

OR 126 Expressway Management Plan Phase 2 Report

Prepared For:

Oregon Department of Transportation
Region 2, Area 5
644 North A Street
Springfield, Oregon 97477
(541) 747-1354

Prepared By:

CH2M HILL, Inc.
825 NE Multnomah, Suite 1300
Portland, Oregon 97232-2146
(503) 235-5022

Kittelson & Associates, Inc.
610 SW Alder Street, Suite 700
Portland, Oregon 97205
(503) 228-5230

Jeanne Lawson Associates, Inc.
1110 SE Alder Street, Suite 301
Portland, Oregon 97214
(503) 235-5881

December 2006

Acknowledgements

The following people helped develop Phase 2 of the OR 126 Expressway Management Plan (EMP):

OR 126 EMP Ad Hoc Committee Members

Joe Pishioneri, Councilor, City of Springfield
David Ralston, Councilor, City of Springfield
Faye Stewart, Commissioner, Lane County
Bill Dwyer, Commissioner, Lane County
Erik Havig, ODOT Region 2 Planning and Development Manager
Jane Lee, ODOT Area 5 Manager

Oregon Department of Transportation

Terry Cole, Region 2 Project Manager
Terri Harding, Interim Area 5 Planner
Taundra Mortensen, Senior Designer
Dorothy Upton, Senior Transportation Analyst
Joseph Meek, Transportation Analyst
Cary Goodman, Senior Transportation/Rail Planner
Stephen Wilson, Senior Traffic Analyst
Lou Torres, Public Information Representative
Joe Harwood, Public Information Representative

City of Springfield

Tom Boyatt, Transportation Manager
Gary McKenney, Transportation Engineer
Greg Mott, Community and Urban Planning Manager

Lane County

Tom Stinchfield, Transportation Planning Manager
Shashi Bajracharya, Senior Engineering Associate
Bill Morgan, Design Engineer

Lane Council of Governments

Tom Schwetz, Program Manager

Lane Transit District

Anita Yap, Transit Development Planner

CH2M HILL

Sam Seskin
Kirsten Pennington, AICP
Andrew Barash, PE
Theresa Carr, AICP
Sumi Malik

Kittelson & Associates

Julia Kuhn, PE
Joe Bessman

Jeanne Lawson Associates

Kristin Hull
Vaughn Brown

Contents

| | Page |
|---|------------|
| Acknowledgements | iii |
| Executive Summary | ix |
| 1.0 Introduction | 1-1 |
| 1.1 Background and Purpose | 1-1 |
| 1.2 Report Organization..... | 1-2 |
| 1.3 Expressway Management Plans | 1-2 |
| 1.4 Study Area | 1-3 |
| 1.5 Project Vision and Goals..... | 1-4 |
| 1.5.1 OR 126 EMP Vision | 1-4 |
| 1.5.2 Project Goals..... | 1-4 |
| 1.6 Findings from Phase 1..... | 1-6 |
| 1.6.1 Phase 1 Existing and Future No-Build Operational Deficiencies | 1-6 |
| 1.6.2 Phase 1 Existing Geometric Deficiencies..... | 1-6 |
| 1.6.3 Phase 1 Existing Safety Deficiencies | 1-7 |
| 1.6.4 Phase 1 Plan and Policy Review | 1-7 |
| 2.0 Problem Statements | 2-1 |
| 2.1 Purpose of Problem Statements..... | 2-1 |
| 2.2 OR 126/McKenzie Highway (Main Street) Problem Statement | 2-1 |
| 2.3 OR 126/52nd Street Problem Statement | 2-3 |
| 2.4 OR 126/42nd Street Problem Statement | 2-3 |
| 3.0 Public Involvement and Process | 3-1 |
| 3.1 Background | 3-1 |
| 3.2 Project Management Team..... | 3-1 |
| 3.3 Ad Hoc Committee..... | 3-2 |
| 3.4 Public Open Houses | 3-3 |
| 3.5 Sounding Board | 3-3 |
| 3.6 Council and Commission Meetings..... | 3-4 |
| 3.7 Project Website..... | 3-4 |
| 4.0 Evaluation Framework | 4-1 |
| 4.1 Introduction..... | 4-1 |
| 4.2 Evaluation Criteria and Measures Development..... | 4-1 |
| 5.0 Alternatives Development and Evaluation | 5-1 |
| 5.1 Design Concept Development..... | 5-1 |
| 5.2 Preliminary Screening..... | 5-2 |
| 5.2.1 Preliminary Top-Level Screening Criteria | 5-2 |
| 5.2.2 Preliminary Screening Process | 5-2 |
| 5.2.3 Preliminary Screening Results..... | 5-3 |

| | | |
|------------|---|------------|
| 5.3 | Detailed Screening..... | 5-5 |
| 5.3.1 | Summary of Detailed Screening Results..... | 5-5 |
| 5.3.2 | Weightings..... | 5-6 |
| 5.3.3 | Ratings..... | 5-7 |
| 5.3.4 | Detailed Screening Results..... | 5-24 |
| 5.4 | Recommendations..... | 5-26 |
| 5.5 | Other Recommendations for Phase 3..... | 5-27 |
| 6.0 | Policy Framework Options..... | 6-1 |
| 6.1 | Introduction..... | 6-1 |
| 6.2 | Potential Policy Frameworks..... | 6-1 |
| 6.2.1 | Access Management..... | 6-3 |
| 6.2.2 | Land Use and Transportation Management..... | 6-10 |
| 7.0 | Next Steps..... | 7-1 |
| 7.1 | Phase 3..... | 7-1 |
| 7.2 | Phase 4..... | 7-1 |
| 8.0 | Bibliography..... | 8-1 |

Appendices

| | |
|---|---|
| A | Public Involvement Records |
| B | Ad Hoc Committee Partnering Agreement |
| C | Initial 15 Design Concepts |
| D | Technical Ratings Memorandum |
| E | Design Concepts Recommended for Phase 3 |
| F | Ratings Technical Analysis Information |
| G | Operational Analysis Worksheets |
| H | OR 734-051 Access Spacing Standards |
| I | Policy Compliance Matrix |
| J | OR 126 Phase 3 Scope of Work |

Tables

| | |
|-----|---|
| 4-1 | OR 126 EMP Phase 2 Criteria and Evaluation Measures |
| 5-1 | Top-Level Criteria Weightings - Agreed to by PMT on 3/23/06 |
| 5-2 | Sub-Criteria Weightings - Agreed to by PMT on 3/23/06 |
| 5-3 | 42nd Street Interchange, Future Baseline Condition (No-Build) |
| 5-4 | 42nd Street Interchange, Concept A1, Folded Diamond Interchange |
| 5-5 | 42nd Street Interchange, Concept A3, Tight Diamond Interchange (Interchange Moved West) |
| 5-6 | 52nd Street Intersection, Future Baseline Condition (No-Build) |
| 5-7 | 52nd Street Intersection, Concept B1, Expanded Intersection |
| 5-8 | 52nd Street Intersection, Concept B2, Offset Intersection |

- 5-9 52nd Street Intersection, Concept B5, Partial Cloverleaf
- 5-10 McKenzie Highway (Main Street) Intersection, Future Baseline Condition (No Build)
- 5-11 McKenzie Highway (Main Street) Intersection, Concept C1, Expanded Intersection
- 5-12 McKenzie Highway (Main Street) Intersection, Concept C3, 3-Lane Roundabout
- 5-13 McKenzie Highway (Main Street) Intersection, Concept C7, Single-Point Diamond Interchange (Grade-Separated Concept)
- 5-14 McKenzie Highway (Main Street) Intersection, Concept C8, Grade-Separated Left Turn
- 5-15 McKenzie Highway (Main Street) Intersection, Concept C9, Loop Ramp

Figures

- 1-1 Project Study Area
- 5-1 Criteria DecisionPlus Software Structure
- 5-2 42nd Street Design Concept Results
- 5-3 52nd Street Design Concept Results
- 5-4 McKenzie Highway (Main Street) Design Concept Results
- 6-1 Through Traffic Movement Versus Access to Property
- 6-2 Examples of Methods to Consolidate Approaches
- 6-3 Example of a Channelizing Island Designed to Discourage Left Turns In and Out
- 6-4 Street Networks: Curvilinear vs. Grid Pattern
- 6-5 Frontage and Backage Roads
- 6-6 Right-In, Right-Out-Only Consolidated Access with a Nontraversable Median
- 6-7 Acceptable Driveway Designs
- 6-8 Design Standard Examples
- 6-9 Example of Crossover Easement

Executive Summary

The OR 126 Expressway Management Plan (EMP) is a plan for the OR 126 Expressway corridor and its interchanges and intersections between I-5 and the McKenzie Highway (Main Street) in Springfield, Oregon. The Oregon Department of Transportation (ODOT) is required to prepare an EMP for OR 126 before any major improvements can be made to the expressway or its interchanges/ intersections. The driver behind the OR 126 EMP is the existing and future projected traffic congestion, especially related to expected land development that will generate more traffic along and near the corridor.

