	1.32	F	>200	0.80
	15. OR 140 @ Lakeview	SB L/T/R	0.22	C	>200	0.80
East of White City	16. OR 140 @ Kershaw	SB L/T/R	0.45	D	11	0.80
	17. OR 140 @ Riley	NB L/T/R	0.15	C	9	0.80
	18. OR 140 @ Meridian	EB L/T/R	0.02	A	9	0.80
	19. OR 140 @ Brownsboro Meridian	NB L/T/R	0.01	A	14	0.70
	20. OR 140 @ Brownsboro-Eagle Point	SB L/R	0.05	A	3	0.70
New	21. OR 140 @ Foothills	NB L/T/R	2.25	F	111	0.80

2034 Existing Intersection Queuing

Intersection	Approach & Movement	95th Percentile Queue (ft.)	Available Storage (ft.)	Percent Time Blocked[1]
7. Kirtland Rd @ Table Rock Rd	EB T/R	225	150 [2]	3%
12. Agate Rd @ Antelope Rd (Signalized)	SB L	175	150 [3]	
14. Leigh Way/OR 140 @ OR 62 (Signalized)	EB L	225	130 [3]	4%
	EB R	225	130 [3]	2%
	WB L	350	200 [3]	96%
	WB T	6750		1%
	NB L	300	130 [3]	68%
	NB T	2675	400 [2]	35%
	NB R	325	175 [3]	11%
	SB L	275	200 [3]	
	SB T/R	2275	425 [2]	
15. OR 140 @ Lakeview Drive	SB L/T/R	500	300 [2]	

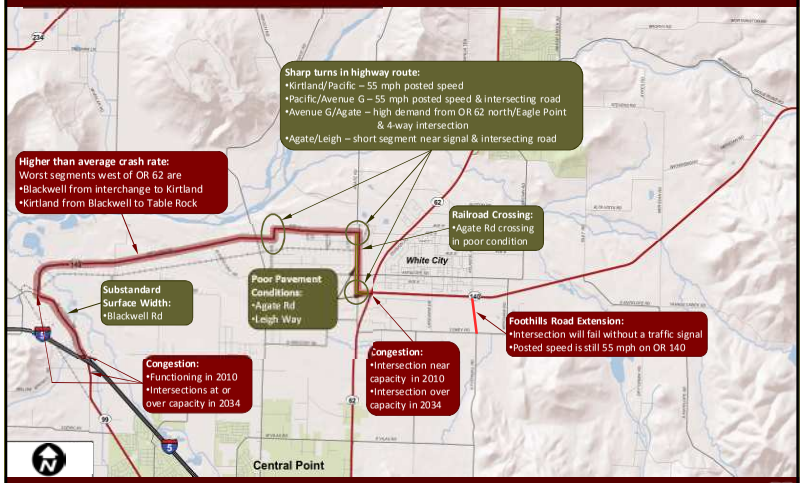
1. Percent time block reflects the percentage of time when the queue either extends out of a storage bay and interferes with the adjacent through travel lane or extends past the next upstream intersection.
2. Storage distance reflects spacing to the next public access point.
3. Storage distance reflects length of travel lane or turn bay.

Potential Design Constraints

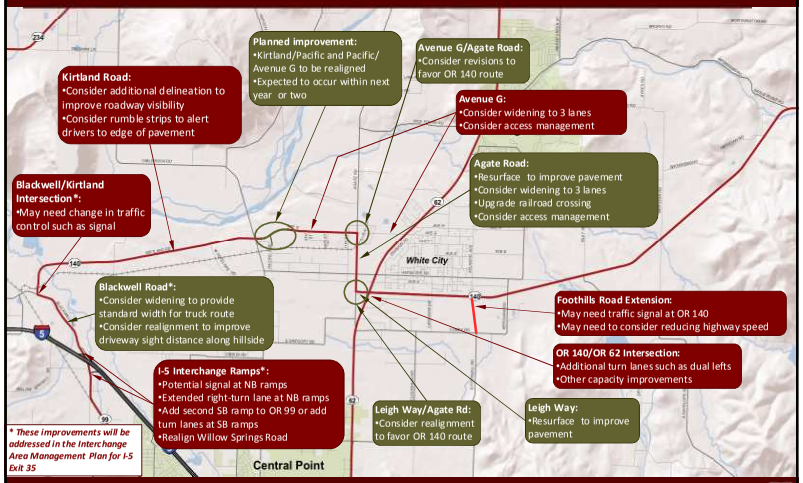
Tech Memo #2 includes an Environmental and Land Use "Red Flag" Summary of Potential Design Constraints

- Wetlands (Goal 5 Resource)
  - High-value vernal pools adjacent to right-of-way
  - Threatened species (vernal pool fairy shrimp and dwarf wooly meadow-foam)
- Historical and Archaeological Resources
  - Unlisted but potentially eligible historic resources
  - Potential archaeological (identified and unidentified) resources

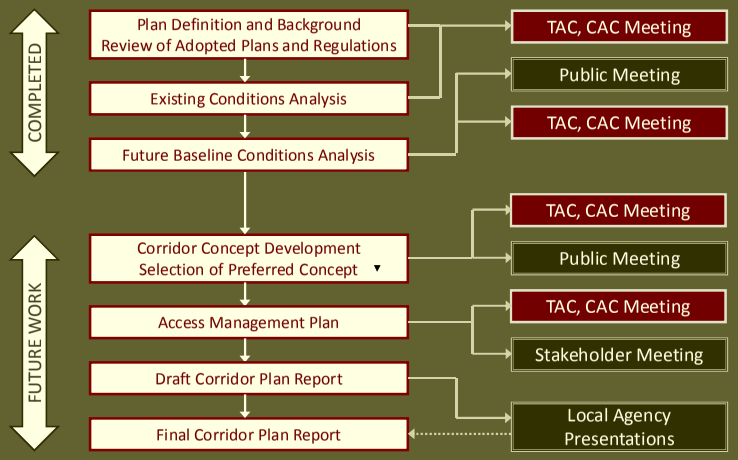
Identified Issues



Potential Solutions to be Considered



Corridor Planning Process



Next Steps

- Concept Analysis and Evaluation
- Selection of Preferred Concepts
- Upcoming Meeting Dates
  - TAC and Citizen Meetings
  - Public Open House
  - Potentially October

OR 140 CORRIDOR PLAN

Citizen Advisory Committee Meeting #3

2:00 PM to 4:00 PM

November 16, 2011

ODOT White City Office
Conference Room B & C
100 Antelope Road
White City, OR 97503

AGENDA

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1. Introductions	Tom Guevara, ODOT
2. Alternatives Analysis	Jennifer Danziger, DEA
• Concept Development	Shelly Alexander, DEA
• Concept Analysis & Evaluation	
3. Concept Discussion	All
4. Next Steps	Jennifer Danziger, DEA Tom Guevara, ODOT

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OR 140 Corridor Plan

Citizen Advisory Committee

Meeting #3 – November 16, 2011

Draft Meeting Notes

Attendees: See Attached List

Introductions

Tom Guevara opened the CAC meeting as the ODOT project manager, identified the consultant team, and went around the room for everyone in attendance to state their name and affiliation.

Tom provided a high-level picture of the project to-date and topics to keep in mind while reviewing the concepts. He challenged the committee to consider the need for an alternative secondary corridor to OR 62 which serves the suburbs; specifically OR 140 via Interstate 5 (I-5) and OR 140. Would the secondary corridor provide a larger regional perspective? Is this perspective desirable? He also mentioned the need for shovel ready development, posing the question should we develop "reserve" capacity? This idea could help in the decision-making process when weighing the merits of a 2-lane facility versus a 3-lane facility. He finally reiterated that at the end of the concept development phase a final "preferred concept" must be chosen. Part of the documentation of the "preferred concept would include project categories to assist in identifying funding options. The categories could include: modification, safety, operations, bridge, and pedestrian and/or bicycle.

Tom passed out copies of the draft Technical Memorandum #6-Concept Development and Evaluation Matrix for review by the committee. Comments from the committee are due January 1, 2012.

Tom and Jennifer Danziger, the Consultant project manager, provided an overview of the Open House which was held the previous night. The highlights generated concerns by the committee with regard to impacts to adjacent businesses such as Biomass, Johnny Cat, and Knife River. These concerns are discussed further in the discussion of the Concept Development and Concept Alternatives Analysis sections.

Overview of Work Completed

Jennifer provided an outline of the remainder of the meeting and a brief update of the planning process as shown on slides 2 and 3 of the attached presentation.

Concept Development

Jennifer presented four types of improvements including: Highway Redesignation, Jackson County Reclassification, Segment Improvements, and Intersections Improvements. The first two (redesignation and reclassification) are process improvements including paperwork, while the latter two improvements are physical changes to the pavement on the ground. All of the

concepts assume the JTA improvements associated with OR 62 through Cory Road. Additional concepts respond to the completion of the full corridor. Finally, Jennifer reviewed the concept evaluation criteria. Concept development information can be found in slides 4 through 6.

Concept Analysis and Evaluation

Jennifer first presented the concepts associated with redesignation and reclassification (slide 7). These concepts generated conversation among committee members including concern for the potential impacts to Biomass (located along Avenue G between Agate Road and OR 62) and discussion of urban standards compared to rural standards. There was mention of the new pedestrian and bicycle facilities along Antelope Road and the limited use by non-vehicle modes, raising the question of whether it makes sense to build urban standard roadways in the industrial area. Tom mentioned that he'd talk to DLCD about the cross-section that they'd require for OR 140 and posed the idea of creating a new rural arterial standard. He suggested working with Jackson County on the improvements to Avenue G (between OR 62 and Agate Road) to access the opportunity of the project qualifying for state/federal funding.

Next she presented the segment improvements followed by the intersection improvements. These concepts can be found in slides 8-24 of the attached presentation.

The following comments/questions were received during the meeting:

- With respect to Blackwell Road, it was mentioned that the hillside is perceived as a major contributing cause to the safety issues. Additionally, members were interested if curbs will slow traffic down. *The consultant team is strongly considering a 3-lane cross section for this section of roadway as well as a freight route designation.*
- Members expressed interest in possible options along Kirtland Road such as embedded reflectors, guardrail and lighting to assist with the non-recoverable ditches adjacent to the Harry and David orchards. The group also mentioned wildlife crossings between Bear Creek and High Banks Road.
- Recently, development has occurred near High Banks Road including a Ready Mix plant (within the last year) and asphalt plant (within last 6 months). These uses may not be captured in the count data. Members expressed agreement with the idea of left-turn lanes at this intersection. *The consultant team will consider turn lanes (acceleration and deceleration) and/or flashing beacons at High Banks in response to these developments.*
- Members expressed an interest in limiting the "throw-away" improvements at the Agate Road/OR 140 intersection. At a minimum they agreed that safety improvements were necessary.
- The section of Avenue G (County) has an awkward, angled approach to OR 62. It can be difficult for trucks to make the eastbound right turn. The northbound left turn is also affected but to a lesser extent. *Can any improvements be made today at this intersection for this movement?*
- DEA asked and members indicated that some drivers are currently using the center lane along OR 140, adjacent to the Blackwell/Kirtland intersection, as a two-stage turn lane today. *DEA will follow-up with ODOT Rail to determine if they'd support the restriping.*

- Along W Antelope Road, the group agreed that consideration be given to RVTD's service expansion to serve Amy's Kitchen, Amy's Kitchen expansion.
- Members expressed a desire to prioritize movements at the intersection of Agate Road at Avenue G. The eastbound free right-turn and merge before the railroad crossing was thought to be a good option.
- At the intersection of Agate Road and Leigh Way the members supported the channelized right-turn lane with atypical westbound channelized control.
- Tom raised some questions about the need for lighting and possibly guard rails in the corridor and asked DEA to check on standards for when these measures should be implemented.

Next Steps

DEA is waiting on comments from the Citizen and Technical Advisory committees, due January 1, 2012. They will then conduct analysis of modified or additional concepts, and with direction from the state, stakeholders, and input from the advisory groups select a preferred concept to be presented at the next Citizen and Technical Advisory committee meetings.

The next round of meetings (TAC, Citizen Committee, and Public Open Houses) is anticipated in late February or early March. We will provide as much notice as possible about the schedule for those meetings.

Attachments:
Agenda
Attendance Sheet
PowerPoint Presentation

OR 140 Corridor Plan

Citizen Advisory Committee (CAC)
Sign In Sheet
11/16/11

Initial	Name	Agency	Phone No.	E-Mail
TG	Thomas Guevara Jr.	ODOT Project Manager	541-957-3692	Thomas.Guevara@odot.state.or.us
JD	Jennifer Danziger	DEA Project Manager	503-499-0381	Jed@deainc.com
	Shelly Alexander	DEA Traffic Engineer	503-499-0241	Sma@deainc.com
CB	Curt Burrill	Burrill Real Estate	541-776-1311	Curtb@burrillco.com
MC	Mona Chisum	Cross Creek Trucking	541-773-3700 Ext. 128	Monac@crossreektrucking.com
WD	Wade Denny	Rogue Valley Sewer Services	541-664-6300	Wdenny@rvss.us
	Mark Gibson	Siskiyou Transportation Inc.	541-488-2755	Tllmark@mindspring.com
	Bert Morgan	Triple S Mt. Ranch	530-905-0622	Morgan@triple-s-ranch.com
	Mike Montero	Montero and Associates	541-779-0771	Montero-associates@charter.net
TG	Tom Gruszczenski	Knife River	541-941-0833	Tom.Gruszczenski@Kniferiver.com
JH	Jim Hofstrand	Amy's Kitchen Inc.	541-831-3053	jimhofstrand@amyskitchen.net
WL	William (Bill) Leavens	Property Owner	541-840-7790	leavensb@landsrock.com

OR 140 Corridor Plan

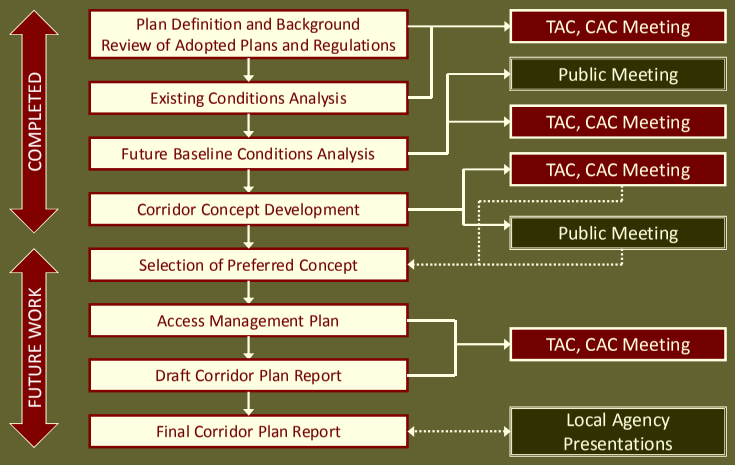
Citizen Advisory Committee
Meeting #3 – November 16, 2011

DAVID EVANS AND ASSOCIATES INC

Presentation Topics

1. Concept Development
2. Concept Alternatives Analysis
3. Discussion
   - Ideas for modifications to concepts or additional concepts that could be evaluated
   - Input for selection of preferred concepts

Corridor Planning Process



Concept Development

- Type of Improvements
  - **Highway Redesignation** – address consistency in statewide classification or respond to system changes imposed by other projects
  - **Jackson County Reclassification** – address consistency between the state and county
  - **Segment Improvements** – address geometric, safety, or operational deficiencies in the OR 140 corridor
  - **Intersection Improvements** – address geometric, safety, or operational deficiencies at individual intersections

Concept Development

- Roadway Network Assumptions
  - All concepts assume that OR 62 Phase 1 and 2 improvements (Jobs in Transportation Act) are constructed (through Cory Road)
  - Some concepts respond to the completion of the full corridor improvement identified in the OR 62 Corridor Solutions Environmental Impact Statement (EIS)

Concept Evaluation Criteria

- Traffic Operations and Safety
  - Does the improvement address existing operational or safety concerns?
  - Will it cause additional concerns?
- Basic Roadway Geometry and Right of Way (ROW)
  - How might the improvement look?
  - Would it require additional right of way?
- Environmental and Land Use
  - Would the improvement have any potential impact to land uses or environmental resources?
- Cost Opinion*
  - How much would it cost?

** Cost opinions do not include estimates of ROW costs or mitigation.*

Highway Redesignation & Reclassification

- Highway Redesignation
  - Extend statewide designation through Exit 35
  - Extend freight designation west of OR 62
  - Reroute OR 140 along Crater Lake Highway and Avenue G when OR 62 full corridor improvements are implemented (inset right)
- Jackson County Reclassification
  - Changes to Transportation System Plan for consistency with OR 140 route (inset below)

Blackwell Road Improvements

Purpose: Safety, Capacity, Consistency with Statewide Design Standard

Options: 2-Lane Rural Cross-Section
3-Lane Rural Cross-section

Traffic Operations:
2-Lane – Some congestion without left-turn lanes
3-Lane – Center median provides left-turn refuge

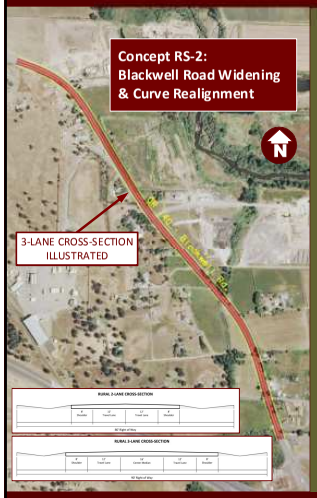
Safety:
2-Lane – Some benefit from wider shoulders
3-Lane – Center lane for left-turning vehicles & wider shoulders

Basic Roadway Geometry & Right of Way (ROW):
Keeps alignment on current centerline but modifications possible
Does not modify "breaking" curves
ROW requirements could be less than shown

Environmental & Land Use:
2-Lane – Up to 20' additional ROW needed, close to some structures
3-Lane – Up to 30' additional ROW needed, close to some structures
Crosses Willow Creek

Cost Opinions:
2-Lane – $1.4 million
3-Lane – $3.6 million

Blackwell Road Improvements



Purpose: Safety, Capacity, Consistency with Statewide Design Standard

Options: 2-Lane Rural Cross-Section
3-Lane Rural Cross-section

Traffic Operations:
Same as Concept RS-1

Safety:
Same as Concept RS-1 but smooth curves & higher design speed could reduce run-off-road crashes

Basic Roadway Geometry & Right of Way (ROW):
Realigns sections of roadway to smooth curves and meet 55 mph design speed
Could not be constructed within existing ROW
ROW requirements could be less than shown

Environmental & Land Use:
More ROW needed than Concept RS-1
Roadway alignment avoids structures
Crosses Willow Creek

Cost Opinions:
2-Lane – $6.2 million
3-Lane – $8.7 million

Kirtland Road Improvements

Concept RS-3:
Kirtland Road Safety
Improvements

Purpose: Safety – 19 crashes in 5 years – 9 involved a single vehicle that ran off the road

Safety:
Delineators - Crash research indicates benefits of delineators may be offset by increased likelihood of fixed object collisions

Basic Roadway Geometry & Right of Way (ROW):
Delineators – Installed in outside paved shoulder

Environmental & Land Use:
Delineators - No impacts

Cost Opinions:
Delineators - $15,000

Safety:
Rumble Strips - Crash research indicates rumble strips can provide measurable reduction single vehicle, run of the road crashes

Basic Roadway Geometry & Right of Way (ROW):
Rumble Strips – Only where shoulders are more than 4' wide which is 85% of Kirtland

Environmental & Land Use:
Rumble Strips – Intermittent noise when vehicles drive over them – may be heard by some residences

Cost Opinions:
Rumble Strips - $10,000

Kirtland Road Improvements

Purpose: Consistency with Statewide Design Standard

Traffic Operations:
2-lane cross-section can accommodate future demand

Safety:
2' to 4' shoulder widening provides slightly more vehicle maneuvering room

Basic Roadway Geometry & Right of Way (ROW):
Keeps alignment along centerline, may be accommodated in existing ROW

Environmental & Land Use:
Several creeks and canals including Bear Creek and Whetstone Creek
Adjacent wetlands (Palustrine, Emergent) that may contain high value vernal pools

Cost Opinions:
Road Widening - $2.4 million

Avenue G Improvements (State Section)

Purpose: Consistency with Statewide Design Standard

Traffic Operations:
2-Lane Rural – Some congestion without left-turn lanes
3-Lane Rural – Center median provides left-turn refuge
3-Lane Urban – Center median plus sidewalks

Basic Roadway Geometry & Right of Way (ROW):
Keeps alignment along centerline
Existing ROW is 100' – can accommodate all options

Cost Opinions:
2-Lane Rural – $1.3 million
3-Lane Rural – $4.4 million
3-Lane Urban – $7.6 million

Options: 2-Lane Rural Cross-Section
3-Lane Rural Cross-Section
3-Lane Urban Cross-Section

Safety:
2-Lane Rural – Some benefit from wider shoulders
3-Lane Rural – Center lane for left-turning vehicles and wider shoulders
3-Lane Urban – Center lane plus sidewalks & curbs

Environmental & Land Use:
Area zoned industrial
Potential economic benefit for adjacent properties from higher capacity road with turn lanes
No natural resources mapped in area

Agate Road Improvements

Purpose: Safety, Capacity, Consistency with Statewide Design Standard

Options: 3-Lane Rural Cross-Section
3-Lane Urban Cross-section

Traffic Operations:
- 3-Lane Rural – Center median provides left-turn refuge
- 3-Lane Urban – Center median plus sidewalks

Safety:
- 3-Lane Rural – Center lane for left-turning vehicles
- 3-Lane Urban – Center lane plus sidewalks & curbs

Basic Roadway Geometry & Right of Way (ROW):
- Keeps alignment along centerline
- Existing ROW is 100' – can accommodate all options
- Full upgrade of railroad crossing

Environmental & Land Use:
- Area zoned industrial
- Potential economic benefit for adjacent properties from higher capacity road with turn lanes
- No natural resources mapped in area

Cost Opinions:
- 3-Lane Rural – $3.9 million
- 3-Lane Urban – $6.0 million

Avenue G Improvements (County Section)

Purpose: High demand traveling to OR 140 from White City and OR 62 to north

Traffic Operations:
- Industrial Collector – Center median provides left-turn refuge
- Minor Arterial – Center median plus sidewalks

Basic Roadway Geometry & Right of Way (ROW):
- Keeps alignment along centerline
- Existing ROW is 80' – can likely accommodate all options
- Full upgrade of railroad crossing

Cost Opinions:
- Industrial Collector (3 lanes) – $2.6 million
- Minor Arterial – $5.0 million

Options: 3-Lane Industrial Collector (County Standard)
Minor Arterial (County Standard)

Safety:
- Industrial Collector – Center lane for left-turning vehicles
- Minor Arterial – Center lane plus sidewalks & curbs

Environmental & Land Use:
- Area zoned industrial
- Potential economic benefit for adjacent properties from higher capacity road with turn lanes
- No natural resources mapped in area

Avenue G Improvements (OR 140 Rerouted)

Purpose: Widen Avenue G to meet state standards in response to OR 140 Reroute and OR 62 Full Corridor

Traffic Operations:
- 3-Lane Rural – Center median provides left-turn refuge
- 3-Lane Urban – Center median plus sidewalks

Basic Roadway Geometry & Right of Way (ROW):
- Keeps alignment along centerline
- Existing ROW is 80' – can likely accommodate all options
- Full upgrade of railroad crossing

Cost Opinions:
- 3-Lane Rural – $2.6 million
- 3-Lane Urban – $5.0 million

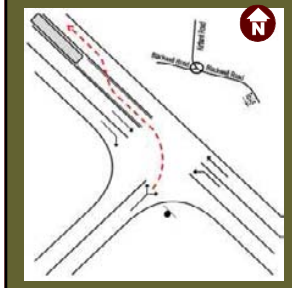
Options: 3-Lane Rural Cross-Section
3-Lane Urban Cross-section

Safety:
- 3-Lane Rural – Center lane for left-turning vehicles
- 3-Lane Urban – Center lane plus sidewalks & curbs

Environmental & Land Use:
- Area zoned industrial
- Potential economic benefit for adjacent properties from higher capacity road with turn lanes
- No natural resources mapped in area

Blackwell Road & Kirtland Road Improvements

Concept I-1: Blackwell Road and Kirtland Road Traffic Signal



Purpose: Capacity

Traffic Operations:
- Opportunity for 2-stage left turn (illustrated to left)
- Long term operations depends on frequency of 2-stage left turn – intersection demand could be greater than capacity if not happening
- Current traffic volumes do not meet traffic signal criteria but future volumes would meet traffic signal criteria
- Intersection would operate well with traffic signal

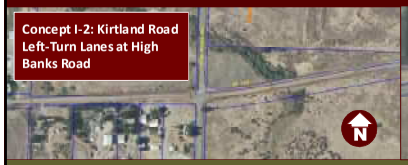
Safety:
- Traffic signals frequently have higher crash rates than STOP signs although the type and severity of the crashes differs

Basic Roadway Geometry & Right of Way (ROW):
- Installed within ROW
- Persistent congestion should be present & traffic volumes should meet warrants before a traffic signal is installed

Environmental & Land Use:
- Some access points nearby
- No natural resources mapped in area

Cost Opinion: $0.5 million

Kirtland Road Intersection Improvements



Purpose: Safety

Traffic Operations:
- Left-turn lane criteria not met by current or future traffic volumes

Safety:
- Left-turn lane would provide refuge for vehicles stopped to make left turn onto High Banks
- 1 collision related to left turns in 5 years

Basic Roadway Geometry & Right of Way (ROW):
- Eastbound and westbound left-turn lanes added within existing ROW

Environmental & Land Use:
- Some nearby driveways
- Wetlands (vernal pools) in southeast quadrant

Cost Opinion: $1.5 million

Purpose: Safety & Future Transit Service

Traffic Operations:
- Left-turn lane criteria not met by current or future traffic volumes
- Potential RVTD loop on Kirtland to West Antelope

Safety:
- Left-turn lane would provide refuge for vehicles stopped to make left turn onto West Antelope
- No collisions reported in 5 years

Basic Roadway Geometry & Right of Way (ROW):
- Westbound left-turn lane added within existing ROW

Environmental & Land Use:
- Some nearby driveways
- No natural resources mapped in area

Cost Opinion: $1.2 million

Avenue G & Agate Road Intersection Improvements

Purpose: Priority for Highway Movements

Traffic Operations:
- Heaviest traffic movements: north-south & east-west
- Realignment would result in high turning movements and very low through traffic
- Some movements would operate worse than current configuration
- Conflicts with OR 140 Reroute to Avenue G for OR 62 full corridor improvements

Safety:
- Two closely spaced intersections

Basic Roadway Geometry & Right of Way (ROW):
- Two intersections created from one
- Additional ROW needed

Environmental & Land Use:
- Driveways could require reconstruction, relocation, or closure
- ROW impacts in southwest quadrant
- No natural resources mapped in area

Cost Opinion: $1.3 million

Avenue G & Agate Road Intersection Improvements

Purpose: Capacity and improved flow for highway movements

Traffic Operations:
- Heaviest traffic movements: north-south & east-west (same as I-4)
- Vehicles can turn right at higher speeds
- Acceleration and merge lane allows right turns without stopping
- Some traffic movements would eventually have long delays with 4-way STOP
- Current traffic volumes do not meet traffic signal criteria but future volumes would meet traffic signal criteria
- Intersection would operate well with traffic signal

Basic Roadway Geometry & Right of Way (ROW):
- Adds eastbound right-turn lane on Avenue G, channelizing island for right-turn movement, and acceleration and merge lane on Agate
- Additional ROW needed
- Persistent congestion should be present & traffic volumes should meet warrants before a traffic signal is installed

Environmental & Land Use:
- One driveway located in merge lane
- Minor ROW impacts in southwest quadrant
- No natural resources mapped in area

Cost Opinion:
- $1.6 million for channelization and merge lane
- $0.5 million for traffic signal

Agate Road & Leigh Way Intersection Improvements

Purpose: Priority for Highway Movements

Traffic Operations:
- Current traffic patterns favor north-south movement
- Patterns will change with OR 62 Phase 1 & 2 to favor OR 140
- Coordination between projects recommended

Basic Roadway Geometry & Right of Way (ROW):
- Intersection realigned to stop south leg of Agate
- Design speed of 45 mph
- 3-lane urban section with curbs & sidewalks
- Additional ROW needed

Environmental & Land Use:
- ROW impacts in northeast quadrant
- Power lines in northeast quadrant may be impacted
- No natural resources mapped in area

Cost Opinion: $5.4 million

Agate Road & Leigh Way Intersection Improvements

Purpose: Improved flow for highway movements

Traffic Operations:
- Current traffic patterns favor north-south movement (same as I-6)
- Patterns will change with OR 62 Phase 1 & 2 to favor OR 140
- Vehicles can turn right at higher speeds without stopping
- Change in traffic control – Agate northbound stops, Leigh left stops,
- Coordination between projects recommended

Safety:
- Non-standard traffic control may be confusing
- Potential for more turning or angle conflicts

Basic Roadway Geometry & Right of Way (ROW):
- Adds channelizing island for westbound right turn on Leigh
- Changes STOP sign locations
- Additional ROW needed

Environmental & Land Use:
- Minor ROW impacts in northeast quadrant
- No natural resources mapped in area

Cost Opinion: $0.5 million

OR 140 Intersection Improvements

Purpose: Safety

Traffic Operations:
- Left-turn lane criteria are met by current traffic volumes

Safety:
- Left-turn lane would provide refuge for vehicles stopped to make left turn onto Lakeview
- 1 collision related to left turns in 5 years

Basic Roadway Geometry & Right of Way (ROW):
- Eastbound and westbound left-turn lanes added within existing ROW

Environmental & Land Use:
- Some adjacent wetlands (vernal pools)

Cost Opinion: $1.2 million

Purpose: Safety

Traffic Operations:
- Left-turn lane criteria are met by current traffic volumes

Safety:
- Left-turn lane would provide refuge for vehicles stopped to make left turn onto Riley
- 2 collisions related to left turns in 5 years

Basic Roadway Geometry & Right of Way (ROW):
- Eastbound and westbound left-turn lane added within existing ROW

Environmental & Land Use:
- Some adjacent wetlands (vernal pools)

Cost Opinion: $1.2 million

OR 140 Intersection Improvements

Purpose: Safety

Traffic Operations:
- Left-turn lane criteria not met by current or future traffic volumes

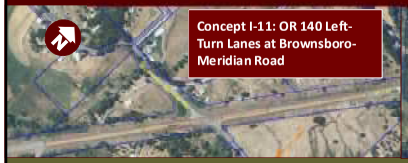
Safety:
- Left-turn lane would provide refuge for vehicles stopped to make left turn onto Meridian
- 2 collisions related to left turns in 5 years

Basic Roadway Geometry & Right of Way (ROW):
- Eastbound and westbound left-turn lane added within existing ROW
- Bridge of Antelope Creek located ~100 feet to west – structure could accommodate 3 travel lanes but shoulders would be limited to less than 3 feet

Environmental & Land Use:
- Antelope Creek is existing habitat for Coho Salmon

Cost Opinion: $1.3 million

OR 140 Intersection Improvements



Purpose: Safety

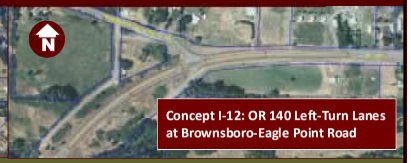
Traffic Operations:
- Left-turn lane criteria not met by current or future traffic volumes

Safety:
- Left-turn lane would provide refuge for vehicles stopped to make left turn onto Meridian
- No collisions reported in 5 years

Basic Roadway Geometry & Right of Way (ROW):
- Eastbound and westbound left-turn lanes added within existing ROW

Environmental & Land Use:
- No natural resources mapped in area

Cost Opinion: $1.7 million



Purpose: Safety

Traffic Operations:
- Left-turn lane criteria not met by current or future traffic volumes

Safety:
- Left-turn lane would provide refuge for vehicles stopped to make left turn onto Brownsboro-Eagle Point
- No collisions reported in 5 years

Basic Roadway Geometry & Right of Way (ROW):
- Eastbound and westbound left-turn lane added within existing ROW

Environmental & Land Use:
- No natural resources mapped in area

Cost Opinion: $1.3 million

Next Steps

- Analysis of modified or additional concepts
- Selection of preferred concepts
- Upcoming meeting dates
  - TAC and Citizen Meetings
  - Potentially February

OR 140 CORRIDOR PLAN

Citizen Advisory Committee Meeting #4

2:00 PM to 4:00 PM

June 6, 2012

ODOT White City Office
Conference Room B & C
100 Antelope Road
White City, OR 97503

AGENDA

1.	Introductions	Tom Guevara, ODOT
2.	Preferred Alternative	Jennifer Danziger, DEA
	• Concepts presented at last meeting	Shelly Alexander, DEA
	• Additional concept considerations	
3.	Access Management Plan	Jennifer Danziger, DEA Shelly Alexander, DEA
4.	Discussion	All
5.	Next Steps	Jennifer Danziger, DEA Tom Guevara, ODOT

OR 140 Corridor Plan

Citizen Advisory Committee

Meeting #4 – June 6, 2012

Draft Meeting Notes

Attendees: See Attached List

Introductions

Tom Guevara opened the TAC meeting as the ODOT project manager, identified the consultant team (Jennifer Danziger and Shelly Alexander), and went around the room for everyone in attendance to state their name.

Tom passed out copies of the draft Technical Memorandum #7 – Preferred Alternative, and draft Technical Memorandum #8 – Access Management Plan for review by the committee. Comments from the committee are due June 29, 2012. He expects consolidated comments to send to DEA in early to mid July.

Tom described the layout of the draft OR 140 Corridor Plan including a matrix that ties the Preferred Alternative projects to STIP funding sources.

Jennifer started the meeting with an overview of the presentation topics: the preferred alternative and the access management plan. Next she updated the group on the project progress, current status, and remaining work. (See slides 1-3 of the attached presentation.)

Preferred Alternative

Shelly revisited the concepts that were presented at the last (November 2011) CAC meeting and identified those that were recommended as part of the preferred alternative. Additionally, she provided rationale for concepts that are not selected and additional concepts in response to concerns raised in November. The highlights include:

- All three highway redesignation concepts are recommended, two of which went before the Oregon Transportation Commission (OTC) in May 2012, the third is a contingency project based on OR 62 improvements and funding. *(See slides 4-6 of the attached presentation.)*
- All seven Jackson County Reclassification (JCR) concepts are recommended. JCR-1 through 5 are recommended when area TSPs or RTP updates occur for consistency between the documents. JCR-6 is recommended in the short-term, while JCR-7 is contingent on OR 62 corridor improvements. (*See slides 7 of the attached presentation.*)
- Of the 8 roadway segment (RS) concepts, 5 are recommended for the preferred alternative. (*See slides 8 through 15 of the attached presentation for more details.*)

- There are 12 intersection (I) improvement concepts of which 9 are recommended for inclusion into the preferred alternative. (*See slides 16 through 24 of the attached presentation for more details.*)
- Seven additional (A) improvement concepts were introduced in response to concerns raised during the previous TAC meeting (November 2011). Four of the additional concepts are recommended as part of the preferred alternative. (*See slides 25 through 28 of the attached presentation for more details.*)

Participants were encouraged to ask questions throughout the preferred alternative presentation. The following comments/questions were received during this part of the presentation (*See slides 1 through 28 of the attached presentation*):

- Members expressed concern about a full urban design standard along Avenue G. *Tom related that Douglas County has developed a transitional design standard allowing for sidewalks on one side as an interim standard and suggested that Jackson County should pursue a similar interim standard or an industrial arterial design standard.* ***DEA*** *can provide multiple cross-sections for consideration: multi-use path or curb, gutter, and sidewalk for the full urban cross-section with interim sections that show the pedestrian amenities on only on side.* Members prefer an "industrial arterial" type standard and feel the multi-use path appears to be less expensive way to incorporate bicycle and pedestrian elements to the roadway. They wanted to know if Jackson County approved. *This section of roadway is owned by ODOT; therefore it is not Jackson County's decision*. DLCD –UUC guides the cross-section. Members enquired if development would be required to pay/build. *Not necessarily*.
- During the jurisdictional transfer of Avenue G the state was required to take into account local vision of the roadway. Certainty is good for development; as such members would prefer a practical design be implemented with fewer impacts. Members feel strongly that roadway standards for Avenue G, and elsewhere along the corridor, should consider ODOT's practical design policies.
- In response to RS-7/RS-8 (Avenue G Improvements along the County section), members expressed concern about how the businesses use Avenue G right now. They supported the suggestion that the plan recommend an industrial arterial design standard be pursued by Jackson County that would not require the same type of urban improvements that a minor arterial designation would require. *All plan elements related to actions on the part of Jackson County will be included in the management actions section of the document.*
- Members alerted the committee that Knife River truck traffic on Kirtland Road is expected to increase in the near future. They're concerned that the left-turn lanes and deceleration lanes at High Banks Road were not recommended with higher priority. *The wording of the current recommendation does not limit the installation of the improvement allowing for reassessment if traffic volumes or safety issues rise.* ***DEA*** *can add a policy to the management measures section that requires "periodic review" of traffic volumes to track when projects should be elevated.*

- Members believe that W Antelope Road will probably remain the more traveled route for freight (instead of Avenue G).
- For Concept I-7 (improvements at the Agate Road/Leigh Way intersection) members would like to see an acceleration lane constructed with the channelization to reduce probability of trucks stopping or slowing and related environmental issues with air quality.
- Members noted that current truck traffic from the Dry Creek Landfill and Knife River execute the northbound left turn onto OR 140 (Milepoint 2.81) by pulling all the way across the roadway to the westbound shoulder to accelerate, then merge with westbound OR 140 traffic. They also noted that deceleration overlaps the area where trucks are pulling onto the highway from the weigh station. Tom asked the CAC what they thought of changing the private road to a Jackson County public road. Concerns were raised about the conflict between general public users and the high volume of trucks on the road. Tom noted that issues at this access point will most likely be addressed as part of the development review process associated with a change of use on the parcels served by the private road.

Access Management Plan

Jennifer presented on the access management plan associated with the preferred alternative. She gave an overview of goals, features, updates, applicable spacing standards, and the approval process for private approaches. After sharing the background information regarding access management she discussed the existing access inventory including: 279 total access points,6 recently relocated off the OR 140 route in conjunction with the Blackwell/Kirtland Road improvements, 20 accesses with permits solely located on the east side of OR 62, and summaries per side of the roadway. Overall, few driveways meet current spacing standards.

Next she discussed access management techniques and implementation followed by the Access Management Plan (AMP) for the corridor broken into four segments. The first segment is overlaps the Interchange 35 Area Management Plan study area and has consistent management measures. Management measures for the remaining three segments include moving toward achieving access spacing standards and consideration of left-turn lanes or deceleration lanes.

Participants were encouraged to ask questions throughout the preferred alternative presentation. The following comments/questions were received during this part of the presentation (*See slides 29 through 41 of the attached presentation*):

- Mike Montero asked for more details regarding the improvements at the OR 140/OR 62 intersection. It is currently listed as a STIP project for 2014-2015. *Tom will send Mike the ODOT PM Contact information.*
- Members discussed the access management negotiations for the section of Avenue G between Pacific Avenue and Agate Road. *Jennifer clarified that the speed-based access spacing standards (360' for AADT below 5,000 and 800' for AADT above 5,000) do not apply to the section of roadway where that agreement was negotiated. The agreement*

will be incorporated into the OR 140 plan and will become the standard for the Avenue G segment of OR 140.

- Members discussed the difference between a driveway and a road approach. *Tom provided clarification indicating that road approaches are distinguished by a break in the ROW line.*
- OR 140 access points west of OR 62 were grandfathered in as access points during the jurisdiction transfer except in the section along Avenue G where an access agreement was negotiated.
- Members requested that the spacing standards be included on Figures 8-9 through 8-12.

Next Steps

DEA is waiting on comments from the Citizen and Technical Advisory committees, due June 29, 2012. They will then draft the OR 140 Corridor Plan.

Attachments:
Agenda
Attendance Sheet
PowerPoint Presentation

OR 140 Corridor Plan

CAC Sign-In Sheet
6/6/2012

Name	Agency	Phone No.	E-Mail	Sign-In
Thomas Guevara Jr.	ODOT Project Manager	541-957-3692	Thomas.Guevara@odot.state.or.us	
Jennifer Danziger	DEA Project Manager	503-499-0381	Jed@deainc.com	
Shelly Alexander	DEA Traffic Engineer	503-499-0241	Sma@deainc.com	
Curt Burrill	Burrill Real Estate	541-776-1311	Curtb@burrillco.com	
Mona Chisum	Cross Creek Trucking	541-773-3700 Ext. 128	Monac@crosscreektrucking.com	
Wade Denny	Rogue Valley Sewer Services	541-664-6300	Wdenny@rvss.us	
Mark Gibson	Siskiyou Transportation Inc.	541-488-2755	Tllmark@mindspring.com	
Bert Morgan	Triple S Mt. Ranch	541-973-0622	Morgan@triple-s-ranch.com	
Mike Montero	Montero and Associates	541-779-0771	Montero-associates@charter.net	
Tom Gruszczenski	Knife River	541-941-0833	Tom.Gruszczenski@Kniferiver.com	
Jim Hofstrand	Amy's Kitchen Inc.	541-831-3053	jimhofstrand@amyskitchen.net	
GORDON DRAPER	VISITOR			
WILLIAM D LEWIS		541-840-7790	lewisb@landerock.com	

OR 140 Corridor Plan

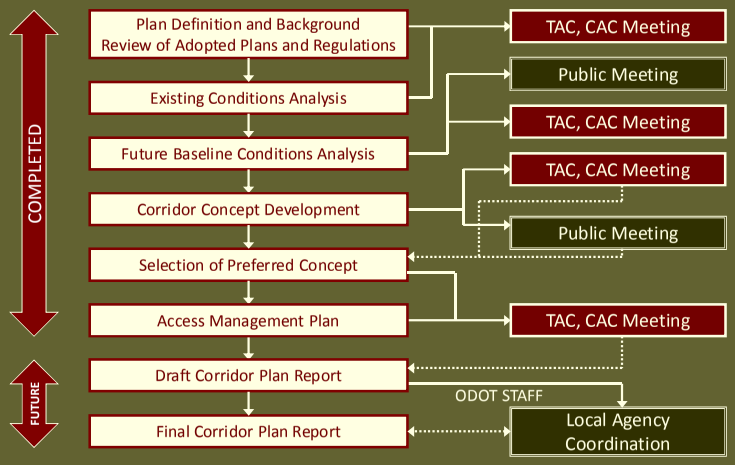
Citizen Advisory Committee Meeting #4 – June 6, 2012

DAVID EVANS AND ASSOCIATES INC

Presentation Topics

1. Preferred Alternative
   - Concepts presented previously
   - Additional concept considerations
2. Access Management Plan
3. Discussion
   - Final recommendations for corridor plan

Corridor Planning Process



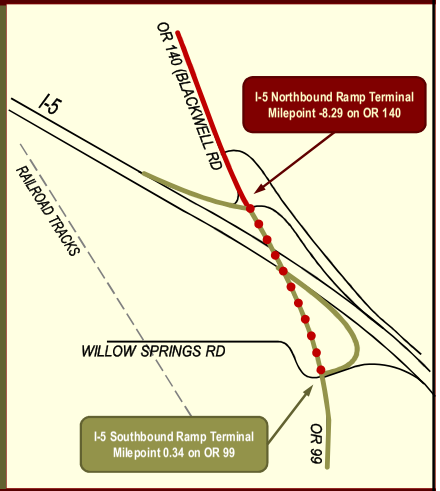
Highway Redesignation

Concept HR-1: Extension of OR 140 to I-5 Southbound Ramps

Recommended: Yes, in process

Highlights:

- OTC is scheduled to adopt section between ramps as a statewide route in May 2012