The purpose of Phase 2 of the OR 126 EMP is to recommend a set of potential infrastructure and policy solutions to address the existing and future congestion and safety problems identified in Phase 1. Phase 1 involved the development of a conditions report for the corridor. Phase 2 of the OR 126 EMP focuses on the three eastern access locations along the OR 126 Expressway corridor: the 42nd Street interchange, the 52nd Street intersection, and the McKenzie Highway (Main Street) intersection.

Phase 2 of the OR 126 EMP was a coordinated approach among ODOT, the City of Springfield, and Lane County to address transportation concerns related to the OR 126 Expressway corridor. The public and elected official involvement process was facilitated through the use of a Project Management Team (PMT), which provided input on all steps of the project process, and an Ad-Hoc Committee of elected officials representing the City and the County, together with representatives from ODOT. The PMT met monthly and offered continuity in project management; the Ad-Hoc Committee met less frequently (a total of four times) and served as the means for local elected officials to maintain involvement and oversight.

The evaluation framework for Phase 2 of the OR 126 EMP included the development of criteria, sub-criteria, and evaluation measures (the way to measure concept performance against criteria). The PMT used the criteria and measures framework as a tool to evaluate the feasibility of a range of design concepts for the three interchange/intersection locations along the eastern portion of the OR 126 Expressway corridor. The Ad-Hoc Committee reviewed and supported the evaluation criteria and sub-criteria developed by the PMT. Primary criteria categories were as follows:

- Cost
- Natural Environment
- Community Values
- Transportation Benefits and Performance
- Safety
- Economic Development
- Design

Alternative design concepts were developed by the consultants with the PMT for the three Phase 2 locations. The alternative design concepts were intended to address the issues of congestion, safety, and geometric alignment of the highway. During the course of the

analysis, the PMT and consultants added and evaluated two concepts, C9 and A3, and found that both should be carried forward for further evaluation. The Ad Hoc Committee recommended that these concepts also be carried forward. At their August 2006 meeting, the Ad Hoc Steering Committee asked the PMT to reconsider their recommendation to carry once concept, Concept C8, forward. At their October 2006 meeting, the Ad Hoc Steering Committee decided that C8 should be set aside

Thus, based on application of the criteria through a rigorous screening process, and based on Ad-Hoc committee input, the following design concepts were recommended for further analysis during Phase 3 of the EMP:

42nd Street

- *Concept A1:* Folded Diamond Interchange (Includes South Access and Olympic Access variants)
- *Concept A3:* Tight Diamond Interchange (Includes Single-Point Diamond Interchange and Limited Access variants)

52nd Street Intersection

- *Concept B1:* Expanded Intersection
- *Concept B5:* Partial Cloverleaf Interchange (Includes Traditional Diamond variant)

McKenzie Highway (Main Street) Intersection

- *Concept C1:* Expanded Intersection
- *Concept C4:* Grade-Separated Interchange (Includes Single-Point Diamond, Tight Diamond, and "Reverse" Single-Point Diamond variants)
- *Concept C9:* Loop Ramp (Includes 58th Street variant)

These design concepts are depicted graphically in Appendix E.

It is critical, when proposing large capital improvements such as reconfiguring an interchange or intersection, that policies are developed to ensure wise use of public investments in the transportation system.

Phase 2 of the EMP included the development of a menu of policy concepts, some of which may be applied in coordination with design solutions in Phase 3 of the EMP. Policy concepts explored included the following:

- **Access management:** Approach closure/relocation, approach consolidation, approach restriction, frontage and backage roads, shared parking lots/joint access, and narrowing driveway width.
- **Land use/transportation management:** Zoning and comprehensive plan designations, system development charges, trip budgets, overlay districts, design review standards, alternate mobility standards, transportation demand management, and deed restrictions.

- Local Circulation Planning: Measures that reduce the volume of traffic using the expressway and shifts a portion of the local vehicle trips onto local roadway facilities. This can include new or improved local connections along existing circulation routes via local roadways, frontage roads and/or backage roads.

ODOT will initiate Phase 3 of the OR 126 EMP in early 2007. Phase 3 will continue to focus on the eastern portion of the OR 126 Expressway corridor, including the McKenzie Highway (Main Street) and 52nd Street intersection locations. Phase 3 will include determination of environmental review level necessary for the 52nd Street location, as well as a scoping of the environmental process for the McKenzie Highway (Main Street) location.

Phase 3 will also include development of functional plans for each of the locations (Interchange Area Management Plans, or IAMPs), which will examine all of the design concepts and their variants in greater detail, include access and local circulation plans, and refine the set of policy concepts to match chosen design concepts for specific locations. Final policy concepts will be proposed for adoption that align with physical roadway improvement recommendations.

1.0 Introduction

1.1 Background and Purpose

The OR 126 Expressway Management Plan (EMP) is a plan for the OR 126 Expressway corridor and its interchanges and intersections between I-5 and McKenzie Highway (Main Street) in Springfield, Oregon. The Oregon Department of Transportation (ODOT) is required to prepare an EMP for OR 126 before any major improvements can be made to the expressway or its interchanges/ intersections. The driver behind the OR 126 EMP is existing and future traffic congestion, especially related to expected land use development that will generate more traffic along and near the corridor. Expected land use developments include the Jasper-Natron area (1 mile southeast of the OR 126/ McKenzie Highway (Main Street) intersection), PeaceHealth (north of the OR 126/Pioneer Parkway interchange), residential development in eastern Springfield, and developments near the OR 126/42nd Street interchange.

Ultimately, the EMP will provide an implementation plan for phasing of design improvements and policy changes along the OR 126 corridor. The end product will be a plan that can be adopted by the Oregon Transportation Commission (OTC) and approved as refinements to Trans Plan, a jointly adopted transportation system plan for the City of Springfield, City of Eugene and Lane County for the area within the Metropolitan Planning Area, or other local plans/codes in accordance with state law. The EMP is intended to be a joint effort among all three primary affected jurisdictions/agencies: ODOT, City of Springfield and Lane County. Therefore, the EMP process emphasizes coordination and partnership to reach an agreeable conclusion.

Phase 2 of the OR 126 Expressway Management Plan (EMP) provides recommendations regarding a set of design concepts and a menu of policy concepts for further analysis during future planning phases of the EMP for the eastern end of the OR 126 Expressway corridor. Phase 1 of the OR 126 EMP included the development of an existing conditions report and assessment of future no-build conditions – in other words, the condition of the expressway in the future (year 2025) if no roadway improvements are constructed or transportation strategies are implemented.

The design concepts and policy concepts included in this Phase 2 report are intended as potential solutions for the existing and future problems documented in Phase 1 of the EMP. Analysis performed as part of Phase 1 showed that the primary problem on the OR 126 Expressway corridor is existing traffic congestion, which is expected to worsen significantly by 2025 if no changes are made to the existing infrastructure. Other problems identified in the corridor included safety concerns and geometric deficiencies. These problems were validated through input received at public and elected official meetings.