Highway Redesignation

Concept HR-2: Extension of Freight Route Designation

Recommended: Yes, in process

Highlights:

- OTC is scheduled to adopt this designation in May 2012

Highway Redesignation

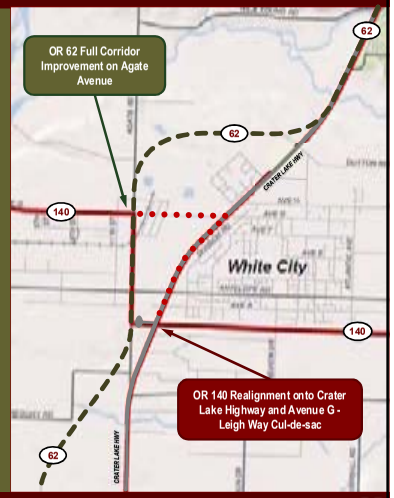
Concept HR-3: OR 140 Reroute

Recommended: Yes , as a contingent improvement

Highlights:

- Dependent on OR 62 improvements beyond currently funded phases

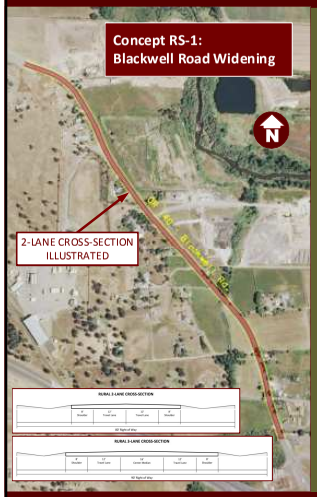
Priority: Contingent on OR 62 improvements



Jackson County Reclassification

- OR 140 Plan *recommends* the following improvements :
  - Each of the following should be addressed during the next Jackson County and White City TSP Update and the RTP Update
    - JCR-1 – Blackwell Road Reclassification
    - JCR-2 – Kirtland Road Reclassification (Rural Section)
    - JCR-3 – Kirtland Road Reclassification (White City Section)
    - JCR-4 – Avenue G Reclassification (State Section)
    - JCR-5 – Agate Road Reclassification
  - JCR-6 – Avenue G Reclassification (County Section) – should be short-term, higher priority to implement minor arterial street standard
  - JCR-7 - Avenue G Reclassification with Rerouted OR 140 (contingent on the OR 62 corridor improvements

Blackwell Road Improvements

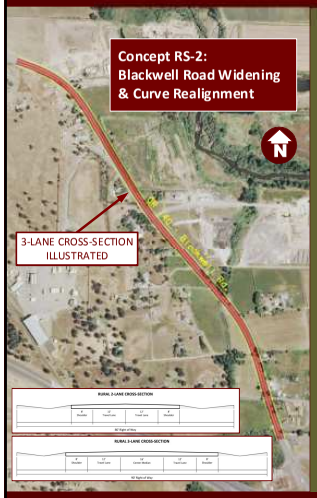


Recommended: No

Highlights:

- Does not address crash history
- RS-2 has greater safety benefits

Blackwell Road Improvements



Recommended: Yes

Highlights:

- Addresses crash history (curve realignment for 55 mph design speed)
- Construct as 3-lane rural roadway
- Include setbacks to allow for widening to 5-lanes or construction of right-turn deceleration lanes

Priority: High because of high crash rate and high volumes

Kirtland Road Improvements

Concept RS-3:
Kirtland Road Safety
Improvements

Recommended: Yes

Highlights:

- Already under design
- Add rumble strips if a pattern of single vehicle, run-off-the-road crashes continues

Priority: Delineators – under design; Rumble strips – medium priority but should be elevated if high crash rates persist

Kirtland Road Improvements

Recommended: No

Highlights:

- Minimal benefit to roadway users
- Raises a number of environmental concerns

Avenue G Improvements (State Section)

Recommended: Yes

Highlights:

- Construct as 3-lane urban section because it is in White City UUC boundary
- Phased implementation possible, first· center turn lane and wider shoulders, then urban features (curb, gutter, and sidewalks)
- Can tie some improvements to development of adjacent lands (e.g., construct sidewalk or turn lanes as part of development approval)

Priority: Phased implementation

Agate Road Improvements

Recommended: Yes

Highlights:

- Construct as 3-lane urban section because it is in White City UUC boundary
- Phased implementation possible, first center turn lane and wider shoulders, then urban features (curb, gutter, and sidewalks)
- Can tie some improvements to development of adjacent lands (e.g., construct sidewalk or turn lanes as part of development approval)

Priority: Phased implementation

Avenue G Improvements (County Section)

Recommended: Yes

Highlights:

- Construct to minor arterial standards when development permits
- Phased implementation possible, first center turn lane, then urban features (curb, gutter, and sidewalks)

Priority: Phased implementation

Avenue G Improvements (OR 140 Rerouted)

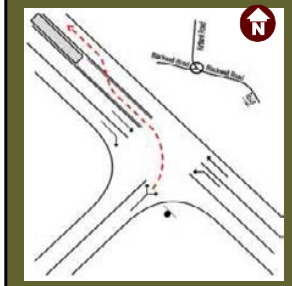
Recommended: No

Highlights:

- If RS-7 implemented, RS-8 not necessary

Blackwell Road & Kirtland Road Improvements

Concept I-1: Blackwell Road and Kirtland Road Traffic Signal

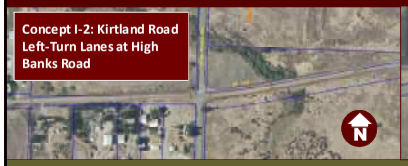


Recommended: Not at this time

Highlights:

- Future consideration of a traffic signal may be necessary if the City of Central Point expands the UGB to include the Tolo urban reserve area

Kirtland Road Intersection Improvements



Recommended: Yes

Highlights:

- Addresses existing safety concerns
- Accommodates future growth

Priority: Lower priority, unless traffic volume growth or an increase in left-turn crashes occurs

Recommended: Yes

Highlights:

- Would address long-term safety concerns
- Supports RVTD service expansion

Priority: Lower priority, unless traffic volume growth or RVTD service expansion occurs

Avenue G & Agate Road Intersection Improvements

Recommended: No

Highlights:

- Fails to meet state mobility standards
- Raises safety concerns not present today

Avenue G & Agate Road Intersection Improvements

Recommended: Yes

Highlights:

- Can be implemented at any time

Priority: Right-turn lane – medium priority; Traffic signal – when volume warrants are met

Agate Road & Leigh Way Intersection Improvements

Recommended: No

Highlights:

- Substantially higher cost than I-7

Agate Road & Leigh Way Intersection Improvements

Recommended: Yes

Highlights:

- Can be implemented at any time

Priority: Traffic control modifications – high priority; Right-turn lane – medium priority

OR 140 Intersection Improvements

Recommended: Yes

Highlights:

- Current volumes appear to meet warrants
- Addresses existing crash history

Priority: Medium-high priority

Recommended: Yes

Highlights:

- Current volumes appear to meet warrants
- Addresses existing crash history

Priority: Medium-high priority

OR 140 Intersection Improvements

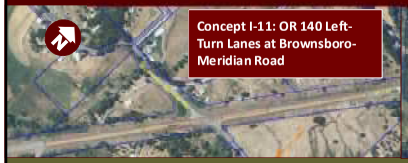
Recommended: Yes

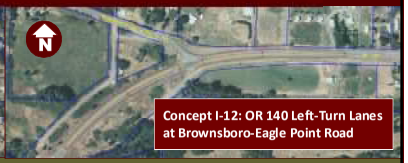
Highlights:

- Addresses existing safety concerns

Priority: Lower priority, unless traffic volume growth or an increase in left-turn crashes occurs

OR 140 Intersection Improvements





Recommended: Yes

Highlights:

- Addresses existing safety concerns

Priority: Lower priority, unless traffic volume growth or an increase in left-turn crashes occurs

Recommended: Yes

Highlights:

- Addresses existing safety concerns

Priority: Lower priority, unless traffic volume growth or an increase in left-turn crashes occurs

Additional Improvements

Concept A-1: Right-turn Deceleration Lanes

Concept A-2: Right-turn Acceleration Lanes

Description: Concept A-1 considers deceleration lanes for traffic turning from OR 140 onto a side street to separate slowing traffic from through movements

Purpose: Improve safety

Evaluation: 11 study area intersections

Recommended: Yes, at one intersection- Riley/E Antelope to be implemented with the additional left-turn lanes

Description: Concept A-2 considers acceleration lanes for traffic turning right from a side street and merging onto the highway

Purpose: Improve safety

Evaluation: 11 study area intersections, may require a design exception

Recommended: No

Additional Improvements

Concept A-3: Flashing Yellow Beacons

Concept A-4: Additional Roadway Delineation

Description: Concept A-3 considers flashing yellow beacons at unsignalized intersections

Purpose: Improve safety

Evaluation: Unsignalized intersections with documented crash history

Recommended: No

Description: Concept A-4 considers additional roadway delineation (reflective markers and rumble strips) throughout the corridor study area

Purpose: Improve safety

Evaluation: Along rural roadways

Recommended: Yes, Blackwell Road – high priority; east of OR 62 (rumble strips) – medium- to low-priority

Additional Improvements

Concept A-5: Truck Weigh Stations

Concept A-6: Recreational Trail Connections

Description: Concept A-5 considers portable scale locations in the westbound direction

Purpose: Enhance truck traffic operations along OR 140

Evaluation: Milepoints 1.0 or 2.5

Recommended: Yes, to support Motor Carrier's needs – location to be determined when funding available

Description: Concept A-6 considers connecting multi-modal improvements along Blackwell Road with nearby recreational trail system

Purpose: Provide connection between on-street improvements and future trail

Evaluation: ~ Milepoint -7.0

Recommended: Yes, in conjunction with Concept RS-2 improvements

Additional Improvements

Concept A-7: Dry Creek Landfill Access

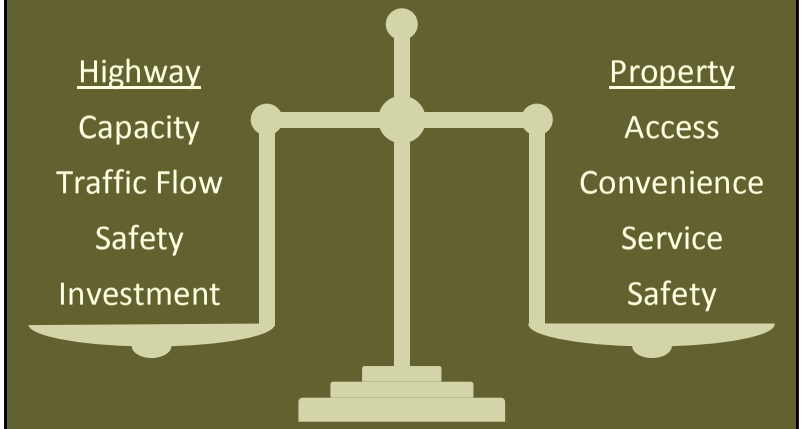
Description: Concept A-7 considers options to improve access to the Dry Creek Landfill
1) Improve geometry of intersection by adding turning lanes or
2) Connect westward to Kershaw Road via Thunder Road or new local Road

Purpose: Address potential safety concerns

Evaluation: Milepoint 2.81

Recommended: No, not as a component of the OR 140 Plan; however, should be considered with land use changes

Access Management



Oregon Highway Plan and Division 51

- Oregon Highway Plan addresses access management in Goal 3
  - Supporting policies regarding classification and spacing standards, medians, interchanges, deviations, and appeals
  - Appendix C: Access Spacing Standards
  - Revised to address Senate Bill 264 which suggested revisions to Oregon's management of access on state highways
- Oregon Administrative Rule (OAR) 734-051 (Division 51)
  - Detailed requirements, action definitions, and the access spacing standards for state highways

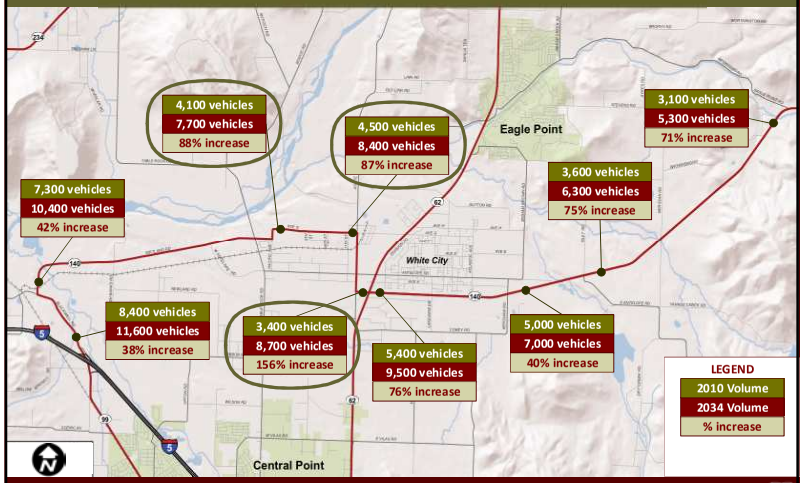
Access Spacing Standards

Table 8-1. Access Spacing Standards for Statewide Highways

Segment Speed	Access Spacing Standard Annual Average Daily Traffic ≤ 5,000[1]		Access Spacing Standard Annual Average Daily Traffic > 5,000[2]	
	Rural Areas	Urban Areas	Rural Areas	Urban Areas
40 & 45 mph	990 feet	360 feet	990 feet	800 feet
55 mph	1,320 feet	1,320 feet	1,320 feet	1,320 feet

Notes:
1. Table 3: Access Management Spacing Standards for Highway Segments with Annual Average Daily Traffic ≤ 5,000, OAR 734-51 Temporary Rules – Effective January 1, 2012 Amended May 3, 2012 (Table 13 in the revised OHP)
2. Table 4: Access Management Spacing Standards for Statewide Highways with Annual Average Daily Traffic > 5,000, OAR 734-51 Temporary Rules – Effective January 1, 2012 Amended May 3, 2012 (Table 14 in the revised OHP)

Average Daily Traffic Volumes



Private Approaches

OAR 734-051-4020, Standards and Criteria for Approval of Private Approaches:

(8)(c) The spacing standards in Tables 3 through 6 do not apply to approaches in existence prior to January 1, 2012, except when:

(A) A new approach road is requested or an existing approach permit is subject to change of use under ORS 374.312 and

(B) Where infill development or infill redevelopment occurs the approach road spacing standards will be a department determination; the department shall determine whether the approach road spacing or safety is improved by moving in the direction of the spacing standards in Tables 3 through 6; and

(C) Where a highway or interchange project occurs the approach road spacing standard will be a department determination; the department shall consider whether the approach road spacing or safety is improved by moving in the direction of the applicable spacing standards in Tables 3 through 6.

Existing Access Inventory

- ODOT's Official Project Access List (OPAL)
  - Public street intersections
  - Public/private approaches
  - 279 accesses
    - 139 on the left side
    - 140 on the right side
  - 20 accesses east of OR 62 currently have permits
- Access spacing along segments assessed
  - 18 segments on the right side
  - 15 segments on the left side
  - Few driveways meet current spacing standards

Access Management Techniques

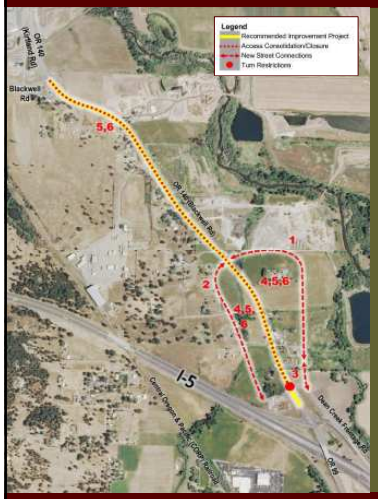
- Controlling Intersection Spacing
  - Improved flow, less congestion
- Managing Driveway Spacing
  - Fewer conflicts, more orderly traffic flow
- Adding Turn Lanes
  - Separates turning and through traffic
- Installing Median Treatments
  - Separates turning traffic, can restrict some movements
- Improving the Local Street Network
  - Alternative access and routes available

Access Management Implementation

Access management actions would be taken when one or more of the following triggers occurs:

- Applications for land use changes or development are submitted
  Example: *"Consolidation or closure of driveways should be considered when properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street."*
- Future highway improvements move into design and construction
  Example: *"Right-turn deceleration lanes should be considered when 3-lane improvements are constructed on OR 140 (Avenue G or Agate Road)."*
- Safety and or operational problems arise
  Example: *"Consolidation or closure of driveways should be considered when the annual accident rate is greater than the statewide annual average accident rate for similar roadways or the section has an ODOT Safety Priority Index System (SPIS) rating in the top 10 percent."*

AMP – I-5 to Kirtland Rd



1. Construct a local road parallel and east of Blackwell Road to serve development with connections to Blackwell Road that meet the minimum ¼-mile access spacing from the interchange as well as spacing standards for a statewide freight route (OR 140). This new road should intersect OR 140 opposite the new road west of Blackwell Road.
2. Construct a local road parallel and west of Blackwell Road to serve development with connections to Blackwell Road that meet the minimum ¼-mile access spacing from the interchange as well as spacing standards for a statewide freight route (OR 140). This new road should intersect OR 140 opposite the new road east of Blackwell Road.
3. Extend existing Dean Creek Frontage Road to connect with the new local road east of Blackwell Road and close or restrict access at the current connection immediately north of the interchange.
4. Orient new driveway connections towards these newly created parallel routes north of the interchange.
5. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
6. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.

AMP – Blackwell Rd to Pacific Ave

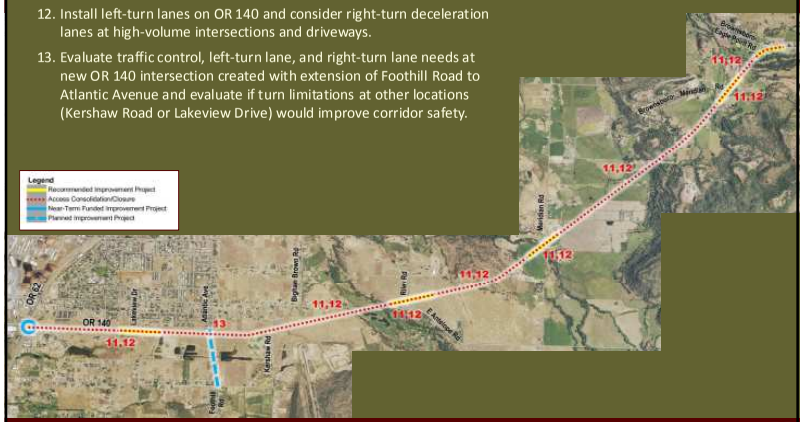
7. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
8. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.

AMP – Pacific Ave to OR 62

9. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
10. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.

AMP – OR 62 to Brownsboro-Eagle Point Road

11. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
12. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.
13. Evaluate traffic control, left-turn lane, and right-turn lane needs at new OR 140 intersection created with extension of Foothill Road to Atlantic Avenue and evaluate if turn limitations at other locations (Kershaw Road or Lakeview Drive) would improve corridor safety.



Next Steps

- Prepare Draft OR 140 Corridor Plan
  - Late July 2012
  - Review period
  - Agency coordination/outreach through ODOT
- Finalize OR 140 Corridor Plan

OR 140 CORRIDOR PLAN

Citizen Advisory Committee Meeting #5

2:00 PM to 4:00 PM

November 5, 2012

Jackson County Parks Auditorium
7520 Table Rock Road
White City, OR 97502

AGENDA

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1. Introductions — Tom Guevara, ODOT
2. Draft Corridor Plan — Jennifer Danziger, DEA
   - Modifications since last meeting — Shelly Alexander, DEA
   - Overview of report layout and project list
3. Discussion — All
4. Next Steps — Jennifer Danziger, DEA
   - Adoption — Tom Guevara, ODOT
   - Thank You

Filename: OR 140 CAC5 DRAFT Agenda 110512.docx

OR 140 Corridor Plan

Citizen Advisory Committee

Meeting #5– November 5, 2012

Draft Meeting Notes

Attendees: Thomas Guevara Jr. (ODOT PM)Jennifer Danziger (DEA Project Manager), Shelly Alexander (DEA Traffic Engineer), Mike Montero (Montero and Associates), Curt Burrill (Burrill Real Estate), Mark Gibson (Siskiyou Transportation Inc.), William Leavens (citizen), Wade Denny (Rogue Valley Sewer Services), Tom Gruszczenski (Knife River)

Introductions

Tom Guevara opened the CAC meeting as the ODOT project manager, identified the consultant team (Jennifer Danziger and Shelly Alexander), and went around the room for everyone in attendance to state their name.

Tom passed out copies of the draft OR 140 Corridor Report for review by the committee. Comments from the committee are due November 30, 2012. He mentioned that this would be the final CAC meeting for the OR 140 project and that members were welcome to attend the public open house that evening.

Jennifer described the layout of the draft OR 140 Corridor Plan. The Plan has two volumes. Volume 1 includes the recommended plan while Volume 2 includes all supplemental data such as technical memoranda, and meeting minutes. She indicated that this meeting will focus on Volume 1 material. The meeting was held as an open discussion because no AV equipment was available in the room for the PowerPoint presentation prepared as a review document. However, the presentation has been attached and is occasionally referenced in these meeting minutes to clarify comments.

OR 140 Corridor Plan

Jennifer shared an overview of the layout of Volume 1. Tom included that ODOT will be looking at STIP projects along Blackwell/Kirtland Road for the next round of funding; specifically, intersection improvements at Kirtland and a 3-lane section along Blackwell Road. Mike shared that he's looked at the report and thinks that it is good, but not all there. Bill and Curt agreed.

CAC concerns seemed to be centered on 3 main topics: focus on specific projects without consideration for other potential opportunities for improvements that could come about through development or more extensive growth, increased truck traffic associated with regional aggregate needs, and additional detail/sections of the report to address monitoring, triggers and financial opportunities.

Access management for the corridor was also discussed, but primarily focused on the Avenue G corridor. The group felt that using a 55mph speed along Avenue G was contrary to goals 2 and

3 of the plan and requested codifying the 800' spacing for both sides on Avenue G as suggested by Jennifer and Tom.

Group Discussion topics:

- CAC members shared that Central Point is starting the process for UGB expansion and DLCD is expected to acknowledge the process within a week.
- Requested modification of materials presented in project sheets. *DEA will update the Blackwell Road project sheet (#1) to include the desired 100' future ROW section, consideration of access control (see also Figure 8) and updates to text as needed.*
- Desire to "over plan", other area plans are approving projects for 150% of budget for flexibility if additional funds become available.
- Can DEA send redlined sections to CAC members for review prior to the end of the comment period? *DEA will send redlines (Freight, monitoring, and financial) to CAC members.*
- Group discussed OR 62 JTA project and the funding and implications to OR 140 corridor. Jennifer provided a graphic (available on ODOT's website for the OR 62: I-5 to Dutton Road project) showing the planned improvements related to Agate Road. She discussed her assumption that some southbound traffic will divert to Agate Road to avoid forecast congestion at some of the unimproved OR 62 intersections (OR 140 and Antelope Road) and mentioned that northbound traffic will still be constrained because it has not diversion alternatives.
- Suggested language for financial section: Many projects are smaller and could easily be built when small amounts of money become available.
- The resident representative who lives on the corridor does not feel that the data collection truly captures the feel of OR 140 and requested periodic review of data and triggers that allow special consideration for freight traffic. He suggested adding discussion about local aggregate traffic (a Goal 5 resource, 50-year aggregate demand) and how it will affect future freight traffic in the corridor (acceleration/deceleration lanes) including monitoring and triggers. Consider more turn/deceleration lanes along the corridor to remove conflicts between entry/exit points for trucks and through traffic. The larger group suggested that OR 140 modeling for the plan is revisited after the regional model is updated. *DEA will expand the discussion of freight in the OR 140 corridor to include aggregate demand along the corridor. DEA will also investigate additional triggers that might be related to truck demand and discuss options with the Technical Advisory Committee.*
- The group would like to see practical design and least cost planning concepts along the corridor. For example, if possible, tie improvements to local projects.
- There was interest in a figure showing aggregate/asphalt/redimix site locations along the OR 140 corridor. OR 140 provides aggregate resources to all of Jackson County. *Note: The Comprehensive Plan and Zoning maps already indicate where aggregate zoning in present along the OR 140 corridor.*

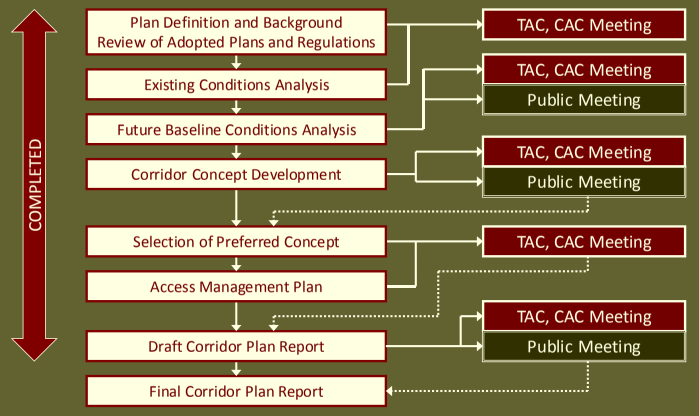
Jennifer concluded the presentation discussion touching on management actions, Transportation System Management (TSM) and Transportation Demand Management (TDM), next steps for the Plan, and thanked the committee for their time and input.

Next Steps

DEA is waiting on comments for the draft OR 140 Corridor Plan from the Citizen and Technical Advisory committees and general public, due November 30, 2012. The final plan will be completed by the end of the year.

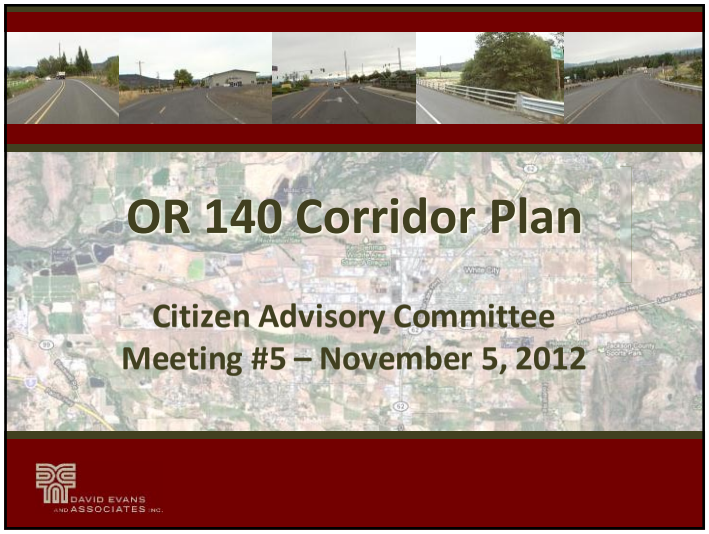
Attachments:
PowerPoint Presentation

Corridor Planning Process



Next Steps

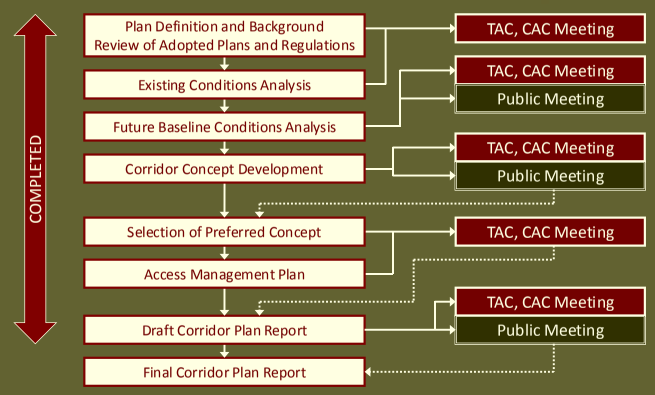
- Review Draft OR 140 Corridor Plan
  - Review period
- Finalize OR 140 Corridor Plan
  - End of 2012



Presentation Topics

1. Process Update
2. Draft Plan
   - Organization
   - Recommended Improvements
   - Access Management
   - Other Management Actions
3. Discussion
   - Final recommendations for corridor plan

Corridor Planning Process



Draft Plan Organization

VOLUME 1

1. INTRODUCTION
2. EVALUATION OF BASELINE CONDITIONS
3. CORRIDOR PLAN IMPROVEMENTS
4. ACCESS MANAGEMENT PLAN
5. OTHER MANAGEMENT ACTIONS

PROJECT SHEETS

Draft Plan Organization

VOLUME 2

- Tech Memos 1 through 8
  - Updated to address comments received
- Summary of Public Outreach
  - Through meetings this week

Corridor Plan Improvements

- Corridor Plan Summary Table
  - 19 Improvements
  - Description
  - Implementation (Priority, Triggers)
  - General Funding Categories
- Project Sheets
  - 15 prepared, none for signals or delineation
  - Generally two pages
    - Page 1 – Descriptive
    - Page 2 – Illustrative

Corridor Plan Improvements

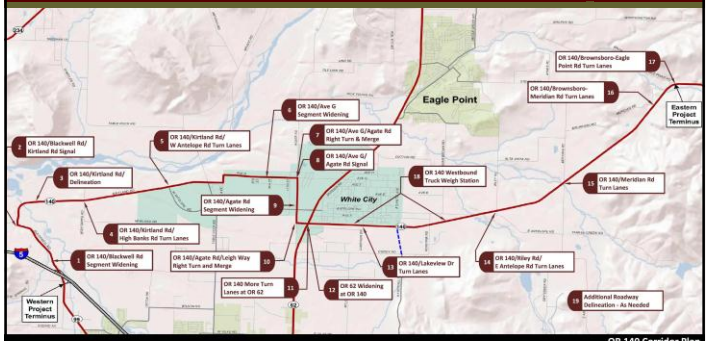
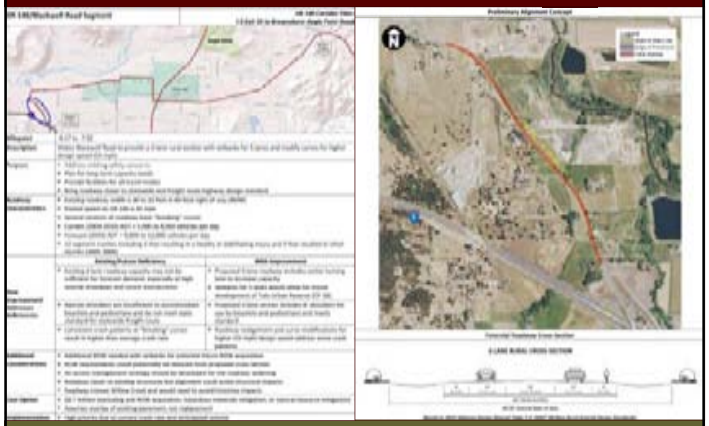


Figure 7
Locations of Corridor Plan Improvements

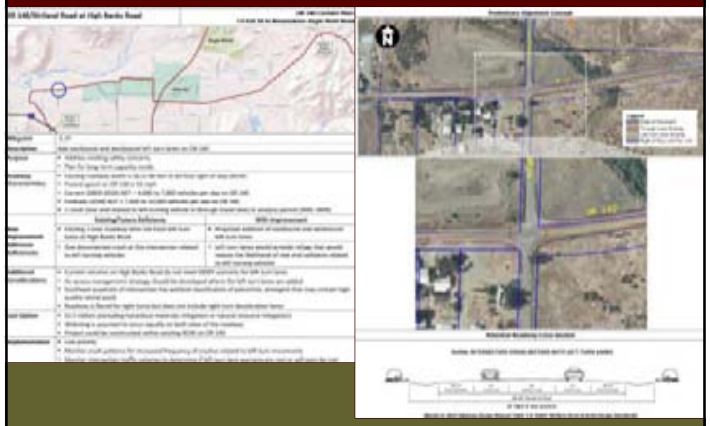
Corridor Plan Projects Not Illustrated

- Project 2 – OR 140/Blackwell Rd/Kirtland Rd Signal
  - Investigate striping options (under Management Actions)
  - Low priority triggered by traffic signal warrants
- Project 3 – OR 140/Kirtland Rd Delineation
  - Install additional roadway delineation such as textured striping or rumble strips
  - Medium priority triggered by continued pattern of run-off-the-road crashes
- Project 8 – OR 140/Ave G/Agate Rd Signal
  - Low priority triggered by traffic signal warrants
- Project 19 – Additional Roadway Delineation
  - Locations as needed
  - Documented pattern of run-off-the-road crashes
  - Repaving projects