The purpose of Phase 2 of the EMP is to recommend a set of potential infrastructure and policy solutions to address the existing and future congestion and safety problems identified in Phase 1. Phase 2 focuses on the three eastern access locations along the OR 126 Expressway corridor: the 42nd Street interchange, the 52nd Street intersection, and the McKenzie Highway (Main Street) intersection. Phase 4 of work will examine the western access locations – the Pioneer Parkway, Mohawk Boulevard, and 42nd Street interchanges.

1.2 Report Organization

This OR 126 Phase 2 report is organized into the following sections:

- 1.0 – Introduction
- 2.0 – Problem Statements
- 3.0 – Public Involvement and Process
- 4.0 – Evaluation Framework
- 5.0 – Alternatives Development and Evaluation
- 6.0 – Policy Framework
- 7.0 – Next Steps
- 8.0 – Bibliography

The report also includes the following appendices:

- Appendix A Public Involvement Records
- Appendix B Ad Hoc Committee Partnering Agreement
- Appendix C Initial 15 Design Concepts
- Appendix D Technical Ratings Memorandum
- Appendix E Design Concepts Recommended for Phase 3
- Appendix F Ratings Technical Analysis Information
- Appendix G Operational Analysis Worksheets
- Appendix H OAR 734-051 Access Spacing Standards
- Appendix I Policy Compliance Matrix
- Appendix J OR 126 Phase 3 Scope of Work

1.3 Expressway Management Plans

Expressways are a subset of Oregon Highway Plan (OHP) highway classifications. Expressways are intended to maintain mobility by providing for safe and efficient high speed and high volume traffic movements. The primary function of an expressway is to provide for interurban travel and between cities and connections to ports and major recreation areas with minimal interruptions. The A secondary function is to provide for long distance intra-urban travel in metropolitan areas.

OR 126 is a Statewide Highway, under state jurisdiction and is designated as an Expressway from the I-5 interchange to McKenzie Highway (Main Street).

The Expressway Management Plan, or EMP, is a facility plan for a designated expressway on the state highway system in Oregon. Like all ODOT facility plans, the purpose of the EMP is to provide policies and design recommendations to develop and manage the identified facility over time in a way that meets the intended function and operation of the facility, in this case an expressway. An EMP does not need to be completed for an entire expressway, but may be completed in logical units for any given facility.

The goal of the EMP is to preserve existing expressway operations; to plan for bringing operations, mobility, and design up to current standards; and to protect and manage future investments in expressway infrastructure so that it can safely and effectively continue to serve its intended functions.

EMPs identify ODOT actions to develop and manage the expressway and can include needed actions by other agencies to achieve the same goal. EMP recommendations to develop and manage the expressway could include the following:

- Modernization – Adding capacity to the facility, which could include adding new lanes, interchange upgrades, widening bridges, replacing intersections with interchanges, improving frontage/backage roads and other local circulation options.
- Access Management – Managing access, which could include closing, combining, or realigning direct approaches to the expressway or approaches to cross streets in the expressway influence area. It could also include the provision of frontage/backage roads, or improving conditions on those roads to improve their operations.
- Land Use Management – Managing land uses in expressway interchange influence areas where necessary to maintain operational and safety goals of the expressway could include overlay zoning, trip budgets, or limits on allowed uses.
- Demand Management – Managing trip generation could include off-peak shifting, group bus passes, changes to parking policy, or provisions for pedestrians and bicyclers.
- Local Circulation Improvements – Accommodating trips that would otherwise rely on the expressway, which could include adding or extending roads and making local system connections to provide good local transportation system opportunities as an alternative to expressway travel.

EMPs generally are adopted by affected local jurisdictions into Transportation System Plans (TSPs) and are adopted by the OTC into the OHP. Depending on the management strategies and measures identified, additional amendments to local comprehensive plans and zoning codes may also be necessary to implement EMP recommendations.

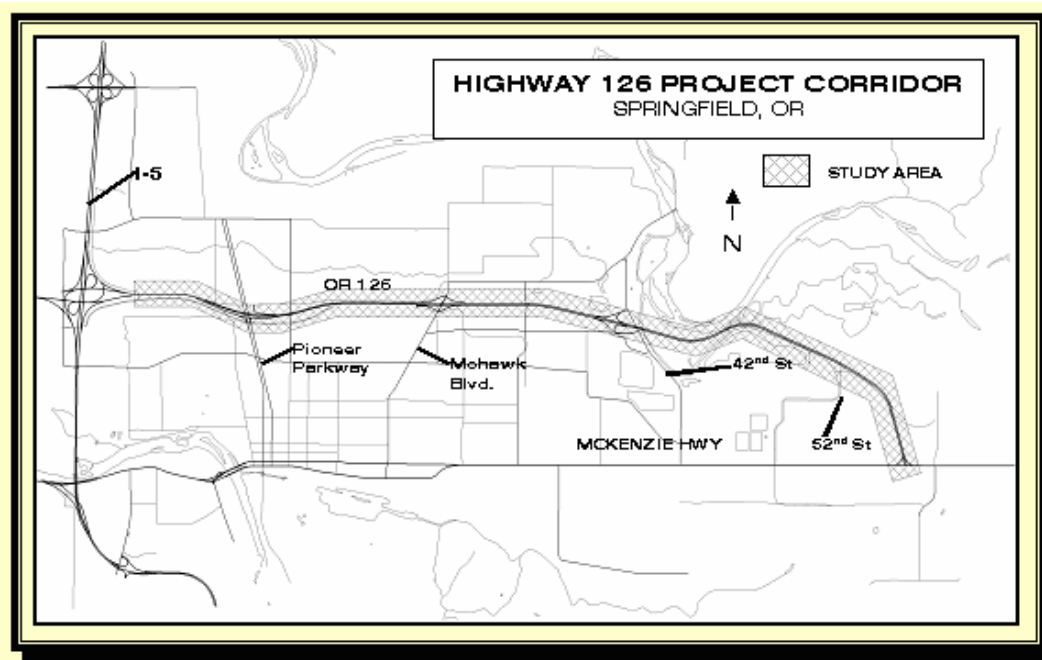
1.4 Study Area

The project study area for the OR 126 EMP focuses on the OR 126 Expressway corridor between the eastern edge of the I-5/I-105 interchange and the McKenzie Highway (Main Street) in Springfield, Oregon (Figure 1-1). The study area includes the following interchanges and intersections: Pioneer Parkway interchange, Mohawk Boulevard interchange, 42nd Street interchange, 52nd Street intersection, and the McKenzie Highway (Main Street) intersection. OR 126 is currently a limited access facility, meaning that the

previously mentioned interchanges and intersections are the only accesses to the expressway.

Phase 2 of the EMP focuses on the three eastern access locations: McKenzie Highway (Main Street), 52nd Street, and 42nd Street. Future phases of the EMP will focus on Pioneer Parkway and Mohawk Boulevard.

FIGURE 1-1
Project Study Area



1.5 Project Vision and Goals

The following vision and goals for the OR 126 EMP were developed as part of Phase 1 of the project.

1.5.1 OR 126 EMP Vision

Develop a plan with flexible phasing approaches for implementation that can be approved locally and acknowledged by the state partners.

1.5.2 Project Goals

Goal 1. Mobility and Capacity

- 1a. Ensure that the OR 126 EMP seeks to preserve and enhance mobility along the OR 126 Expressway (Interstate 5 to McKenzie Highway (Main Street)).
- 1b. Ensure that the OR 126 EMP provides solutions that improve traffic operations along the corridor and at corridor interchanges and intersections.