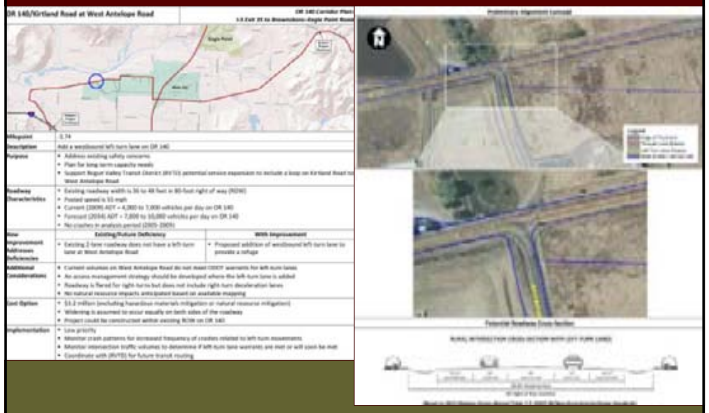
Corridor Plan Project Sheet 1



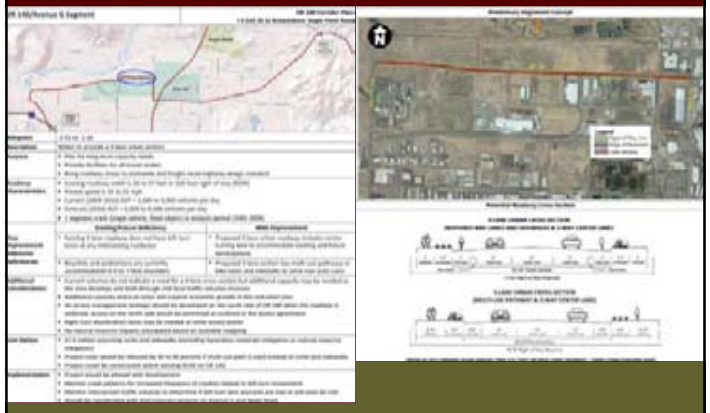
Corridor Plan Project Sheet 4



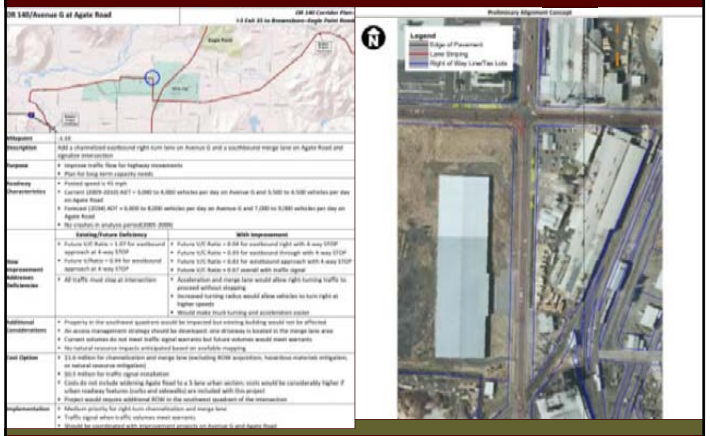
Corridor Plan Project Sheet 5



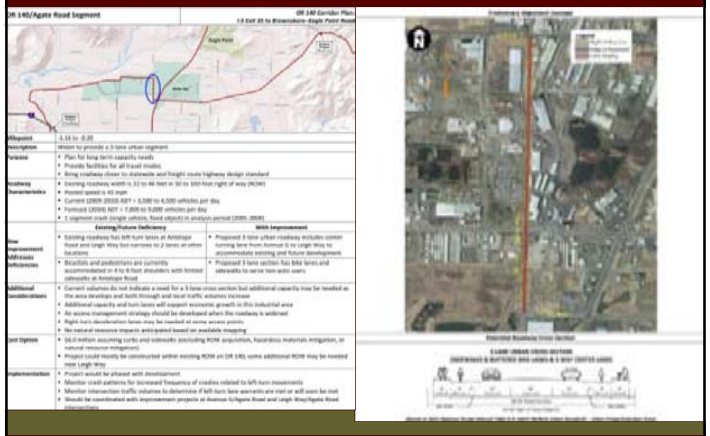
Corridor Plan Project Sheet 6



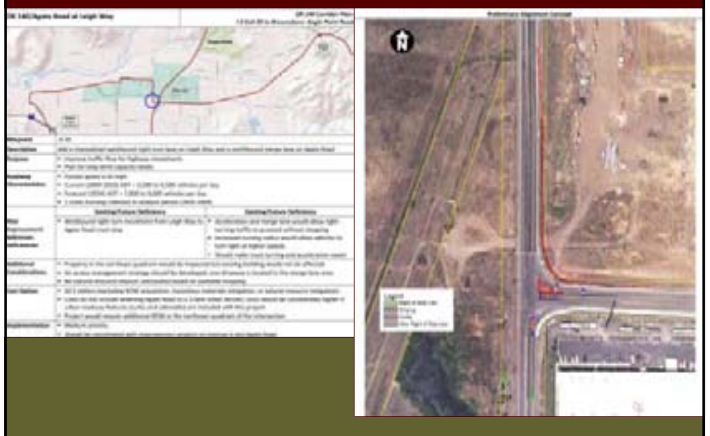
Corridor Plan Project Sheet 7



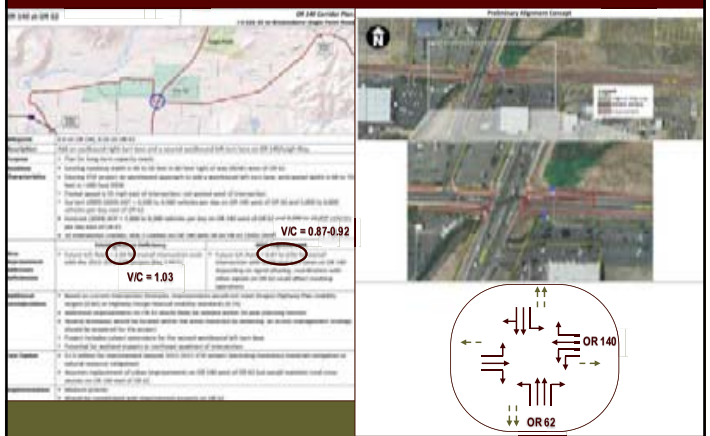
Corridor Plan Project Sheet 9



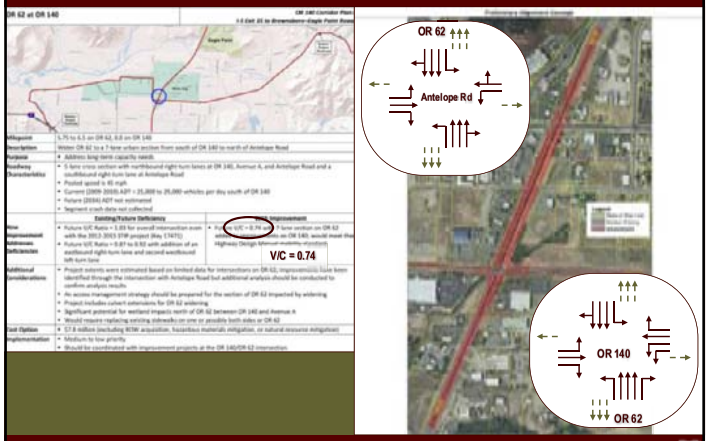
Corridor Plan Project Sheet 10



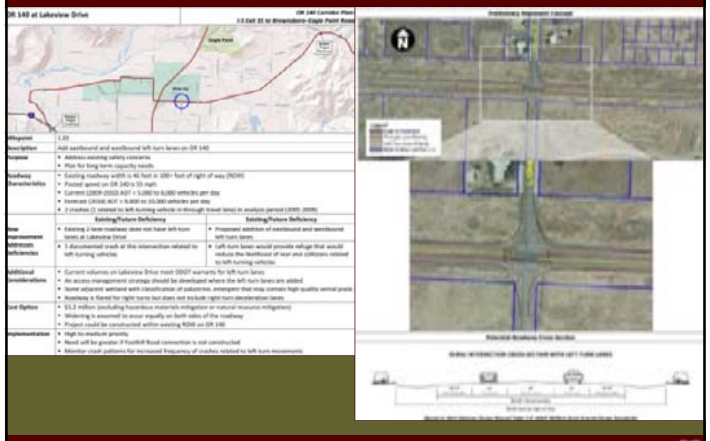
NEW - Corridor Plan Project Sheet 11



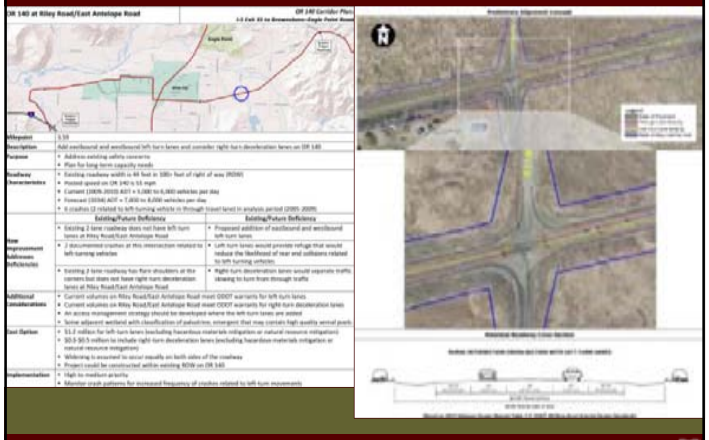
NEW - Corridor Plan Project Sheet 12



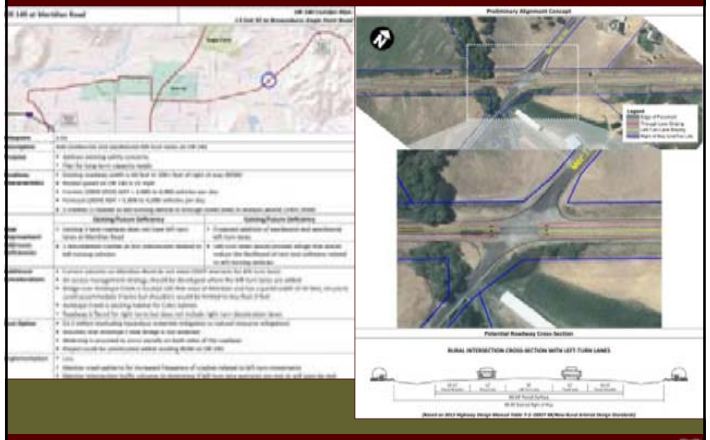
Corridor Plan Project Sheet 13



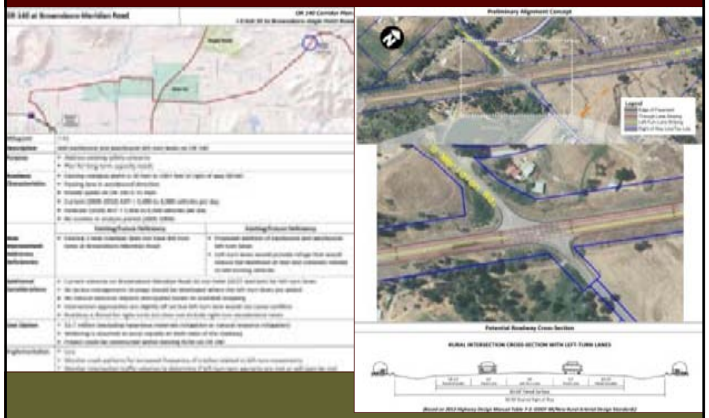
Corridor Plan Project Sheet 14



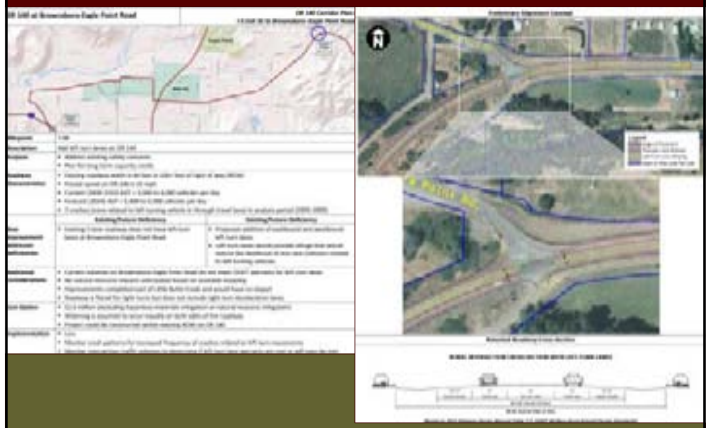
Corridor Plan Project Sheet 15



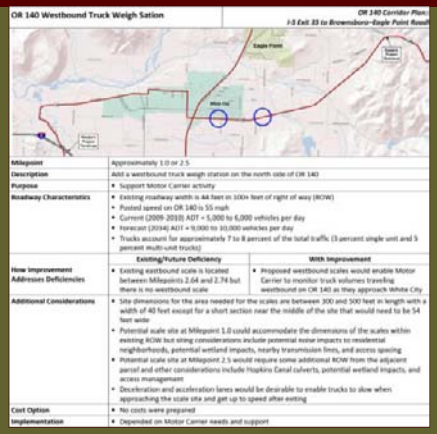
Corridor Plan Project Sheet 16



Corridor Plan Project Sheet 17



Corridor Plan Project Sheet 18



OR 140 Westbound Truck Weigh Sation	OR 140 Corridor Plan: I-5 Exit 33 to Brownsboro–Eagle Point Road
Milepoint	Approximately 1.0 or 2.5
Description	Add a westbound truck weigh station on the north side of OR 140
Purpose	• Support Motor Carrier activity
Roadway Characteristics	• Existing roadway width is 44 feet in 100+ feet of right of way (ROW) • Posted speed on OR 140 is 55 mph • Current (2009-2010) ADT = 5,000 to 6,000 vehicles per day • Forecast (2034) ADT = 9,000 to 10,000 vehicles per day • Trucks account for approximately 7 to 8 percent of the total traffic (3 percent single unit and 5 percent multi-unit trucks)
	Existing/Future Deficiency / **With Improvement**
How Improvement Addresses Deficiencies	• Existing eastbound scale is located between Milepoints 2.64 and 2.74 but there is no westbound scale / • Proposed westbound scales would enable Motor Carrier to monitor truck volumes traveling westbound on OR 140 as they approach White City
Additional Considerations	• Site dimensions for the area needed for the scales are between 200 and 500 feet in length with a width of 40 feet except for a short section near the middle of the site that would need to be 54 feet wide • Potential scale site at Milepoint 1.0 could accommodate the dimensions of the scales within existing ROW but siting considerations include potential noise impacts to residential neighborhoods, potential wetland impacts, nearby transmission lines, and access spacing • Potential scale site at Milepoint 2.5 would require some additional ROW from the adjacent parcel and other considerations include Hopkins Canal culverts, potential wetland impacts, and access management • Deceleration and acceleration lanes would be desirable to enable trucks to slow when approaching the scale site and get up to speed after exiting
Cost Option	• No costs were prepared
Implementation	• Depended on Motor Carrier needs and support

Access Management Plan

- Access Management Standards
  - Standards specified in the plan are codified with adoption by the OTC
- Access Management Actions
  - Access management techniques would be implemented when one or more of the following triggers occur:
    - Applications for land use changes or development are submitted
    - Future highway improvement projects move into design and construction
    - Safety and/or operational problems arise
  - Approval or delay of implementation may be determined by the Region Access Management Engineer.

Private Approaches

OAR 734-051-4020, Standards and Criteria for Approval of Private Approaches:

(8)(c) The spacing standards in Tables 3 through 6 do not apply to approaches in existence prior to January 1, 2012, except when:

(A) A new approach road is requested or an existing approach permit is subject to change of use under ORS 374.312; and

(B) Where infill development or infill redevelopment occurs the approach road spacing standards will be a department determination; the department shall determine whether the approach road spacing or safety is improved by moving in the direction of the spacing standards in Tables 3 through 6; and

(C) Where a highway or interchange project occurs the approach road spacing standard will be a department determination; the department shall consider whether the approach road spacing or safety is improved by moving in the direction of the applicable spacing standards in Tables 3 through 6.

OR 140 Access Standards

Table 1. Minimum Access Spacing Standards for OR 140

Milepoints	Segment Description	Posted Speed	Minimum Spacing
West of White City UUC Boundary			
MP -8.29 to -7.02	OR 140/Blackwell Rd: I-5 to Kirtland Rd	45 mph	990 feet
MP-7.02 to -4.33	OR 140/Kirtland Rd: Blackwell Rd to Pacific Ave	45/55 mph	990/1,320 feet
White City (within UUC Boundary)			
MP-4.33 to -2.71	OR 140/Kirtland Rd: Blackwell Rd to Pacific Ave	45/55 mph	800/1,320 feet
MP -2.71 to -2.55	OR 140/Pacific Ave: Kirtland Rd to Ave G	55	1,320 feet
MP -2.55 to -1.16	OR 140/Ave G: Pacific Ave to Agate Rd*	45/55	800/1,320 feet
MP -1.16 to -0.20	OR 140/Agate Rd: Ave G to Leigh Way	45	800 feet
MP -0.20 to 0.0	OR 140/Leigh Way: Agate Rd to OR 62	Not Posted	800 feet
MP 0.0 to 1.75	OR 140: OR 62 to Brownsboro- Eagle Point Rd	55	1,320 feet
East of White City UUC Boundary			
MP 1.75 to 7.98	OR 140: OR 62 to Brownsboro- Eagle Point Rd	55	1,320 feet

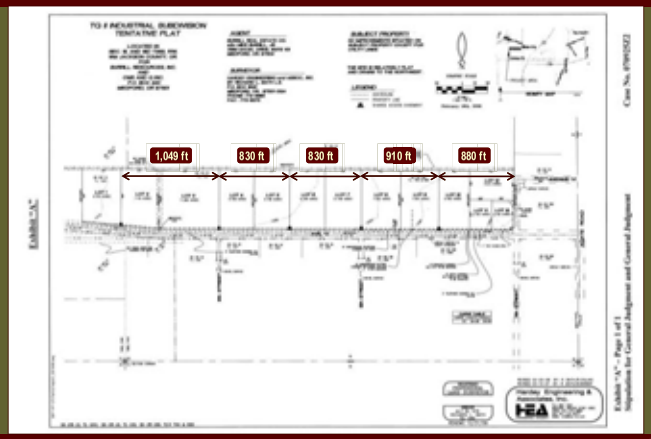
* Apply access standards for north side of Avenue G based on Case No. 07092522, Exhibit A - Stipulation for General Judgement and General Judgement.

Access Management Implementation

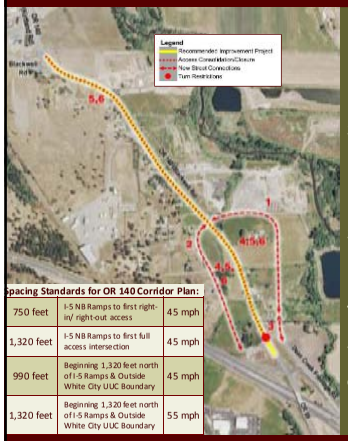
Access management actions would be taken when one or more of the following triggers occurs:

- Applications for land use changes or development are submitted
  Example: *"Consolidation or closure of driveways should be considered when properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street."*
- Future highway improvements move into design and construction
  Example: *"Right-turn deceleration lanes should be considered when 3-lane improvements are constructed on OR 140 (Avenue G or Agate Road)."*
- Safety and or operational problems arise
  Example: *"Consolidation or closure of driveways should be considered when the annual accident rate is greater than the statewide annual average accident rate for similar roadways or the section has an ODOT Safety Priority Index System (SPIS) rating in the top 10 percent."*

Approved Access on North Side of Avenue G



AMP – I-5 to Kirtland Rd



Spacing Standards for OR 140 Corridor Plan:

750 feet	I-5 NB Ramps to first right-in/ right-out access	45 mph
1,320 feet	I-5 NB Ramps to first full access intersection	45 mph
990 feet	Beginning 1,320 feet north of I-5 Ramps & Outside White City UUC Boundary	45 mph
1,320 feet	Beginning 1,320 feet north of I-5 Ramps & Outside White City UUC Boundary	55 mph

1. Construct a local road parallel and east of Blackwell Road to serve development with connections to Blackwell Road that meet the minimum ¼-mile access spacing from the interchange as well as spacing standards for a statewide freight route (OR 140). This new road should intersect OR 140 opposite the new road west of Blackwell Road.
2. Construct a local road parallel and west of Blackwell Road to serve development with connections to Blackwell Road that meet the minimum ¼-mile access spacing from the interchange as well as spacing standards for a statewide freight route (OR 140). This new road should intersect OR 140 opposite the new road east of Blackwell Road.
3. Extend existing Dean Creek Frontage Road to connect with the new local road east of Blackwell Road and close or restrict access at the current connection immediately north of the interchange.
4. Orient new driveway connections towards these newly created parallel routes north of the interchange.
5. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
6. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.

AMP – Blackwell Rd to Pacific Ave

7. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
8. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.

Spacing Standards for OR 140 Corridor Plan:

990 feet	Outside White City UUC Boundary	45 mph
1,320 feet	Outside White City UUC Boundary	55 mph
800 feet	Inside White City UUC Boundary	45 mph
1,320 feet	Inside White City UUC Boundary	55 mph

AMP – Pacific Ave to OR 62

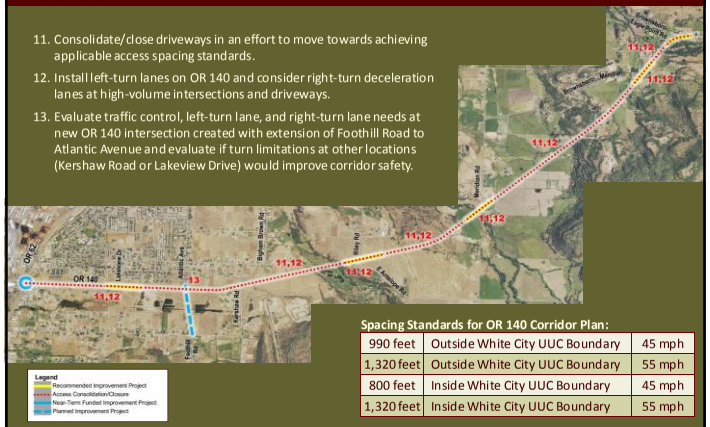
9. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
10. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.

Spacing Standards for OR 140 Corridor Plan:

800 feet	Inside White City UUC Boundary	45 mph
1,320 feet	Inside White City UUC Boundary	55 mph

AMP – OR 62 to Brownsboro-Eagle Point Road

11. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
12. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.
13. Evaluate traffic control, left-turn lane, and right-turn lane needs at new OR 140 intersection created with extension of Foothill Road to Atlantic Avenue and evaluate if turn limitations at other locations (Kershaw Road or Lakeview Drive) would improve corridor safety.



Spacing Standards for OR 140 Corridor Plan:

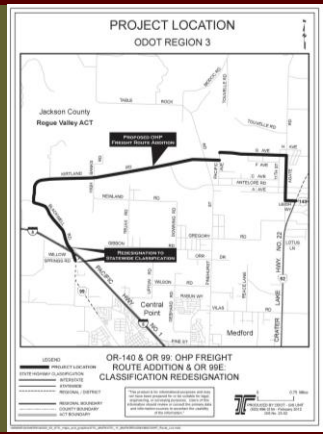
990 feet	Outside White City UUC Boundary	45 mph
1,320 feet	Outside White City UUC Boundary	55 mph
800 feet	Inside White City UUC Boundary	45 mph
1,320 feet	Inside White City UUC Boundary	55 mph

Management Actions

- Highway Classification and Designations
- Transportation Plan Coordination
- Transportation System Management Measures
- Transportation Demand Management Measures

Highway Classification and Designations

- Statewide Highway Classification (between I-5 Ramps)
- Freight Route Designation
- OR 140 Contingency Rerouting



Transportation Plan Coordination

- The 2009 OHP amendment to extend OR 140 extension from OR 62 to I-5 included a change in the federal functional classifications for the roadways that constitute the OR 140 extension from Rural Minor Arterial or Rural Minor Collector to Rural/Urban Principal Arterial.
  - When Jackson County next updates its TSP, the functional classification of the roadways that constitute OR 140 between I-5 and OR 62 should be upgraded for consistency with federal functional classifications for this statewide highway.
  - When the RVMPO next updates the RTP, the functional classification of the roadways that constitute OR 140 between I-5 and OR 62 should be upgraded for consistency with federal functional classifications for this statewide highway.

Transportation System Management Measures

- Traffic Monitoring Measures
  - Traffic Signals
    - Traffic volumes for traffic signal warrants
  - Left-Turn Lanes
    - Crash patterns related to left-turn movements
    - Traffic volumes for left-turn lane warrants
  - Right-Turn Lanes
    - Crash patterns related to right-turn movements
    - Traffic volumes for right-turn lane warrants
- OR 140/Blackwell Rd/Kirtland Rd Restriping
  - Investigate striping modifications to facilitate "two-stage" left turns from the eastbound STOP-controlled approach

Appendix 9-C

Public Open House Meeting Materials

OR 140 Corridor Plan Open House

Jackson County Parks Auditorium
7520 Table Rock Road
Central Point, OR 97502

JULY 27, 2011
ATTENDANCE SHEET

Name	Agency/Organization	Phone #	Email
Jeanette Poston	Interpreter	541 552-9260	jeanetteposton@yahoo.com
Christie Meacham	ODOT	541-957-3698	
FRANK RUTIGLIANO		541-915-2671	FRANKSTER@LIVE.com
JON Card	Combined Transport	541-734-7418	Jcard@combinedtransport.com
Jerry/Becky Roberson	Property Owners	541-664-4500	Jerry1957@gmail.com
ALLEN + LOIS PAYNE		541-664-4975	
Bert Mayer	Tyler's Ranch	541-831-1625	mayer@tyler-s-ranch.com
Roger Booth			rbooth@kabooth.com
CHARLES A. STROM		890-5829	cs264@clearwire.net
Thomas Guevara	ODOT	957-3692	thomas.guevara@odot.state.or.us
JOHN RACHOR	JACKSON B.O.C.	—	—
WILLIAM LEAVENS	PROPERTY OWNER	541-840-7790	leavensb@landsrock.com
Ron Bjork	JCFB	541-830-8000	—

COMMENT/SUGGESTIONS :

OVERDIMENSIONAL FREIGHT - what is the Road classification? OR 140 to OR 62 is Green
What is OR 140 to I-5
I am interested in any Road widning on Blackwell Rd

OR 140 Corridor Plan Open House
July 27, 2011

Name (Optional): Jon Card

Company/Affiliation (if applicable): Combined Transport

Address: P.O. Box 3667 Central Point OR 97502

Phone: 541-734-7418 Email: JCARD@combinedtransport.com

☐ **Do you have any special concerns/thoughts regarding these projects? Any specific safety concerns? Traffic concerns? Ideas?**

Please put your comments about this project on the REVERSE of this card.

COMMENT/SUGGESTIONS :

I'VE LIVED ON BLACKWELL RD FOR 15 YRS AND SEEN MORE AND MORE TRAFFIC. AND TRAFFIC INCREASE WITH BIKE RIDERS ON BLACKWELL. CARS BUNCHING UP IN THE DITCHES. I FEEL THAT THERE SHOULD BE A THIRD LANE FOR TURNING INTO RESIDENTS HOMES AND BUSINESS. AND SAFTY FOR OUR MAIL BOXES; WHICH ONLY 1½ FT FROM TRAFFIC. ALSO CAN YOU PUT ALL THE 140 CORRIDOR PLAN ON YOUR WEB SITE. THANK YOU

OR 140 Corridor Plan Open House
July 27, 2011

Name (Optional): FRANK RUTIGLIANO

Company/Affiliation (if applicable):

Address: 6535 BLACKWELL RD

Phone: Email: FRANKSTER@LIVE.COM

Do you have any special concerns/thoughts regarding these projects? Any specific safety concerns? Traffic concerns? Ideas?

Please put your comments about this project on the REVERSE of this card.

COMMENT/SUGGESTIONS:

I visited the county web site to confirm details about this meeting but could not find mention. Suggestion: put info about such meetings on the county web site.

I would like the ability to reference the graphics presented at this meeting at a later date. Suggestion: place the graphics on the county web site

OR 140 Corridor Plan Open House
July 27, 2011

Name (Optional):_____

Company/Affiliation (if applicable):_____

Address:_____

Phone:_____ Email:_____

☐ **Do you have any special concerns/thoughts regarding these projects? Any specific safety concerns? Traffic concerns? Ideas?**

Please put your comments about this project on the <u>REVERSE</u> of this card.

COMMENT/SUGGESTIONS :

- BROWNSBORO LEFT-TURN LANE (MEDFORD → KFALLS)
- 140 (connect 62 → I-35): HISTORICALLY
  AVE A ALIGNMENT (AVOID FERRYSHAMO)
  OVERPASS @ ANTELOPE, ACCESS TO KIRTLAND
  — FOOTHILLS – EXT. NORTH TO ANTELOPE
  ↳ DOESN'T LIKE KERSHAW CURVES

OR 140 Corridor Plan Open House
July 27, 2011

Name (Optional): Ron Bjork

Company/Affiliation (if applicable):

Address:

Phone: Email:

☐ **Do you have any special concerns/thoughts regarding these projects? Any specific safety concerns? Traffic concerns? Ideas?**

Please put your comments about this project on the REVERSE of this card.

COMMENT/SUGGESTIONS :

TURNING ONTO HIGHBANKS RD TRAVELING EAST ON KIRTLAND IS AN ACCIDENT THAT IS GOING TO HAPPEN. A TURN LANE IS A MUST. THOSE LIVING ON HIGHBANKS HAVE DEEP CONCERNS REGARDING THIS ISSUE

I WOULD BE HAPPY TO TALK TO YOU ABOUT OUR CONCERNS.

THANK YOU

- MAILBOX ARE ALL LOCATED ON NORTHSIDE OF KIRTLAND → PEOPLE LIVING ON SOUTHSIDE MUST CROSS KIRTLAND ON FOOT TO ACCESS PAPER & MAIL
- SCHOOL BUS STOPS ON KIRTLAND W/ VERY LITTLE SHOULDER TO P/U CHILDREN.

OR 140 Corridor Plan Open House
July 27, 2011

Name (Optional): WILLIAM LEAVENS

Company/Affiliation (if applicable): PROPERTY OWNER

Address: 8561 HIGHBANKS RD

Phone: 541-840-7790 541-665-2133 Email: leavensb@landsrock.com

☒ **Do you have any special concerns/thoughts regarding these projects? Any specific safety concerns? Traffic concerns? Ideas?**

Please put your comments about this project on the <u>REVERSE</u> of this card.

OR 140 Corridor Plan

Open House

July 27, 2011

WELCOME

DAVID EVANS AND ASSOCIATES INC

OR 140 Corridor Plan

What is it?

- A planning study of the OR 140 Corridor from I-5 Exit 35 through White City to Brownsboro-Eagle Point Road

What does a planning study do?

- Inventory facilities and understand how the corridor operates
- Recommend ways to make existing and future traffic flow better

What type improvements will be considered?

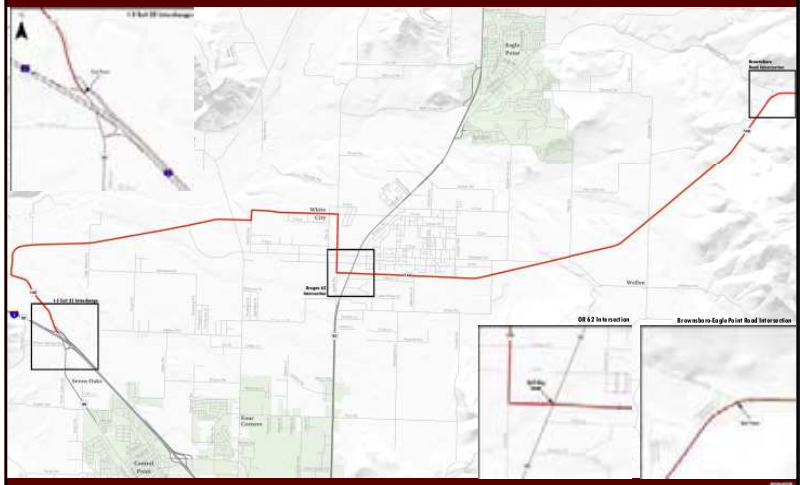
- Access management like driveway consolidation, realignment, closure, local network improvements
- System management like traffic signals, turn bays, coordination
- Capacity improvements like turn lanes, smoother curves, additional travel lanes
- Safety improvements like better sight lines, flashers, travel speeds

Potential Impacts of Improvements

How could properties be affected?

- Changes to accesses (driveways) could require:
  - Consolidation
  - Relocation
  - Closure
- Additional right of way may be needed for:
  - New turn lanes at intersections
  - Wider shoulders
  - Additional travel lanes including a center turn lane
  - Intersection realignment
  - Modified corners to better accommodate trucks
- Increased noise from higher traffic volumes

Corridor Planning Area



Five Corridor Plan Goals

Goal 1: Mobility - Develop and implement management measures and physical improvements that maximize the efficiency of existing roadway facilities through 2034.