- 1c. Ensure that the OR 126 EMP addresses interchange/intersection issues at the following specific locations: McKenzie Highway (Main Street), Q Street, Mohawk Boulevard, 52nd Street, and 42nd Street.
- 1d. Ensure that the OR 126 EMP helps to further the goal of a multimodal transportation system that serves the needs of residents, businesses, visitors, and freight.
- 1e. Ensure that all OR 126 EMP analysis and alternatives recognize the importance of freight movement along the corridor.

Goal 2. Safety

- 2a. Ensure that the OR 126 EMP provides solutions that improve transportation safety along the corridor and at corridor interchanges and intersections.

Goal 3. Coordination and Communication

- 3a. Ensure that the OR 126 EMP works to be consistent with goals and objectives of the state, region, county and local communities regarding transportation.
- 3b. Ensure that the OR 126 EMP clearly communicates ODOT's policies regarding expressways and interchange area management plans.
- 3c. Ensure that the OR 126 EMP planning process includes communication with public and elected officials regarding project goals and purpose, as well as the structure of the planning process.

Goal 4. Land Use

- 4a. Ensure that the OR 126 EMP promotes the facilitation of a balance between land use and transportation.
- 4b. Ensure that the OR 126 EMP recognizes the importance of environmental, natural, cultural, and historical features.

Goal 5. Transit, Pedestrian, and Bicycle Transportation

- 5a. Ensure that analysis, planning, and recommendations in the OR 126 EMP integrate transit, pedestrian, and bicycle transportation modes when appropriate, to serve all members of the community.

Goal 6. Funding and Implementation

- 6a. Ensure that the OR 126 EMP seeks to protect public investment in existing facilities and future improvements.
- 6b. Ensure that the OR 126 EMP leads to project recommendations that can garner public support for implementation.

1.6 Findings from Phase 1

The findings from Phase 1 of the OR 126 EMP were used to guide the development of problem statements and analysis for Phase 2. A summary of the Phase 1 findings is provided in the following subsections.

1.6.1 Phase 1 Existing and Future No-Build Operational Deficiencies

- Existing and future operational deficiencies cause delay for drivers and freight movement, which affects travel times, livability, and the economy.
- Many locations currently experience congestion (11 of 27 intersections studied), but in the future, many more locations will experience heavy congestion (19 of 27).
- Existing operational deficiencies occur at Q Street/2nd Street, Pioneer Parkway/OR 126 Eastbound on- and off-ramps, Pioneer Parkway/Centennial Boulevard, Mohawk Boulevard/OR 126 Eastbound Ramps, Mohawk Boulevard/18th Street, 42nd Street/Marcola Street, OR 126/42nd Street Westbound and Eastbound ramps, 52nd Street/OR 126 intersection, OR 126/McKenzie Highway (Main Street), and 58th Street/Main Street.
- Future Year 2025 “no-build” operational deficiencies will continue at the locations listed above as well as at the following additional locations: Q Street/Laura Street, Pioneer Parkway/Hayden Bridge Road, Pioneer Parkway/Q Street, Q Street/OR 126 Westbound off-ramp, 19th Street/Hayden Bridge Road, 19th Street/Marcola Road, Mohawk Boulevard/OR 126 Westbound Ramps, and Jasper Road/Mt. Vernon Road.
- Several of the existing peak-hour operational deficiencies in the study area are on the local street network in the vicinity of OR 126 rather than on OR 126 itself.
- Currently, the OR 126 mainline and the I-5 ramps do not demonstrate weekday peak-hour operational deficiencies, according to accepted standards. However, the OR 126 mainline does demonstrate deficiencies in the 2025 “no-build” scenario.

1.6.2 Phase 1 Existing Geometric Deficiencies

- OR 126 can be characterized as a facility with conflicting form and function. Parts of the facility look like a freeway, with substandard horizontal and vertical curves and outdated interchanges on the west end of the mainline. The east end of highway OR 126 (not the McKenzie Highway) has characteristics of a hybrid freeway/arterial with at-grade intersections, a condition that contributes to speed management and safety problems for drivers unfamiliar with the area.
- Route continuity (the abrupt change between an interchange environment and an at-grade intersection environment) is an issue for the corridor in that it minimizes the effectiveness of the route as an expressway.
- Existing intersection/interchange spacing does not meet state standards.
- Driveway and public street access spacing from interchange ramp terminals does not meet spacing requirements.

- Geometric plan and profile elements including vertical curve stopping sight distance and superelevation.

1.6.3 Phase 1 Existing Safety Deficiencies

- Vehicle collisions along the corridor are primarily concentrated at interchanges and intersections, although there are also patterns of collisions on the mainline between the Mohawk interchange and 42nd Street.
- Rear-end collisions are the most common type of crashes on the Mohawk Blvd. to 42nd Street segment of OR 126 and may indicate potential issues with abrupt roadway transitions.

1.6.4 Phase 1 Plan and Policy Review

- OR 126 in Springfield (I-5 to McKenzie Highway (Main Street)) is an important federal, state, regional, and local transportation corridor.
- There are several federal, state, regional, and local plans and policies that influence the management of OR 126.
- There are significant planned developments and anticipated growth that will cause increases in traffic volumes along OR 126 (e.g., PeaceHealth hospital, plans related to the Gateway Mall area, Marcola Meadows, and development of the Jasper-Natron area).

2.0 Problem Statements

2.1 Purpose of Problem Statements

The development of problem statements is an important step in the planning process. Problem statements first and foremost reflect stakeholder values and frame the problem to be addressed during the project. The development of problem statements generally occurs after developing the context for a project – establishing baseline existing conditions, engaging stakeholders through interviews, and defining goals for the project – but prior to the development of the evaluation framework that will be used to analyze project solutions.

Problem statements outline what stakeholders agree on, legitimize the full range of stakeholder values, and do not offer solutions. Problem statements serve as the foundation for a National Environmental Policy Act (NEPA) process “Purpose and Need” statement as well as the development of solutions.

The OR 126 EMP Phase 2 project has three problem statements, focused on the subject intersections and interchange: the OR 126 & McKenzie Highway (Main Street) intersection, the OR 126 & 52nd Street intersection, and the OR 126 & 42nd Street interchange. Separate problem statements were developed for each interchange or intersection to aid in development of a purpose and need statement should there be a future NEPA process. Each of the intersections and interchange of the Expressway corridor has independent utility and could be phased in over time as funding allows. The OR 126 EMP Phase 2 problem statements were based on Phase 1 conditions analysis and public input.

Future phases of the OR 126 EMP will include the development of NEPA Purpose and Need statements, as well as the development of problem statements for the Pioneer Parkway and Mohawk interchanges. The problem statements for the different interchange/intersection locations include statements about problems on the nearby OR 126 mainline or other issues within the vicinity.

2.2 OR 126/ McKenzie Highway (Main Street) Problem Statement

When roadways in the OR 126 and McKenzie Highway (Main Street) intersection area were originally constructed, they served a rural area. As development and population increased, traffic congestion has increased, and it is expected to worsen in the future as growth continues. The OR 126 and McKenzie Highway (Main Street) intersection is approaching full capacity during peak travel times,¹ and heavy traffic congestion and delay are anticipated at several intersections in the area by 2025 if no improvements are made. There is also anticipated congestion along the OR 126 mainline north of the intersection during p.m. peak travel periods.

¹ The peak hour of travel is 5:00-6:00 p.m.

The existing volume/capacity (v/c) ratio at OR 126 and McKenzie Highway (Main Street) is 0.93, where 1.00 represents the roadway filled to capacity during peak travel time. Future (2025) operational analysis shows that operations at the OR 126 and McKenzie Highway (Main Street) intersection are anticipated to exceed a v/c ratio of 1.0 by 2025 without improvements. In addition, these v/c ratios do not meet ODOT highway standards.² Congestion at other intersections in the immediate area is also expected to worsen over time.

Future mixed-use development at the 800+-acre Jasper-Natron site located southeast of the OR 126 and McKenzie Highway (Main Street) intersection is expected to increase traffic at the intersection and surrounding area, partially through a direct connection via the new Jasper Road Extension.