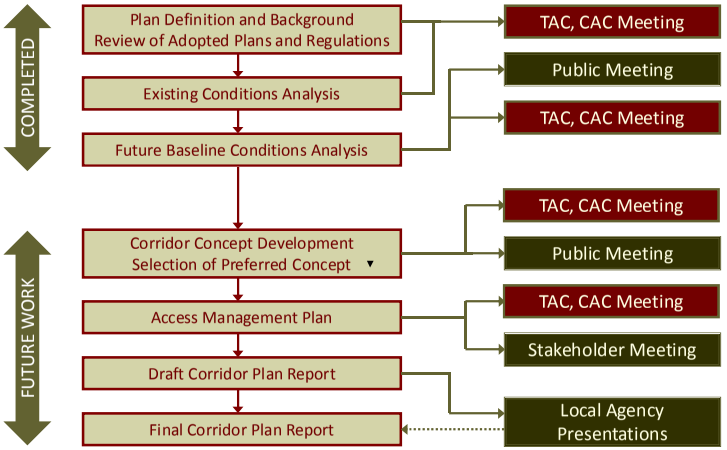
Goal 2: Freight Operations- Develop a plan that facilitates freight mobility in the corridor.

Goal 3: Safety - Promote the safety of current and future travel modes for all users.

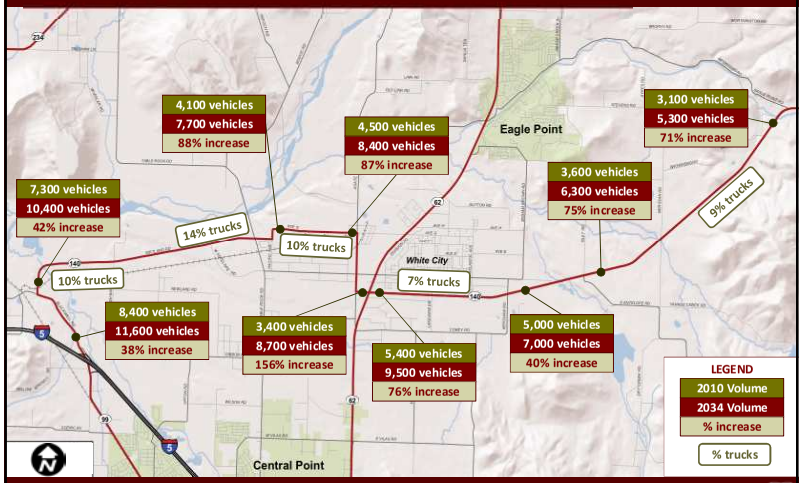
Goal 4: Economic Vitality – Develop integrated transportation facilities and services that can adequately support travel for business and recreation opportunities.

Goal 5: Coordination - Coordinate planning efforts for OR 140 with other plans and projects in the study area.

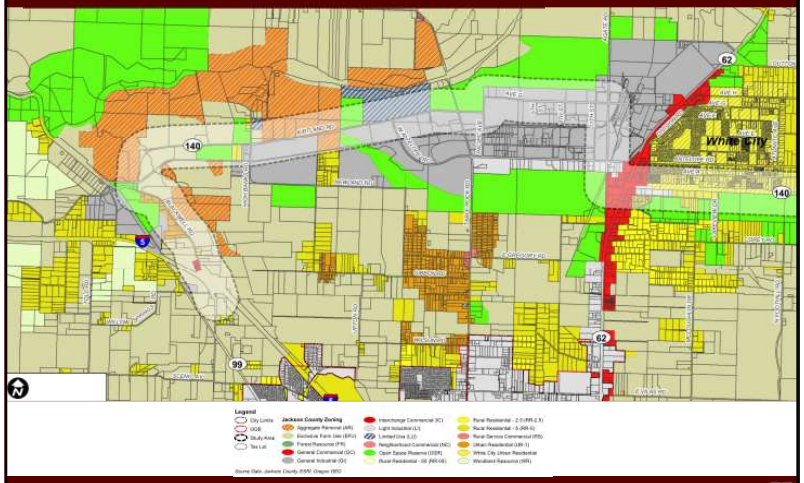
Corridor Planning Process



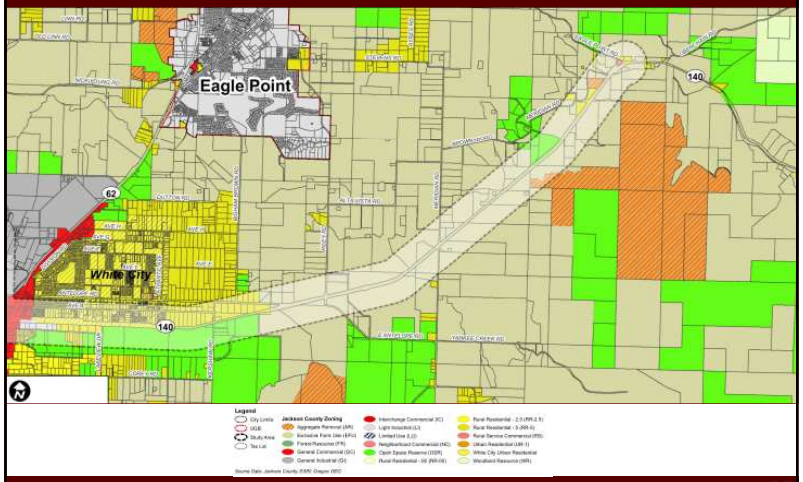
Average Daily Traffic Volumes



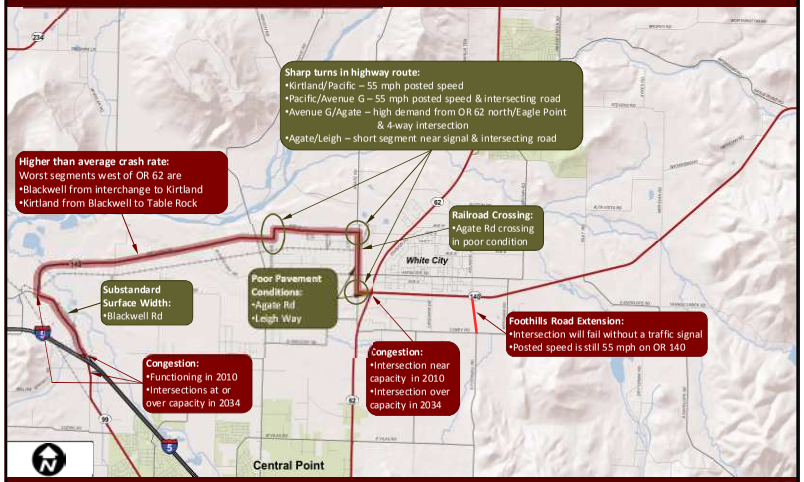
Zoning & Tax Lots – West



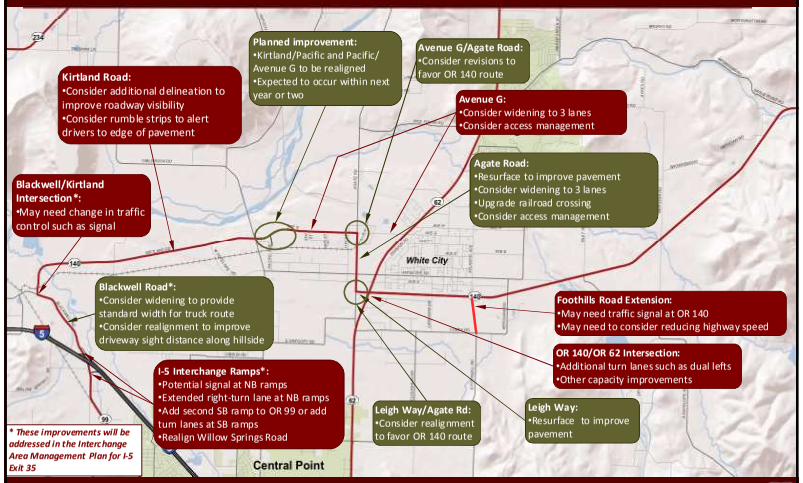
Zoning & Tax Lots – East



Identified Issues



Potential Solutions to be Considered



** These improvements will be addressed in the Interchange Area Management Plan for I-5 Exit 35*

OR 140 Corridor Plan Open House

Jackson County Parks Auditorium
7520 Table Rock Road
Central Point, OR 97502

NOVEMBER 16, 2011
ATTENDANCE SHEET

Name	Agency/Organization	Phone #	Email
CHARLES STROM	PROPERTY OWNER HWY 140	541-890-5829	cs264@clearwire.net
Craig Tuss	RVCOG	541-423-1366	ctuss@rvcog.org
Jim Root	Property owner Hwy 140	541-944-0554	Jim@JimRootcompany.com
Craig Harper	Whetstone Creek restoration SC	541-423-1369	charper@rvcog.org
FLO BLAKE	Upper Rogue IWD president		
mike Nussey	Fire District 3		
Eric Merrill	Fire District 3		

OR 140 Corridor Plan Open House
November 16, 2011

Name (Optional): Jim Root

Company/Affiliation (if applicable):

Address: PO Box 430 Medford

Phone: 541 944-0554 Email: jim@jimrootcompany.com

☐ **Do you have any special concerns/thoughts regarding these projects? Any specific safety concerns? Traffic concerns? Ideas?**

Please put your comments about this project on the REVERSE of this card.

COMMENT/SUGGESTIONS :

(1) Consider Two Left Turn Lanes on 140 west bound onto 62 South bound

(2) Consider anadromous salmonid passage at 140 bridge an culvert crossings.

OR 140 Corridor Plan Open House
November 16, 2011

Name (Optional): Mike Hussey

Company/Affiliation (if applicable): FD 3

Address: 8333 Agate Rd

Phone: 541-826-7100 Email:

☑ **Do you have any special concerns/thoughts regarding these projects? Any specific safety concerns? Traffic concerns? Ideas?**

Please put your comments about this project on the <u>REVERSE</u> of this card.

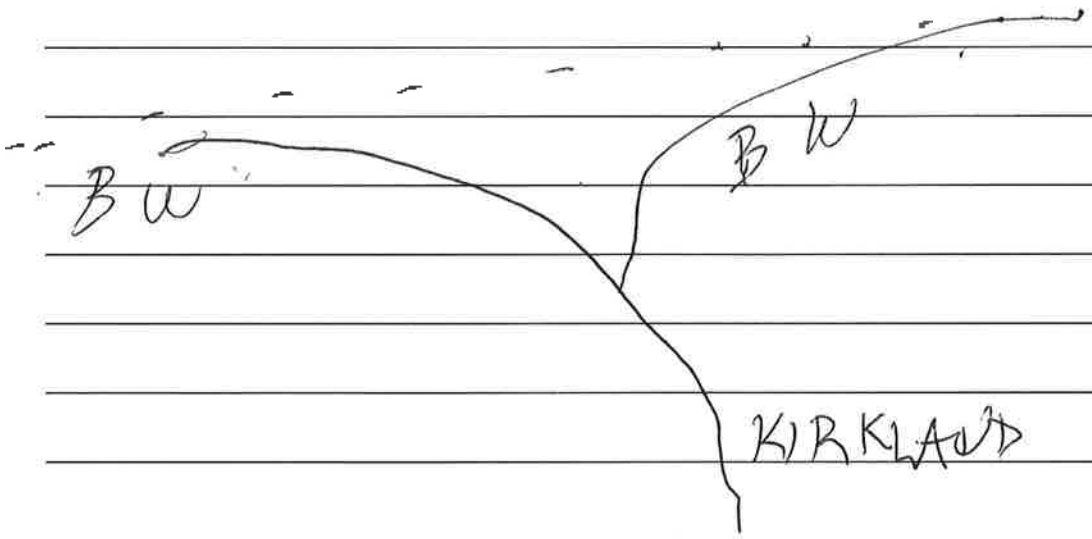
COMMENT/SUGGESTIONS :

Concep I-12 -
West Bound turn left Lane unnecessary.
Greater Benefit would be to create a deceleration lane for exiting west bound onto Brownsboro.

Additional benefit for acceleration lane for Right turn off Brownsboro onto 140 headed up hill. Possibly extend ~~two~~ passing lane down to the intersection

COMMENT/SUGGESTIONS :

MAKE THE INTERSECTION OF BLACKWELL / KIRKLAND FAVOR 140 WITHOUT A STOP.



Transportation Demand Management Measures

- Bicycle and Pedestrian Facilities
  - Plan includes the addition of improved bicycle and pedestrian facilities in the corridor through roadway modernization
- Park and Ride Facility
  - Support RVTD Bus Route 60 which travels along OR 62
  - Investigate locations for a future park-and-ride facility at OR 140/OR 62 intersection
    - Potentially take advantage of existing parking that is underutilized during the day
    - Potentially incorporate into future shared-use development
    - Potentially construct as a standalone parking lot.

Next Steps

- Review Draft OR 140 Corridor Plan
  - Review period
- Finalize OR 140 Corridor Plan
  - End of 2012

OR 140 Corridor Plan

Thank you for taking the time to participate in the process. Your input has helped shape this plan to better meet the needs of the community and corridor users.

OR 140 Corridor Plan

Open House

November 16, 2011

WELCOME

DAVID EVANS AND ASSOCIATES INC.

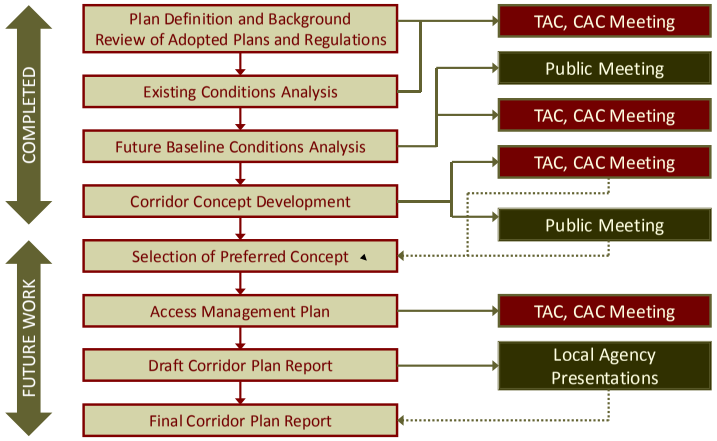
OR 140 Corridor Plan

What is it?
- A planning study of the OR 140 Corridor from I-5 Exit 35 through White City to Brownsboro-Eagle Point Road

What does a planning study do?
- Inventory facilities and understand how the corridor operates
- Recommend ways to make existing and future traffic flow better

What is the purpose of today's Open House?
- Review improvement concepts under consideration for the corridor
- Ask questions about the concepts
- Provide feedback on comment cards

Corridor Planning Process



Concept Development

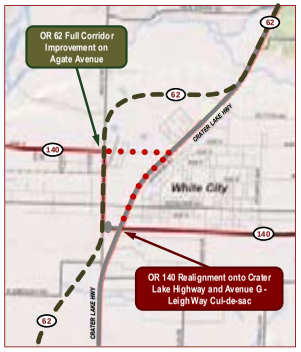
- Concepts
  - Address deficiencies along the OR 140 corridor as identified through existing and future baseline analysis
- Type of Improvements
  - **Highway Redesignation** – address consistency in statewide classification or respond to system changes imposed by other projects
  - **Jackson County Reclassification** – address consistency between the state and county
  - **Segment Improvements** – address geometric, safety, or operational deficiencies in the OR 140 corridor
  - **Intersection Improvements** – address geometric, safety, or operational deficiencies at individual intersections
- Roadway Network Assumptions
  - All concepts assume that OR 62 Phase 1 and 2 improvements (Jobs in Transportation Act) are constructed
  - Some concepts respond to the completion of the full corridor improvement identified in the OR 62 Corridor Solutions Environmental Impact Statement (EIS)

Concept Evaluation Criteria

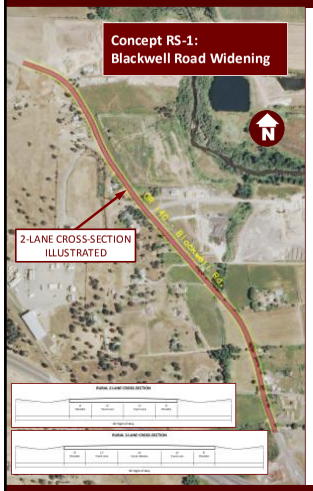
- Traffic Operations and Safety
  - Does the improvement address existing operational or safety concerns?
  - Will it cause additional concerns?
- Basic Roadway Geometry and Right of Way
  - How might the improvement look?
  - Would it require additional right of way?
- Environmental and Land Use
  - Would the improvement have any potential impact to land uses or environmental resources?
- Cost Opinion
  - How much would it cost?

Highway Redesignation & Reclassification

- Highway Redesignation
  - Extend statewide designation through Exit 35
  - Extend freight designation west of OR 62
  - Reroute OR 140 along Crater Lake Highway and Avenue G when OR 62 full corridor improvements are implemented (inset right)
- Jackson County Reclassification
  - Changes to Transportation System Plan for consistency with OR 140 route (inset below)



Blackwell Road Improvements



Purpose: Safety, Capacity, Consistency with Statewide Design Standard

Options: 2-Lane Rural Cross-Section
3-Lane Rural Cross-section

Traffic Operations:
2-Lane – Some congestion without left-turn lanes
3-Lane – Center median provides left-turn refuge

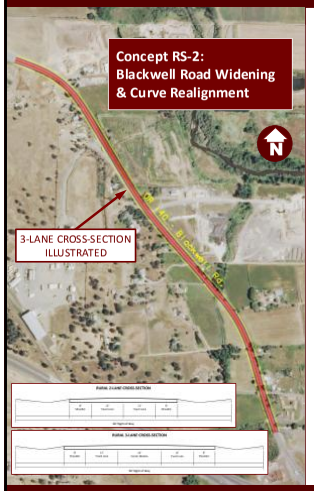
Safety:
2-Lane – Some benefit from wider shoulders
3-Lane – Center lane for left-turning vehicles & wider shoulders

Basic Roadway Geometry & Right of Way (ROW):
Keeps alignment on current centerline but modifications possible
Does not modify "breaking" curves
ROW requirements could be less than shown

Environmental & Land Use:
2-Lane – Up to 20' additional ROW needed, close to some structures
3-Lane – Up to 30' additional ROW needed, close to some structures
Crosses Willow Creek

Cost Opinions:
2-Lane – $1.4 million
3-Lane – $3.6 million

Blackwell Road Improvements



Purpose: Safety, Capacity, Consistency with Statewide Design Standard

Options: 2-Lane Rural Cross-Section
3-Lane Rural Cross-section

Traffic Operations:
Same as Concept RS-1

Safety:
Same as Concept RS-1 but smooth curves & higher design speed could reduce run-off-road crashes

Basic Roadway Geometry & Right of Way (ROW):
Realigns sections of roadway to smooth curves and meet 55 mph design speed
Could not be constructed within existing ROW
ROW requirements could be less than shown

Environmental & Land Use:
More ROW needed than Concept RS-1
Roadway alignment avoids structures
Crosses Willow Creek

Cost Opinions:
2-Lane – $6.2 million
3-Lane – $8.7 million

Kirtland Road Improvements

Concept RS-3: Kirtland Road Safety Improvements

Purpose: Safety – 19 crashes in 5 years – 9 involved a single vehicle that ran off the road

Safety:
Delineators - Crash research indicates benefits of delineators may be offset by increased likelihood of fixed object collisions

Basic Roadway Geometry & Right of Way (ROW):
Delineators – Installed in outside paved shoulder

Environmental & Land Use:
Delineators - No impacts

Cost Opinions:
Delineators - $15,000

Safety:
Rumble Strips - Crash research indicates rumble strips can provide measurable reduction single vehicle, run of the road crashes

Basic Roadway Geometry & Right of Way (ROW):
Rumble Strips – Only where shoulders are more than 4' wide which is 85% of Kirtland

Environmental & Land Use:
Rumble Strips – Intermittent noise when vehicles drive over them – may be heard by some residences

Cost Opinions:
Rumble Strips - $10,000

Kirtland Road Improvements

Purpose: Consistency with Statewide Design Standard

Traffic Operations:
2-lane cross-section can accommodate future demand

Safety:
2' to 4' shoulder widening provides slightly more vehicle maneuvering room

Basic Roadway Geometry & Right of Way (ROW):
Keeps alignment along centerline, may be accommodated in existing ROW

Environmental & Land Use:
Several creeks and canals including Bear Creek and Whetstone Creek
Adjacent wetlands (Palustrine, Emergent) that may contain high value vernal pools

Cost Opinions:
Road Widening - $2.4 million

Avenue G Improvements (State Section)

Purpose: Consistency with Statewide Design Standard

Traffic Operations:
2-Lane Rural – Some congestion without left-turn lanes
3-Lane Rural – Center median provides left-turn refuge
3-Lane Urban – Center median plus sidewalks

Basic Roadway Geometry & Right of Way (ROW):
Keeps alignment along centerline
Existing ROW is 100' – can accommodate all options

Cost Opinions:
2-Lane Rural – $1.3 million
3-Lane Rural – $4.4 million
3-Lane Urban – $7.6 million

Options: 2-Lane Rural Cross-Section
3-Lane Rural Cross-Section
3-Lane Urban Cross-Section

Safety:
2-Lane Rural – Some benefit from wider shoulders
3-Lane Rural – Center lane for left-turning vehicles and wider shoulders
3-Lane Urban – Center lane plus sidewalks & curbs

Environmental & Land Use:
Area zoned industrial
Potential economic benefit for adjacent properties from higher capacity road with turn lanes
No natural resources mapped in area

Agate Road Improvements

Purpose: Safety, Capacity, Consistency with Statewide Design Standard

Options: 3-Lane Rural Cross-Section
3-Lane Urban Cross-section

Traffic Operations:
3-Lane Rural – Center median provides left-turn refuge
3-Lane Urban – Center median plus sidewalks

Safety:
3-Lane Rural – Center lane for left-turning vehicles
3-Lane Urban – Center lane plus sidewalks & curbs

Basic Roadway Geometry & Right of Way (ROW):
Keeps alignment along centerline
Existing ROW is 100' – can accommodate all options
Full upgrade of railroad crossing