Local stakeholders are concerned about the impact of new improvements or potential development restrictions on the economy and local business and land owners. Concerns include impacts on property, existing structures, buildability, business visibility, and access. Stakeholders recognize the need to make some improvements to the OR 126 and McKenzie Highway (Main Street) intersection to relieve future congestion while minimizing property impacts to the greatest extent possible. Stakeholders think there should be a community-oriented, compromise approach to determining appropriate solutions.

Stakeholders agree that intersection where the OR 126 expressway transitions into the McKenzie Highway (Main Street) should work for everyone, including local residents, businesses, freight, and the traveling public. Lane Transit District – which operates a park-and-ride facility on leased ODOT land in the southeast quadrant of the intersection – has identified potential issues with access and circulation to the Thurston Bus Station located.

Crash trends show a pattern of rear-end collisions at the OR 126 and McKenzie Highway (Main Street) intersection (15 of 20 total crashes from 1998-2002), though the crash rate is lower than the statewide averages for similar roadway facilities. There is a perception that the OR 126 Expressway and McKenzie Highway (Main Street) intersection is challenging for pedestrians and bicyclists due to the crosswalk length and lack of defined bicycle facilities on the north side of McKenzie Highway (Main Street). Students and other pedestrians use an informal crossing of the OR 126 mainline north of the intersection (near A Street) to travel to and from the high school and other areas. There are several private driveways and public roadways along McKenzie Highway (Main Street) located very close to the OR 126 and McKenzie Highway (Main Street) intersection, which can slow traffic operations and lead to opportunities for crashes.³

² Standards: At OR 126/Main: v/c = 0.80 (Oregon Highway Plan) and v/c = 0.75 (Highway Design Manual); At 54th/Main: v/c = 0.80 (Oregon Highway Plan) and v/c = 0.75 (Highway Design Manual); At 58th/Main: v/c = 0.80 (Oregon Highway Plan) and v/c = 0.75 (Highway Design Manual); At Jasper Rd/Mt. Vernon Rd: v/c = 0.90 (Oregon Highway Plan).

³ Multiple private and public accesses to the west and east of Main Street do not meet ODOT access spacing standards for statewide highways (990 feet for non-Special Transportation Area (STA) statewide highways with a posted speed of 40-45 miles per hour [mph]).

2.3 OR 126/52nd Street Problem Statement

There are perceived safety and driver expectation issues in the OR 126 and 52nd Street intersection area related to at-grade signalization, because the roadway does not offer visual cues (other than signage) for an abrupt transition between a grade-separated freeway-style roadway (to the west) and a signalized roadway that drives more like a commercial arterial – the signal “sneaks up” on drivers. The grassy median contributes to safety concerns, as it indicates a rural grade-separated roadway to drivers.

Vehicles queue beyond the storage capacity at the eastbound left turn, contributing to operational issues and crash trends. Crash trends show a pattern of rear-end collisions at the OR 126 and 52nd Street intersection (11 of 21 total crashes from 1998-2002 were rear-end), though the crash rate is lower than the statewide averages for similar roadway facilities.

Increased growth and development in the area is expected to lead to congested conditions at the OR 126 and 52nd Street intersection and on the OR 126 mainline between 42nd and 52nd Streets by 2025. Future (2025) operational analysis shows that the intersection is expected to experience heavy congestion and delay (v/c exceeding 1.0) by 2025 without improvements. The OR 126 mainline (42nd Street to 52nd Street) is expected to operate at 0.95 in the eastbound direction by 2025 if no improvements are made, where 1.00 represents the roadway filled to capacity conditions during peak travel time.⁴

Stakeholders agree that the OR 126 and 52nd Street intersection area must be able to accommodate freight movement in the future.

2.4 OR 126/42nd Street Problem Statement

The OR 126 and 42nd Street interchange was not originally built to accommodate the levels of traffic that it is expected to experience in the future due to increased growth in the area. The interchange structure is outdated, which contributes to issues with traffic congestion and perceptions of safety. Future development in the area is anticipated to increase traffic levels (e.g., vacant Pierce property located north of the interchange, which is currently zoned campus industrial, community commercial, and medium density residential).

The existing v/c ratio at the OR 126 Eastbound Ramps and 42nd Street is 0.92, where 1.00 represents the roadway filled to capacity during peak travel time. Future traffic operations at 42nd Street and the OR 126 Eastbound and Westbound Ramps are expected to worsen (eastbound = v/c of 0.95 and westbound = v/c greater than 1.0). The OR 126 mainline (42nd Street to 52nd Street) is expected to operate at 0.95 in the eastbound direction during peak travel time by 2025, where 1.00 represents the roadway filled to capacity. The Marcola Road and 42nd Street intersection and the Olympic Street and 42nd Street intersection are expected to experience heavy congestion and delay by 2025 (v/c greater than 1.0) without improvements.⁵

⁴ Standards: At OR 126/52nd St: v/c = 0.80 (Oregon Highway Plan) and v/c = 0.75 (Highway Design Manual); At 52nd/Highbanks: level of service (LOS) = E or v/c < 0.9 (City of Springfield); At 52nd St/G St: LOS = E or v/c < 0.9 (City of Springfield); At 52nd St/F St: LOS = E or v/c < 0.9 (City of Springfield)

⁵ Standards: At 42nd St/OR 126 Westbound Ramps: v/c = 0.85 (Oregon Highway Plan) and v/c = 0.75 (Highway Design Manual); At 42nd St/OR 126 Eastbound Ramps: v/c = 0.85 (Oregon Highway Plan) and v/c = 0.75 (Highway Design Manual); At 42nd St/Olympic: LOS = D (City of Springfield); At 42nd St/Marcola: LOS = E or v/c < 0.9 (City of Springfield).

On 42nd Street, six driveways to the north of the interchange and two driveways to the south of the interchange are located within ODOT's quarter-mile spacing recommendation for interchanges, which can affect traffic operations and safety. South of the OR 126 and 42nd Street interchange, a railroad crossing on 42nd Street is routinely blocked 20 times each day as trains service the nearby forest products mill. The City of Springfield has observed queuing and travel delay issues related to rail movement in this location at certain times of the day.

Stakeholders agree that the OR 126 and 42nd Street interchange area must be able to accommodate freight movement with minimized congestion to continue to serve as a primary point for truck access to nearby land uses (e.g., Weyerhaeuser and trucking firms).

Safety concerns at the OR 126 and 42nd Street interchange relate to increasing traffic volumes and interchange geometry. Ramp taper lengths are too short and cause difficulties for traffic at the interchange, particularly trucks. Vertical stopping sight distances present challenges to drivers. The eastbound off-ramp has a vertical curve that is too short given the speed the beginning of the off-ramp. The westbound exit ramp has a crest curve that is too short given the operating speeds of vehicles exiting the expressway and entering the looping off-ramp. The westbound exit ramp deceleration ramp length is extremely short, and the short length combined with the vertical and horizontal curvature make negotiating the ramp difficult.

3.0 Public Involvement and Process

3.1 Background

Phase 2 of the OR 126 EMP was a coordinated approach among ODOT, the City of Springfield, and Lane County to address transportation concerns related to the OR 126 Expressway corridor. Public involvement was a critical element to ensure that community desires were accurately reflected through the study. The public involvement process provided opportunity for public input at two levels: (1) local area citizens, business owners, and property owners, and (2) elected officials. The input from the local area citizens was used to fine-tune work products and gain a general view of acceptance of the planning work. Elected official involvement was used to make policy decisions and understand the conditional requirements likely for plan approval.

The public and elected official involvement process was facilitated through the use of a Project Management Team (PMT), which provided input at all steps of the project process:

- Updates to Phase 1 Existing and Future Conditions Report
- Development of Problem Statements
- Development of Evaluation Framework (Criteria and Evaluation Measures)
- Development of Design Concepts
- Evaluation and Screening of Design Concepts
- Development of Policy Concepts

The PMT reviewed and commented on all materials prior to release to the public or elected officials.