Environmental & Land Use:
Area zoned industrial
Potential economic benefit for adjacent properties from higher capacity road with turn lanes
No natural resources mapped in area

Cost Opinions:
3-Lane Rural – $3.9 million
3-Lane Urban – $6.0 million

Avenue G Improvements (County Section)

Purpose: High demand traveling to OR 140 from White City and OR 62 to north

Traffic Operations:
- Industrial Collector – Center median provides left-turn refuge
- Minor Arterial – Center median plus sidewalks

Basic Roadway Geometry & Right of Way (ROW):
- Keeps alignment along centerline
- Existing ROW is 80' – can likely accommodate all options
- Full upgrade of railroad crossing

Cost Opinions:
- Industrial Collector (3 lanes) – $2.6 million
- Minor Arterial – $5.0 million

Options: 3-Lane Industrial Collector (County Standard)
Minor Arterial (County Standard)

Safety:
- Industrial Collector – Center lane for left-turning vehicles
- Minor Arterial – Center lane plus sidewalks & curbs

Environmental & Land Use:
- Area zoned industrial
- Potential economic benefit for adjacent properties from higher capacity road with turn lanes
- No natural resources mapped in area

Avenue G Improvements (OR 140 Rerouted)

Purpose: Widen Avenue G to meet state standards in response to OR 140 Reroute and OR 62 Full Corridor

Traffic Operations:
- 3-Lane Rural – Center median provides left-turn refuge
- 3-Lane Urban – Center median plus sidewalks

Basic Roadway Geometry & Right of Way (ROW):
- Keeps alignment along centerline
- Existing ROW is 80' – can likely accommodate all options
- Full upgrade of railroad crossing

Cost Opinions:
- 3-Lane Rural – $2.6 million
- 3-Lane Urban – $5.0 million

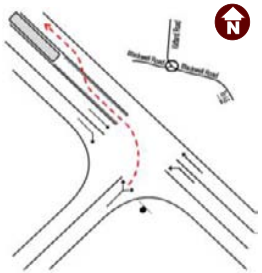
Options: 3-Lane Rural Cross-Section
3-Lane Urban Cross-section

Safety:
- 3-Lane Rural – Center lane for left-turning vehicles
- 3-Lane Urban – Center lane plus sidewalks & curbs

Environmental & Land Use:
- Area zoned industrial
- Potential economic benefit for adjacent properties from higher capacity road with turn lanes
- No natural resources mapped in area

Blackwell Road & Kirtland Road Improvements

Concept I-1: Blackwell Road and Kirtland Road Traffic Signal



Purpose: Capacity

Traffic Operations:
- Opportunity for 2-stage left turn (illustrated to left)
- Long term operations depends on frequency of 2-stage left turn – intersection demand could be greater than capacity if not happening
- Current traffic volumes do not meet traffic signal criteria but future volumes would meet traffic signal criteria
- Intersection would operate well with traffic signal

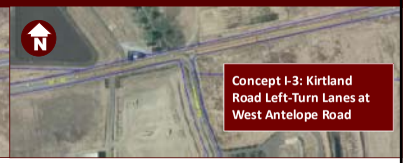
Safety:
- Traffic signals frequently have higher crash rates than STOP signs although the type and severity of the crashes differs

Basic Roadway Geometry & Right of Way (ROW):
- Installed within ROW
- Persistent congestion should be present & traffic volumes should meet warrants before a traffic signal is installed

Environmental & Land Use:
- Some access points nearby
- No natural resources mapped in area

Cost Opinion: $0.5 million

Kirtland Road Intersection Improvements



Purpose: Safety

Traffic Operations:
- Left-turn lane criteria not met by current or future traffic volumes

Safety:
- Left-turn lane would provide refuge for vehicles stopped to make left turn onto High Banks
- 1 collision related to left turns in 5 years

Basic Roadway Geometry & Right of Way (ROW):
- Eastbound and westbound left-turn lanes added within existing ROW

Environmental & Land Use:
- Some nearby driveways
- Wetlands (vernal pools) in southeast quadrant

Cost Opinion: $1.5 million

Purpose: Safety & Future Transit Service

Traffic Operations:
- Left-turn lane criteria not met by current or future traffic volumes
- Potential RVTD loop on Kirtland to West Antelope

Safety:
- Left-turn lane would provide refuge for vehicles stopped to make left turn onto West Antelope
- No collisions reported in 5 years

Basic Roadway Geometry & Right of Way (ROW):
- Westbound left-turn lane added within existing ROW

Environmental & Land Use:
- Some nearby driveways
- No natural resources mapped in area

Cost Opinion: $1.2 million

Avenue G & Agate Road Intersection Improvements

Purpose: Priority for Highway Movements

Traffic Operations:
- Heaviest traffic movements: north-south & east-west
- Realignment would result in high turning movements and very low through traffic
- Some movements would operate worse than current configuration
- Conflicts with OR 140 Reroute to Avenue G for OR 62 full corridor improvements

Safety:
- Two closely spaced intersections

Basic Roadway Geometry & Right of Way (ROW):
- Two intersections created from one
- Additional ROW needed

Environmental & Land Use:
- Driveways could require reconstruction, relocation, or closure
- ROW impacts in southwest quadrant
- No natural resources mapped in area

Cost Opinion: $1.3 million

Avenue G & Agate Road Intersection Improvements

Purpose: Capacity and improved flow for highway movements

Traffic Operations:
- Heaviest traffic movements: north-south & east-west (same as I-4)
- Vehicles can turn right at higher speeds
- Acceleration and merge lane allows right turns without stopping
- Some traffic movements would eventually have long delays with 4-way STOP
- Current traffic volumes do not meet traffic signal criteria but future volumes would meet traffic signal criteria
- Intersection would operate well with traffic signal

Basic Roadway Geometry & Right of Way (ROW):
- Adds eastbound right-turn lane on Avenue G, channelizing island for right-turn movement, and acceleration and merge lane on Agate
- Additional ROW needed
- Persistent congestion should be present & traffic volumes should meet warrants before a traffic signal is installed

Environmental & Land Use:
- One driveway located in merge lane
- Minor ROW impacts in southwest quadrant
- No natural resources mapped in area

Cost Opinion:
- $1.6 million for channelization and merge lane
- $0.5 million for traffic signal

Agate Road & Leigh Way Intersection Improvements

Purpose: Priority for Highway Movements

Traffic Operations:
- Current traffic patterns favor north-south movement
- Patterns will change with OR 62 Phase 1 & 2 to favor OR 140
- Coordination between projects recommended

Basic Roadway Geometry & Right of Way (ROW):
- Intersection realigned to stop south leg of Agate
- Design speed of 45 mph
- 3-lane urban section with curbs & sidewalks
- Additional ROW needed

Environmental & Land Use:
- ROW impacts in northeast quadrant
- Power lines in northeast quadrant may be impacted
- No natural resources mapped in area

Cost Opinion: $5.4 million

Agate Road & Leigh Way Intersection Improvements

Purpose: Improved flow for highway movements

Traffic Operations:
- Current traffic patterns favor north-south movement (same as I-6)
- Patterns will change with OR 62 Phase 1 & 2 to favor OR 140
- Vehicles can turn right at higher speeds without stopping
- Change in traffic control – Agate northbound stops, Leigh left stops, Coordination between projects recommended

Safety:
- Non-standard traffic control may be confusing
- Potential for more turning or angle conflicts

Basic Roadway Geometry & Right of Way (ROW):
- Adds channelizing island for westbound right turn on Leigh
- Changes STOP sign locations
- Additional ROW needed

Environmental & Land Use:
- Minor ROW impacts in northeast quadrant
- No natural resources mapped in area

Cost Opinion: $0.5 million

OR 140 Corridor Plan Open House

White City Library
3143 Avenue C
White City, OR 97503

NOVEMBER 5, 2012
ATTENDANCE SHEET

Name	Agency/Organization	Phone #	Email
Albert Gue	Cavin oil Company	541-621-4016	Albert34Gue@yahoo.com
Deb Wallace		541-664-2185	
Florencio Cortes	8033-Saveza	541-414-9673	
Allen + Lois Payne	Cascade Nursery	541-664-4975	Lapayne@clearwire.net

OR 140 Corridor Plan Open House
November 5, 2012

Name (Optional):_____

Company/Affiliation (if applicable):_____

Address:_____

Phone:_____ Email:_____

☐ **Do you have any special concerns/thoughts regarding these projects? Any specific safety concerns? Traffic concerns? Ideas?**

Please put your comments about this project on the <u>REVERSE</u> of this card.

COMMENT/SUGGESTIONS:

_____

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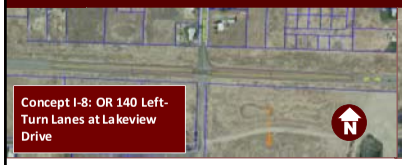
OR 140 Intersection Improvements



Purpose: Safety

Traffic Operations:
Left-turn lane criteria are met by current traffic volumes

Safety:
Left-turn lane would provide refuge for vehicles stopped to make left turn onto Lakeview
1 collision related to left turns in 5 years

Basic Roadway Geometry & Right of Way (ROW):
Eastbound and westbound left-turn lanes added within existing ROW

Environmental & Land Use:
Some adjacent wetlands (vernal pools)

Cost Opinion: $1.2 million

Purpose: Safety

Traffic Operations:
Left-turn lane criteria are met by current traffic volumes

Safety:
Left-turn lane would provide refuge for vehicles stopped to make left turn onto Riley
2 collisions related to left turns in 5 years

Basic Roadway Geometry & Right of Way (ROW):
Eastbound and westbound left-turn lane added within existing ROW

Environmental & Land Use:
Some adjacent wetlands (vernal pools)

Cost Opinion: $1.2 million

OR 140 Intersection Improvements

Purpose: Safety

Traffic Operations:
Left-turn lane criteria not met by current or future traffic volumes

Safety:
Left-turn lane would provide refuge for vehicles stopped to make left turn onto Meridian
2 collisions related to left turns in 5 years

Basic Roadway Geometry & Right of Way (ROW):
Eastbound and westbound left-turn lane added within existing ROW
Bridge of Antelope Creek located ~100 feet to west – structure could accommodate 3 travel lanes but shoulders would be limited to less than 3 feet

Environmental & Land Use:
Antelope Creek is existing habitat for Coho Salmon

Cost Opinion: $1.3 million

OR 140 Intersection Improvements

Purpose: Safety

Traffic Operations:
Left-turn lane criteria not met by current or future traffic volumes

Safety:
Left-turn lane would provide refuge for vehicles stopped to make left turn onto Meridian
No collisions reported in 5 years

Basic Roadway Geometry & Right of Way (ROW):
Eastbound and westbound left-turn lanes added within existing ROW

Environmental & Land Use:
No natural resources mapped in area

Cost Opinion: $1.7 million

Purpose: Safety

Traffic Operations:
Left-turn lane criteria not met by current or future traffic volumes

Safety:
Left-turn lane would provide refuge for vehicles stopped to make left turn onto Brownsboro-Eagle Point
No collisions reported in 5 years

Basic Roadway Geometry & Right of Way (ROW):
Eastbound and westbound left-turn lane added within existing ROW

Environmental & Land Use:
No natural resources mapped in area

Cost Opinion: $1.3 million

OR 140 Corridor Plan

Open House

November 5, 2012

WELCOME

DAVID EVANS AND ASSOCIATES INC.

OR 140 Corridor Plan

What is it?
- A planning study of the OR 140 Corridor from I-5 Exit 35 through White City to Brownsboro-Eagle Point Road

What does a planning study do?
- Inventory facilities and understand how the corridor operates
- Recommend ways to make existing and future traffic flow better

What is the purpose of today's Open House?
- Review improvement concepts recommended in the Draft Plan
- Ask questions about the plan
- Provide feedback on comment cards

Five Corridor Plan Goals

Goal 1: Mobility - Develop and implement management measures and physical improvements that maximize the efficiency of existing roadway facilities through 2034.

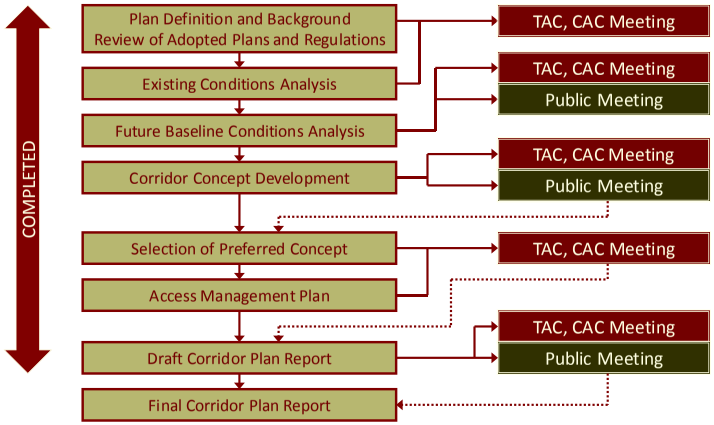
Goal 2: Freight Operations- Develop a plan that facilitates freight mobility in the corridor.

Goal 3: Safety - Promote the safety of current and future travel modes for all users.

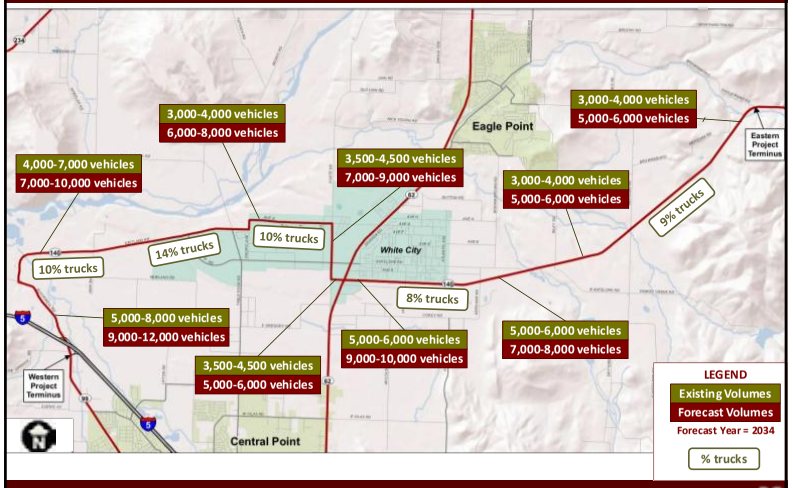
Goal 4: Economic Vitality – Develop integrated transportation facilities and services that can adequately support travel for business and recreation opportunities.

Goal 5: Coordination - Coordinate planning efforts for OR 140 with other plans and projects in the study area.

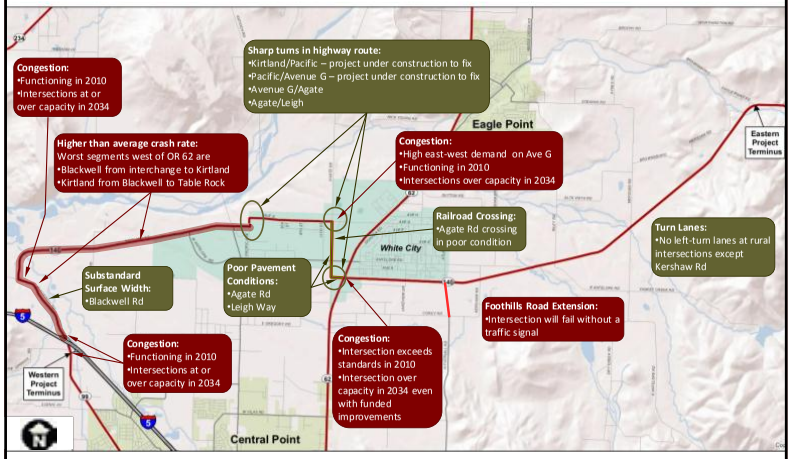
Corridor Planning Process



Average Daily Traffic Volumes

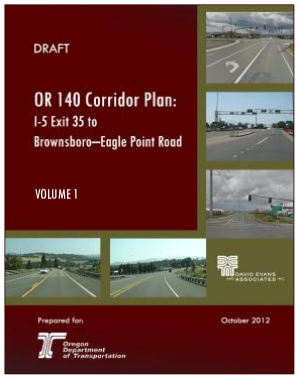


Identified Issues



Draft Plan Organization

VOLUME 1



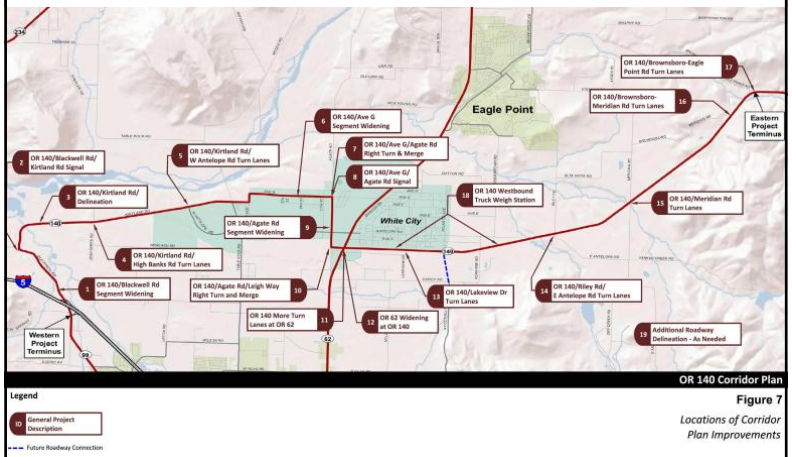
1. INTRODUCTION
2. EVALUATION OF BASELINE CONDITIONS
3. CORRIDOR PLAN IMPROVEMENTS
4. ACCESS MANAGEMENT PLAN
5. OTHER MANAGEMENT ACTIONS

PROJECT SHEETS

VOLUME 2

- Technical material
- Detailed process documentation
- Summary of Public Outreach

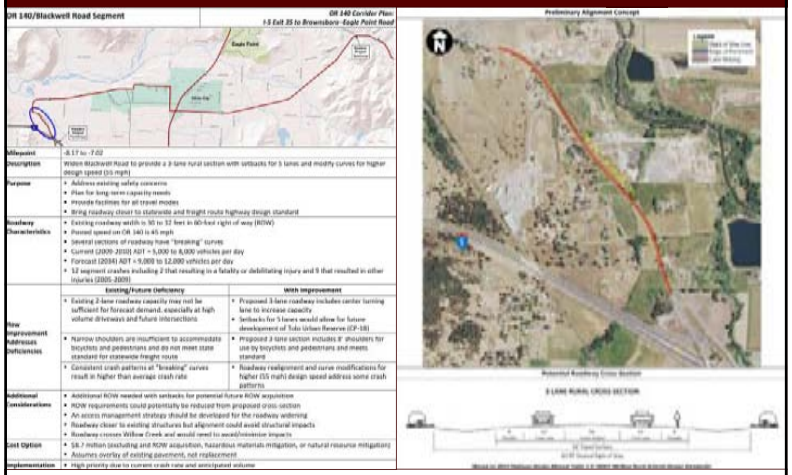
Corridor Plan Improvements



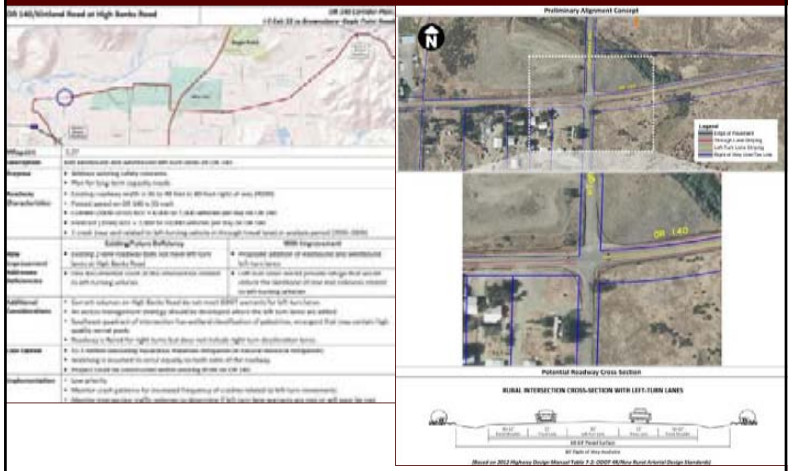
Corridor Plan Projects Not Illustrated

- Project 2 – OR 140/Blackwell Rd/Kirtland Rd Signal
  - Investigate striping options (under Management Actions)
  - Low priority triggered by traffic signal warrants
- Project 3 – OR 140/Kirtland Rd Delineation
  - Install additional roadway delineation such as textured striping or rumble strips
  - Medium priority triggered by continued pattern of run-off-the-road crashes
- Project 8 – OR 140/Ave G/Agate Rd Signal
  - Low priority triggered by traffic signal warrants
- Project 19 – Additional Roadway Delineation
  - Locations as needed
  - Documented pattern of run-off-the-road crashes
  - Repaving projects

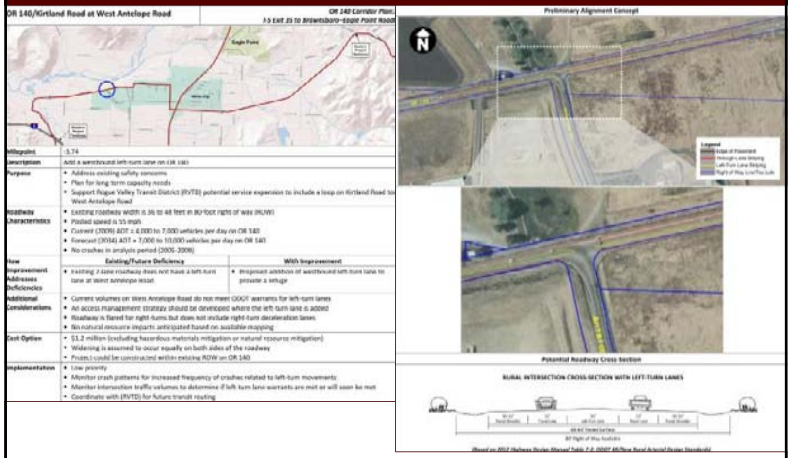
Corridor Plan Project Sheet 1



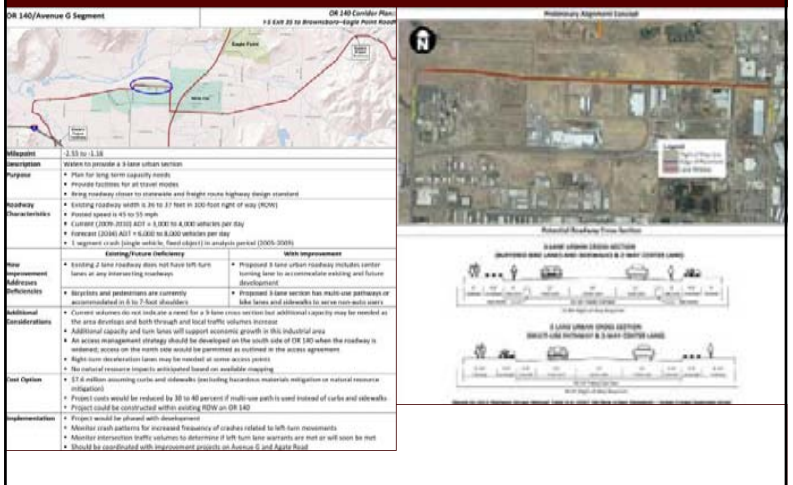
Corridor Plan Project Sheet 4



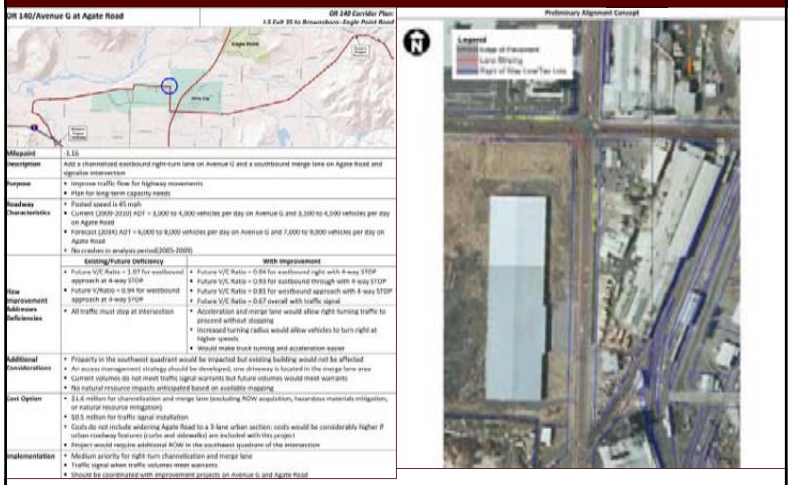
Corridor Plan Project Sheet 5



Corridor Plan Project Sheet 6

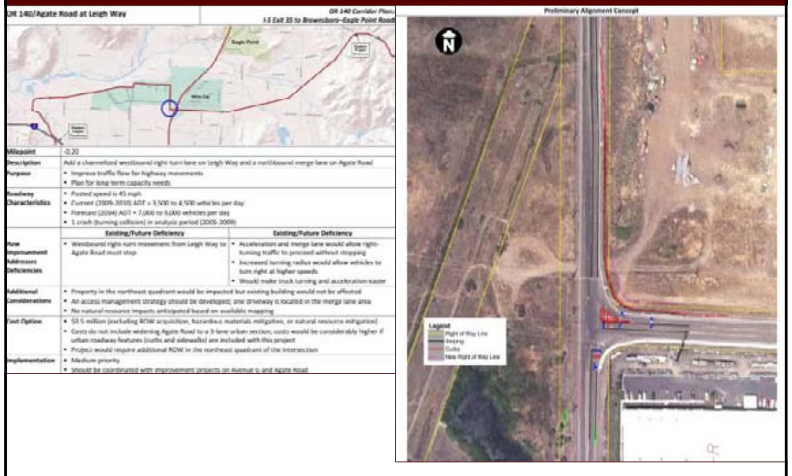


Corridor Plan Project Sheet 7

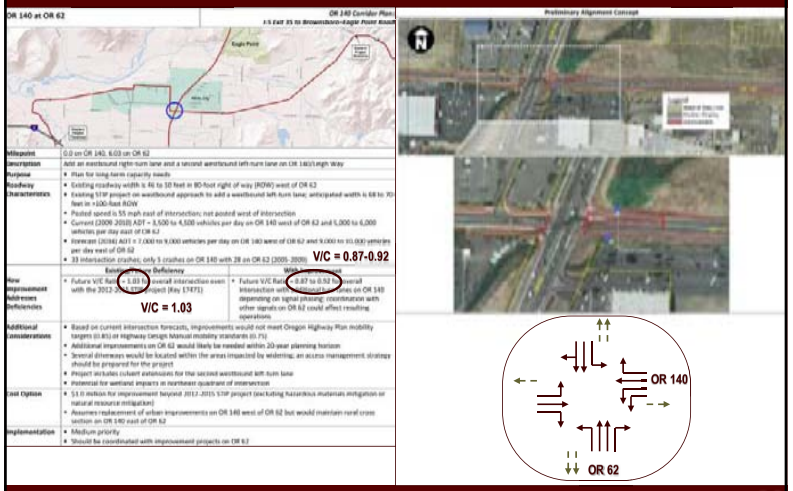


Corridor Plan Project Sheet 9

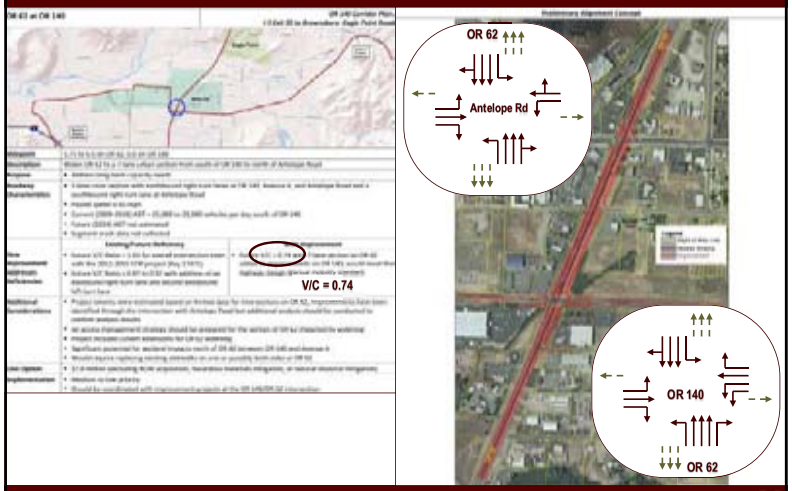
Corridor Plan Project Sheet 10



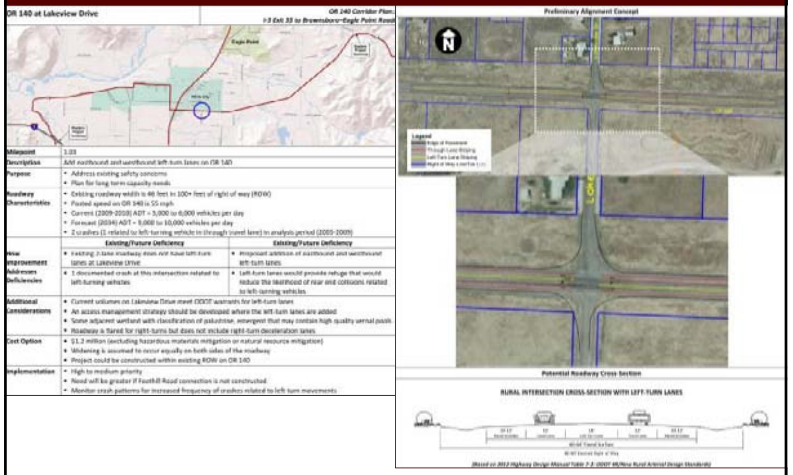
NEW - Corridor Plan Project Sheet 11



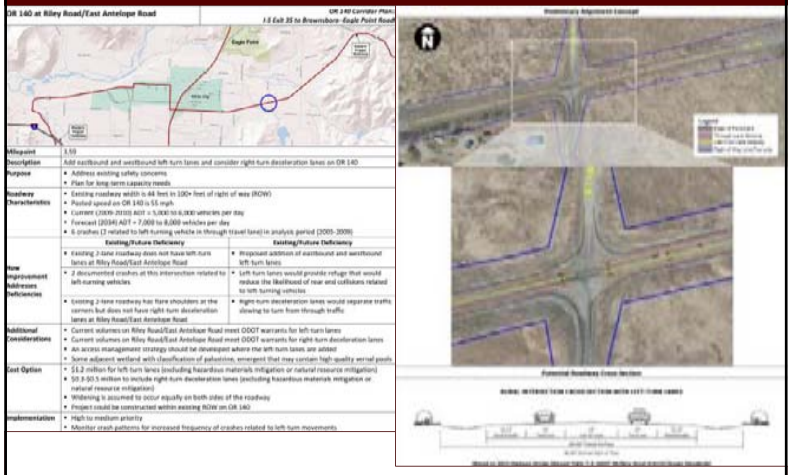
NEW - Corridor Plan Project Sheet 12



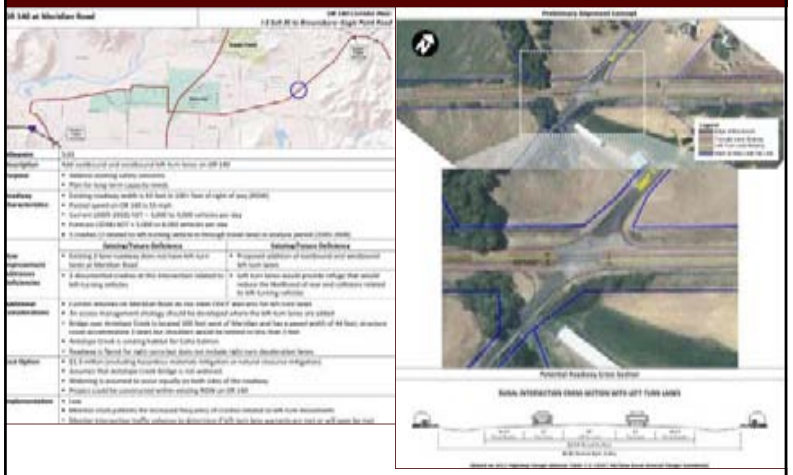
Corridor Plan Project Sheet 13



Corridor Plan Project Sheet 14

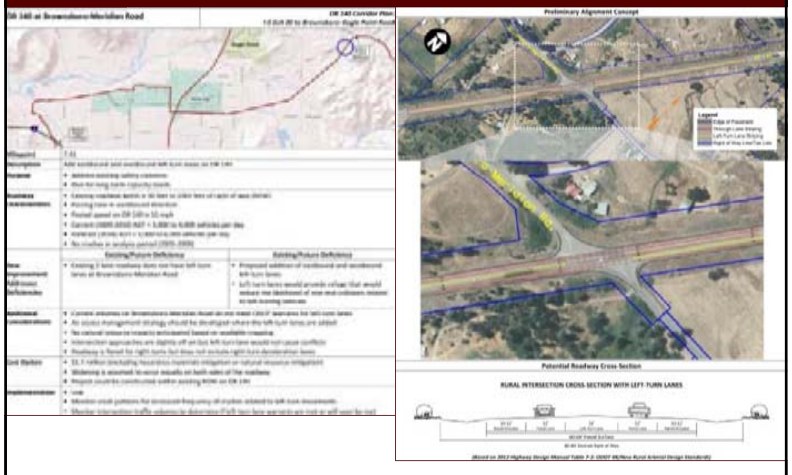


Corridor Plan Project Sheet 15



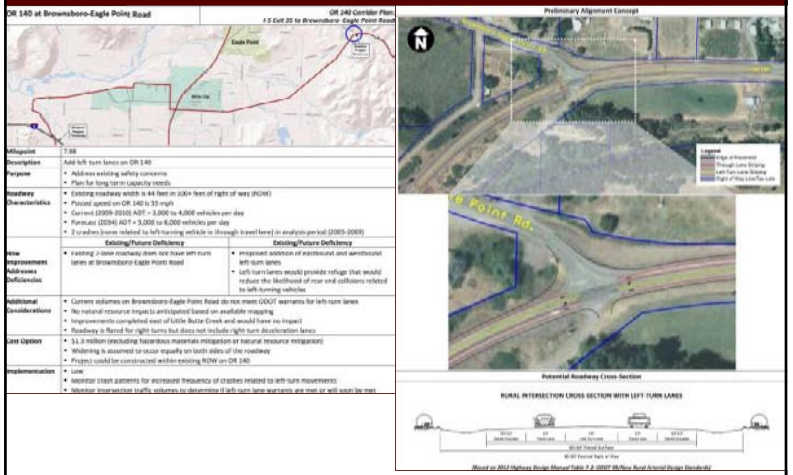
OR 140 Corridor Plan – Open House – November 5, 2012

Corridor Plan Project Sheet 16



OR 140 Corridor Plan – Open House – November 5, 2012

Corridor Plan Project Sheet 17



OR 140 Corridor Plan – Open House – November 5, 2012

Corridor Plan Project Sheet 18

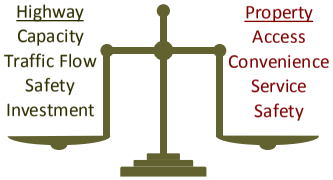
OR 140 Westbound Truck Weigh Sation

OR 140 Corridor Plan: I-5 Exit 35 to Brownsboro–Eagle Point Road

Milepoint	Approximately 1.0 or 2.5	
Description	Add a westbound truck weigh station on the north side of OR 140	
Purpose	• Support Motor Carrier activity	
Roadway Characteristics	• Existing roadway width is 44 feet in 100+ feet of right of way (ROW) • Posted speed on OR 140 is 55 mph • Current (2009-2010) ADT = 5,000 to 6,000 vehicles per day • Forecast (2034) ADT = 9,000 to 10,000 vehicles per day • Trucks account for approximately 7 to 8 percent of the total traffic (3 percent single unit and 5 percent multi-unit trucks)	
	Existing/Future Deficiency	**With Improvement**
How Improvement Addresses Deficiencies	• Existing eastbound scale is located between Mileposts 2.64 and 2.74 but there is no westbound scale	• Proposed westbound scales would enable Motor Carrier to monitor truck volumes traveling westbound on OR 140 as they approach White City
Additional Considerations	• Site dimensions for the area needed for the scales are between 300 and 500 feet in length with a width of 40 feet except for a short section near the middle of the site that would need to be 54 feet wide • Potential scale site at Milepoint 1.0 could accommodate the dimensions of the scales within existing ROW but siting considerations include potential noise impacts to residential neighborhoods, potential wetland impacts, nearby transmission lines, and access spacing • Potential scale site at Milepoint 2.5 would require some additional ROW from the adjacent parcel and other considerations include Hopkins Canal culverts, potential wetland impacts, and access management • Deceleration and acceleration lanes would be desirable to enable trucks to slow when approaching the scale site and get up to speed after exiting	
Cost Option	• No costs were prepared	
Implementation	• Depended on Motor Carrier needs and support	

OR 140 Corridor Plan – Open House – November 5, 2012

Access Management Plan (AMP)



- Access Management Standards
  - Standards in plan will be adopted by the Oregon Transportation Commission
- Access Management Actions
  - Access management would happen when:
    - Applications for land use changes or development are submitted
    - Future highway improvement projects move into design and construction
    - Safety and/or operational problems arise

Private Approaches

- Standards do not apply to driveways in existence prior to January 1, 2012 except when one of the following happens:
  - A new driveway is requested or an existing driveway use is changed based on certain criteria
  - Infill development or infill redevelopment occurs
  - Where a highway or interchange project occurs
- If one of these things happen the Oregon Department of Transportation shall determine whether the approach road spacing or safety is improved by moving in the direction of the appropriate spacing standards

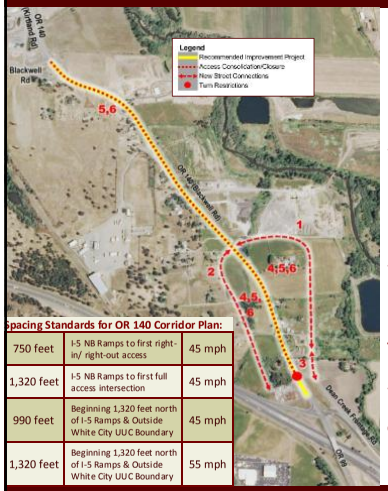
Reference: Oregon Administrative Rule 734-051-4020, Standards and Criteria for Approval of Private Approaches

Access Management Implementation

Access management actions would be taken when one or more of the following triggers occurs:

- Applications for land use changes or development are submitted
  Example: *"Consolidation or closure of driveways should be considered when properties develop or redevelop and when reasonable access can be provided with a single access point or via a local street."*
- Future highway improvements move into design and construction
  Example: *"Right-turn deceleration lanes should be considered when 3-lane improvements are constructed on OR 140 (Avenue G or Agate Road)."*
- Safety and or operational problems arise
  Example: *"Consolidation or closure of driveways should be considered when the annual accident rate is greater than the statewide annual average accident rate for similar roadways or the section has an ODOT Safety Priority Index System (SPIS) rating in the top 10 percent."*

AMP – I-5 to Kirtland Rd



Spacing Standards for OR 140 Corridor Plan:

750 feet	I-5 NB Ramps to first right-in/ right-out access	45 mph
1,320 feet	I-5 NB Ramps to first full access intersection	45 mph
990 feet	Beginning 1,320 feet north of I-5 Ramps & Outside White City UUC Boundary	45 mph
1,320 feet	Beginning 1,320 feet north of I-5 Ramps & Outside White City UUC Boundary	55 mph

1. Construct a local road parallel and east of Blackwell Road to serve development with connections to Blackwell Road that meet the minimum ¼-mile access spacing from the interchange as well as spacing standards for a statewide freight route (OR 140). This new road should intersect OR 140 opposite the new road west of Blackwell Road.
2. Construct a local road parallel and west of Blackwell Road to serve development with connections to Blackwell Road that meet the minimum ¼-mile access spacing from the interchange as well as spacing standards for a statewide freight route (OR 140). This new road should intersect OR 140 opposite the new road east of Blackwell Road.
3. Extend existing Dean Creek Frontage Road to connect with the new local road east of Blackwell Road and close or restrict access at the current connection immediately north of the interchange.
4. Orient new driveway connections towards these newly created parallel routes north of the interchange.
5. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
6. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.

AMP – Blackwell Rd to Pacific Ave

7. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
8. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.

Spacing Standards for OR 140 Corridor Plan:

990 feet	Outside White City UUC Boundary	45 mph
1,320 feet	Outside White City UUC Boundary	55 mph
800 feet	Inside White City UUC Boundary	45 mph
1,320 feet	Inside White City UUC Boundary	55 mph

AMP – Pacific Ave to OR 62

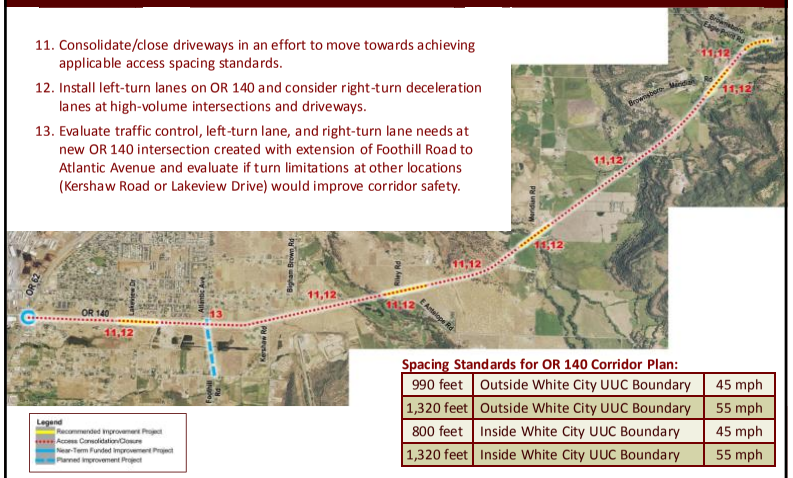
9. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
10. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.

Spacing Standards for OR 140 Corridor Plan:

800 feet	Inside White City UUC Boundary	45 mph
1,320 feet	Inside White City UUC Boundary	55 mph

AMP – OR 62 to Brownsboro-Eagle Point Road

11. Consolidate/close driveways in an effort to move towards achieving applicable access spacing standards.
12. Install left-turn lanes on OR 140 and consider right-turn deceleration lanes at high-volume intersections and driveways.
13. Evaluate traffic control, left-turn lane, and right-turn lane needs at new OR 140 intersection created with extension of Foothill Road to Atlantic Avenue and evaluate if turn limitations at other locations (Kershaw Road or Lakeview Drive) would improve corridor safety.



Spacing Standards for OR 140 Corridor Plan:

990 feet	Outside White City UUC Boundary	45 mph
1,320 feet	Outside White City UUC Boundary	55 mph
800 feet	Inside White City UUC Boundary	45 mph
1,320 feet	Inside White City UUC Boundary	55 mph

Highway Classification and Designations

- Statewide Highway Classification (between I-5 Ramps)
- Freight Route Designation
- OR 140 Contingency Rerouting (not shown at right) – would only happen with extension of OR 62 Expressway to Dutton Rd (not funded)

Other Management Actions

- Plan Consistency
  - Update Jackson County and the Regional Transportation Plan to be consistent with federal functional classifications for the OR 140 extension
- Traffic Monitoring Measures
  - Collect traffic counts and track crashes to determine when traffic signals and turn lanes may be warranted
- OR 140/Blackwell Rd/Kirtland Rd Restriping
  - Investigate striping modifications to facilitate "two-stage" left turns from the eastbound STOP-controlled approach
- Bicycle and Pedestrian Facilities
  - Plan includes the addition of improved bicycle and pedestrian facilities in the corridor through roadway modernization
- Park and Ride Facility
  - Investigate locations for a future park-and-ride facility at OR 140/OR 62 intersection to support RVTD Bus Route 60