Appendix A includes meeting notes from all public events, as well as any public comments received.

3.2 Project Management Team

The Project Management Team (PMT) was composed of staff representatives from four different agencies/jurisdictions: ODOT (Planning, Design, TPAU, and Freight), the City of Springfield, Lane County, Lane Council of Governments (LCOG), and Lane Transit District (LTD). The PMT was facilitated and managed by the ODOT Project Manager and the consultant team, composed of CH2M HILL, Kittelson & Associates, and Jeanne Lawson Associates. The PMT oversaw all steps of the Phase 2 process and brought recommendations before a group of elected officials and agency decision-makers convened for the project, the Ad Hoc Committee.

The PMT was a continuation of a group that met regarding the OR 126 Phase 1 existing conditions report, and it is intended that the PMT continue to meet throughout Phase 3 of the EMP.

The PMT generally met monthly throughout the project – every third week of the month. The PMT met 12 times during the project.

The PMT developed the project problem statements and criteria and evaluation measures, and reviewed all design concept alternatives and policy concepts for the project. The PMT provided recommendations for Ad Hoc Committee review and consideration throughout the project. The PMT recommended the problem statements, set of criteria and evaluation measures, and policy concepts for Ad Hoc Committee review. The PMT also recommended a set of design concepts for further analysis during Phase 3 of the EMP to the Ad Hoc Committee.

3.3 Ad Hoc Committee

The Ad Hoc Committee was formed specifically to shape policy and decisions regarding the EMP. The Ad Hoc Committee was established at the beginning of the Phase 2 process, and included two members each from the City of Springfield City Council, Lane County Commission, and ODOT Region 2 leadership. The Ad Hoc Committee will continue to advise on and provide direction for the project during Phase 3 of the EMP.

The Ad Hoc Committee met four times during Phase 2 of the EMP. All Ad Hoc Committee meetings were open to the public.

At its first meeting, also referred to as the “Partnering Session,” and the Committee’s focus was on building a common understanding of project purpose and process, identifying project objectives and concerns, review of problem statements, and developing communication protocols and a decision-making structure for the Ad Hoc Committee. The Ad Hoc Committee decided during this meeting that they would like to be involved throughout the EMP planning process (not just during Phase 2). The Ad Hoc Committee also approved the problem statements. Appendix B includes a copy of the Partnering Agreement agreed to by all members of the Ad Hoc Committee.

At their second meeting, the Ad Hoc Committee focused on review of the Partnering Agreement, review of the project criteria and evaluation measures, and review of preliminary design concepts, which had been created following a Functional Planning Workshop with consultant team and PMT staff. At this meeting, the Ad Hoc Committee approved the criteria and evaluation measures list, with a few changes.

The third meeting included review of the project to-date, including input received from the Open House meeting. The meeting focused on review of the PMT’s recommendation regarding the design concepts to be forwarded for further analysis during Phase 3. At this meeting, the Ad Hoc Committee questioned the forwarding of one of the concepts, and asked the PMT to review their recommendation regarding this concept (grade-separated left turn). The Ad Hoc Committee agreed with the remainder of the PMT’s recommendations regarding design concepts.

Finally, at their forth and final meeting, and the Committee focused on a review of potential policy concepts that could be further explored during Phase 3 of the EMP. At this meeting, the Ad Hoc Committee decided to set aside the concept they had asked the PMT to revisit. The Ad Hoc Committee agreed with the remainder of the PMT's recommendations regarding design concepts. The Ad Hoc Committee expects to meet again in 2007 during Phase 3 of the OR 126 EMP.

3.4 Public Open Houses

Public open houses were used during Phase 2 of the OR 126 EMP to gauge public acceptance of the planning process and to understand community concerns and ideas regarding the OR 126 Expressway corridor and its interchanges/intersections. Public input was used to shape project process and recommendations.

Two open houses were held during Phase 2 of the EMP. All open houses were widely advertised, including ads in the local paper, on the website, and through direct mail to all property owners or renters within one-half mile of the eastern portion of the OR 126 Expressway corridor. Both open houses had at least 25 attendees.

At the first Open House, participants were invited to review design concepts for the areas near OR 126 and 42nd Street, 52nd Street, and McKenzie Highway (Main Streets). Participants were encouraged to record their ideas and concerns about each of these design concepts on the maps or to draw their own ideas on blank maps, and to complete the available comment forms. Participants were also invited to review and comment on problem statements. In general, attendees were concerned about cost/funding, property impacts, traffic congestion, and safety. Participants did not generally like the idea of an at-grade design concept solution at the 52nd Street location. Participants were concerned about traffic and safety at the 42nd Street interchange, and traffic and access at the McKenzie Highway (Main Street) intersection. A meeting summary and all comment forms received are included in Appendix A.

At the second, participants were invited to review the evaluation of the design concepts and the PMT's recommendation about which design concepts should be carried forward. Participants did not think that any of the concepts that had been set aside by the PMT as a result of the screening process deserved further consideration. The amount of support for each of the concepts that was recommended to be carried forward varied, possibly indicating that participants were beginning to select a favorite option. It is notable that few business owners from the McKenzie Highway (Main Street) area attended the open house. A meeting summary and all comment forms received are included in Appendix A.

Open Houses will continue to be held during Phase 3 of the OR 126 EMP.

3.5 Sounding Board

Sounding Board meetings were used during Phase 2 of the OR 126 EMP to specifically understand concerns from property and business owners near the OR 126 McKenzie Highway (Main Street), 52nd Street, and 42nd Street interchanges/intersections.

The purpose of the Sounding Board meetings was to offer community-based input to the PMT and Ad Hoc Committee at key points during the planning process. The role of the Sounding Board was to discuss, review, become informed about, and offer feedback on technical analysis, alternative concepts, and other OR 126 EMP-related information.

Two Sounding Board meetings were held during Phase 2 of the EMP. Sounding Board members were targeted for attendance at the meeting (property owners and business owners), though the meeting was also open to the general public.

At the first Sounding Board Meeting the purpose was to verify public comment from the 11/17/05 open house, and to allow for more focused comment regarding the design concepts and decision criteria.

The meeting was advertised through site visits to retail businesses near the study area and phone calls to other businesses in the area, particularly large industrial and freight businesses. The project team also mailed 200 fliers to property owners, residents, and businesses adjacent to the expressway at 42nd Street, 52nd Street, and McKenzie Highway (Main Streets) and to the interested parties list.

Responses on comment forms indicated that most participants were interested in the locations of OR 126/52nd Street and OR 126/McKenzie Highway (Main Street), and that most respondents were interested in OR 126 because they lived, worked, or owned property near OR 126 or used OR 126 for through-travel, or because customers used OR 126 to reach businesses. At the meeting, participants were evenly distributed regarding their interest in 42nd, 52nd, and Main.

Participants generally recognized that there were existing congestion problems on OR 126 and that those problems were likely to get worse in the future. With any option, the group was most concerned about commercial access and how well options accommodated freight traffic.

The second Sounding Board Meeting was combined with Open House 2. The meeting focused on the PMT's recommendation regarding which design concepts to carry forward for further analysis.

Sounding Board meetings will continue to be held during Phase 3 of the OR 126 EMP.

3.6 Council and Commission Meetings

Members of the PMT (both consultants and agency representatives) met several times with the full City of Springfield Council or full Lane County Board of Commissioners to brief elected officials on the project progress and public input regarding the project.

3.7 Project Website

The OR 126 EMP website was used throughout Phase 2 as a means of communicating information about project progress, decisions, and upcoming opportunities for public comment (<http://www.oregon.gov/ODOT/HWY/REGION2/OR126EMP.shtml>).

4.0 Evaluation Framework

4.1 Introduction

The evaluation framework for Phase 2 of the OR 126 EMP included the development of criteria and evaluation measures (the way to measure concept performance against criteria). The PMT used the criteria and measures framework as a tool to evaluate the feasibility of a range of design concepts for the three interchange/intersection locations along the eastern portion of the OR 126 Expressway corridor. The criteria and measures also displayed qualities and characteristics for specific design concepts.

The criteria were based on the project problem statements, as well as input from the community. The criteria and measures were intended to reflect the wide spectrum of stakeholder values surrounding the OR 126 Expressway corridor and its future.

The PMT used the evaluation framework as a tool to make decisions about (1) which design concepts had fatal flaws, and (2) how design concepts performed for different value sets (e.g. transportation benefits, cost, and community values). This helped shape PMT decisions about which design concepts to keep in the mix for further analysis during Phase 3 of the EMP.

Each concept was evaluated against other concepts for its location (e.g., concepts at the 42nd Street interchange were not evaluated against concepts at the 52nd Street intersection). It was important that the criteria and evaluation measures were developed before the development of design concepts, so that the process properly represented the range of stakeholder values.

4.2 Evaluation Criteria and Measures Development

Criteria measure the performance of design concepts compared to the no-build future conditions scenario and to each other. The criteria are intended to show the advantages and disadvantages of the design concepts in relation to each other. The comparisons of the scores for the design concepts are more important than the scores themselves. Section 5 discusses how the design concepts were evaluated and scored with the criteria and evaluation measures.

Table 4-1 shows the evaluation criteria and measures used to evaluate design concepts for Phase 2 of the OR 126 EMP. The criteria were organized within categories to display trade-offs. The criteria shaded in gray are drawn specifically from the problem statements. The other criteria are drawn from experience with previous projects and input from the November 17, 2005, public open house.

The evaluation criteria were grouped in the following categories:

- Cost
- Natural Environment
- Community Values
- Transportation Benefits and Performance
- Safety
- Economic Development
- Design

TABLE 4-1
OR 126 EMP Phase 2 Criteria and Evaluation Measures

| Evaluation Criteria Categories | Criteria | Criteria Description | Evaluation Measures |
|--------------------------------|---|---|--|
| 1. Cost | | | |
| | a. Cost | <i>How costly is the concept?</i> All concepts will have costs associated with development and implementation. This criterion evaluates the relative cost of the concepts and the level of investment for improvements. | The scale for Cost is as follows: 5 – The concept requires a relatively low level of investment. 3 – The concept requires a moderate level of investment. 0 – The concept requires a relatively high level of investment. |
| | b. Phasing and Timing | <i>To what extent is the concept part of a phased approach?</i> This criterion measures the extent to which a concept is an interim fix that moves toward an “ideal condition” by 2025. The “ideal condition” is defined as the OR 126 mainline and intersections/interchanges operating at a V/C of 0.75 by year 2025. This criterion awards incremental implementation, which allows flexibility with future development and can help to spread out the cost of improvements and make them more affordable. | The scale for Phasing and Timing is as follows: 5 – The concept is highly flexible, offers opportunities for additional investment, and makes significant movement toward an ideal condition in 2025. 3 – The concept is moderately flexible, offers some opportunity for additional investment, and makes moderate movement toward an ideal condition in 2025. 0 – The concept is not flexible, does not offer opportunities for additional investment, and does not move toward an ideal condition in 2025. |
| 2. Natural Environment | | | |
| | a. Wetlands, Water Quality, and Habitat | <i>Does the concept impact wetlands, water quality or habitat?</i> This criterion evaluates to what extent concepts impact known wetland, water quality or habitat resources. | The scale for Wetland, Water Quality & Habitat is as follows: 5 – The concept does not impact known wetland, water quality or habitat. 3 – The concept has moderate impacts on known wetland, water quality or habitat. 0 – The concept has high impacts on known wetland, water quality or habitat. |
| | b. Air Quality | <i>To what extent does the concept negatively impact air quality?</i> This criterion evaluates the extent to which a concept impacts anticipated air quality impacts, compared to the 2025 future no-build scenario. Impacts on air quality are approximated via vehicle queuing (e.g. the longer the queue, the higher the impact). Non-vehicular modes of transportation (transit, pedestrian, bicycle) and Transportation Demand Management (TDM) programs also help to mitigate air quality issues, but these components are addressed in other criteria (3d, 5c). | The scale for Air Quality is as follows: 5 – The concept causes no queue lengths. 3 – The concept causes moderate queue lengths. 0 – The concept causes significant queue lengths. |
| | c. Noise | <i>To what extent does noise generated by the concept impact residential development, parkland or other sensitive receptors?</i> This criterion evaluates the extent to which noise related to concept construction or concept traffic would affect residential development (defined as existing residences), parkland, or other sensitive receptors, such as hospitals or schools. | The scale for Noise is as follows: 5 – The concept is located further than 400' from residential development or other sensitive receptors. 3 – The concept is located 200-400' from residential development or other sensitive receptors. 0 – The concept is located 0-200' from residential development or other sensitive receptors. |

TABLE 4-1
OR 126 EMP Phase 2 Criteria and Evaluation Measures

| Evaluation Criteria Categories | Criteria | Criteria Description | Evaluation Measures |
|--------------------------------|--|---|---|
| 3. Community Values | | | |
| | a. Existing Developed Commercial and Industrial Property Takes | <p><i>To what extent does the concept impact existing developed commercial or industrial property?</i> This criterion evaluates the extent to which concepts impact existing businesses through building or property takes of nonvacant (developed) parcels. Takes are defined as full or partial property takes or impacts on existing buildings (displacements).</p> <p>Impact on business access is detailed in a separate Criterion 3b.</p> | <p>The scale for Existing Commercial and Industrial Property Takes is as follows:</p> <p>5 – The concept requires no takes of existing business or industrial properties and no displacements.</p> <p>4 – The concept requires one take of existing business or industrial properties and no displacements.</p> <p>3 – The concept requires 2 to 3 takes of existing business or industrial properties or one displacement.</p> <p>2 – The concept requires 4 to 5 takes of existing business or industrial properties or two displacements.</p> <p>0 – The concept requires greater than 5 takes of existing business or industrial properties or more than two displacements.</p> |
| | b. Existing Business Access | <p><i>To what extent does the concept impact existing business access?</i> This criterion evaluates the extent to which concepts impact existing business access through the elimination of driveway access. The number of accesses on cross-streets located within 1,320' of a concept was used as a proxy for access impact. This is because it is difficult to determine at a conceptual level which accesses would need to be eliminated, combined, or rerouted to accommodate development of concepts. The preservation of access is consistent with access spacing standards found in the 1999 Oregon Highway Plan.</p> | <p>The scale for Business Access is as follows:</p> <p>5 – There are 0 to 2 business or industrial accesses located within 1,320' of the concept.</p> <p>4 – There are 3 to 4 business or industrial accesses located within 1,320' of the concept.</p> <p>3 – There are 5 to 6 business or industrial accesses located within 1,320' of the concept.</p> <p>2 – There are 7 to 10 business or industrial accesses located within 1,320' of the concept.</p> <p>0 – There are more than 10 business or industrial accesses located within 1,320' of the concept.</p> |
| | c. Residential Impacts | <p><i>To what extent does the concept impact existing residential property?</i> This criterion evaluates the extent to which concepts affect existing residences through building or property takes. Takes are defined as full or partial property takes or impacts on existing buildings (displacements).</p> | <p>The scale for Residential Impacts is as follows:</p> <p>5 – The concept requires no takes of existing residential properties and no displacements.</p> <p>4 – The concept requires one take of existing residential properties and no displacements.</p> <p>3 – The concept requires 2 to 3 takes of existing residential properties or one displacement.</p> <p>2 – The concept requires 4 to 5 takes of existing residential properties or two displacements.</p> <p>0 – The concept requires greater than 5 takes of existing residential properties or more than two displacements.</p> |

TABLE 4-1
OR 126 EMP Phase 2 Criteria and Evaluation Measures

| Evaluation Criteria Categories | Criteria | Criteria Description | Evaluation Measures |
|---|--|--|---|
| | d. Pedestrian, Bicycle, and Transit Access | <i>To what extent does the concept impact existing or planned pedestrian, bicycle, and transit facilities?</i> Such facilities include trails, bicycle lanes, sidewalks, bus corridors, bus stops or park-and-rides. Impacts are defined as eliminating facilities without providing replacements or implementing barriers to the development of future pedestrian, bike, or transit facilities. | The scale for Pedestrian, Bicycle, and Transit Access is as follows: 5 – The concept would not be expected to affect existing or planned pedestrian, bicycle, or transit facilities. 3 – The concept would be expected to moderately affect existing or planned pedestrian, bicycle, or transit facilities. 0 – The concept would be expected to significantly affect existing or planned pedestrian, bicycle, or transit facilities. |
| | e. Impacts on Undeveloped Parcels | <i>To what extent does the concept impact future business development property adjacent to the OR 126 corridor?</i> This criterion evaluates the extent to which concepts impact future business development through property takes adjacent to the OR 126 corridor. Takes are defined as full or partial property takes of undeveloped commercial or industrial parcels of land adjacent to the corridor. | The scale for Undeveloped Parcels is as follows: 5 – The concept and requires no or minimal (0 to 2) takes of undeveloped commercial or industrial land. 3 – The concept requires moderate (3 to 4) takes of undeveloped commercial or industrial land. 0 – The concept requires significant (greater than 5) takes of undeveloped commercial or industrial land. |
| 4. Transportation Benefits and Performance | | | |
| | a. Congestion Improvement and Reduction — Expressway | <i>To what extent does the concept improve/reduce congestion during the PM peak travel period along OR 126?</i> This criterion evaluates the extent to which a concept improves congestion during peak travel on OR 126 (year 2025). Congestion improvement is measured according to state expressway and freight route volume/capacity ratios (ODOT Highway Design Manual [HDM]). Congestion improvement compares concepts against the no-build future scenario. This criterion implicitly addresses emergency vehicle access, because the level of congestion affects emergency response times. | The scale for Congestion Improvement and Reduction — Expressway is as follows: 5 – The v/c ratios for the applicable OR 126 intersection(s) and expressway segments are anticipated to meet (or be below) state standards. 3 – The v/c ratios for the applicable OR 126 intersection(s) or expressway segments are not anticipated to meet state standards, but are less than 1.0. 0 – The v/c ratios for the applicable OR 126 intersection(s) or expressway segments are anticipated to be greater than 1.0. |
| | b. Congestion Improvement and Reduction — Local | <i>To what extent does the concept improve congestion during the PM peak travel period at local intersections?</i> This criterion evaluates the extent to which a concept improves congestion during peak travel at study area intersections (year 2025). Congestion improvement is measured according to volume/capacity ratios for state routes and level of service for City of Springfield roadways. Congestion improvement compares concepts against the no-build future scenario. Note: Local intersections are defined as those study area intersections not on the OR 126 mainline or part of an OR 126 interchange. The 42nd Street interchange has two local intersections (Marcola/42nd and Olympic/42nd), the 52nd Street intersection has three local intersections (Highbanks/52nd, 52nd/G and 52nd/F), and the McKenzie Highway (Main Street) intersection has three local intersections (54th/Main, 58th/Main and Jasper/Mt. Vernon). | The scale for Congestion Improvement and Reduction — Local is as follows: 5 – The v/c ratios or LOS for all study area intersections is anticipated to meet state or local standards. 3 – The v/c or LOS for at least one of the study area intersections is anticipated to meet state or local standards. 0 – The v/c or LOS for none of the study area intersections is anticipated to meet state or local standards. |
| | c. Improvement to Freight Mobility | <i>To what extent does the concept improve freight mobility?</i> This criterion evaluates the extent to which a concept enhances direct routing with minimal disruption for freight vehicles (such as trucks). Direct routing can be defined as noncircuitous routes with generous geometry and speed designations. Improvement in freight mobility is also related to operational performance on the OR 126 | The scale for Freight Mobility is as follows: 5 – The concept improves freight mobility. 3 – The concept does not affect freight mobility. 0 – The concept impedes freight mobility. |

TABLE 4-1
OR 126 EMP Phase 2 Criteria and Evaluation Measures

| Evaluation Criteria Categories | Criteria | Criteria Description | Evaluation Measures |
|--------------------------------|--|--|---|
| | | mainline, which is covered in Criterion 4a. | |
| 5. Safety | | | |
| | a. Design Consistency and Driver Expectation | <p><i>To what extent does the concept provide appropriate transitions between different roadway design elements or characteristics?</i> This criterion evaluates the degree to which the design elements of each concept are consistent with prevalent driver expectancies and with other design features along the study corridor. Driver expectation can be managed through roadway design or visual cues (e.g., signing, landscaping, pavement narrowing, striping, lighting).</p> <p>According to AASHTO, “Reinforced expectancies help drivers respond rapidly and correctly. Unusual, unique or uncommon situations that violate driver expectancies may cause longer response times, inappropriate responses, or errors.”</p> | <p>The scale for Design Consistency and Driver Expectation is as follows:</p> <p>5 – The concept provides design and visual cues consistent with roadway character and progression.</p> <p>3 – The concept provides some design and visual cues consistent with roadway character and progression.</p> <p>0 – The concept does not provide design and visual cues consistent with roadway character and progression.</p> |
| | b. Minimize Conflict Points | <p><i>To what extent does the criterion reduce or eliminate the potential for severe crashes?</i> This criterion evaluates the extent to which a concept minimizes the number of potential conflict points that could result in severe crashes (e.g., due to conflicting turn movements). More conflict points generally mean that there are more potential opportunities for crashes.</p> <p>The severity of potential crashes is approximated by examining the concept design and potential resultant conflict points in relation to speed:</p> <ul style="list-style-type: none"> • Severe: head-on and t-bone • Moderately severe: angle and rear-end • Least severe: sideswipe | <p>The scale for Minimize Conflict Points is as follows:</p> <p>5 – The concept significantly reduces the number of severe and moderately severe crash turning movements.</p> <p>3 – The concept moderately reduces the number of severe and moderately severe crash turning movements.</p> <p>0 – The concept does not reduce the number of severe and moderately severe crash turning movements.</p> |
| | c. Enhance Pedestrian and Bicyclist Safety | <p><i>To what extent does the concept improve pedestrian and bicyclist safety? Does the concept minimize the length of crosswalks and the number of roadways crossed for pedestrians and bicyclists?</i> It is assumed that all concepts would be designed and constructed to accommodate facilities for pedestrians and bicyclists. However, some concepts are not as easily navigable for pedestrians and bicyclists. This criterion evaluates the extent to which pedestrian and bicycle crossings are minimized or shortened, as compared to the future no-build scenario.</p> <p>Where pedestrian/bicyclist refuge islands could be incorporated in long crosswalks, the length of crossing is considered the distance between the edge of the roadway and the refuge island.</p> | <p>The scale for Pedestrian and Bicyclist Safety is as follows:</p> <p>5 – The concept decreases the total length of pavement required for crossing, compared to the no-build scenario.</p> <p>3 – The concept maintains the total length of pavement required for crossing, compared to the no-build scenario.</p> <p>0 – The concept increases the total length of pavement required for crossing, compared to the no-build scenario.</p> |
| | d. Queuing and Delay | <p><i>To what extent does the concept influence queuing backup into the mainline?</i> This criterion evaluates the extent to which a concept alleviates the spillover of vehicles into the mainline. Congestion improvement is measured according to queue lengths (which also accounts for delay). Queue lengths longer than the storage capacity are considered a threat to safety because vehicles are backed into the mainline, and are used as a proxy for safety.</p> | <p>The scale for Queuing and Delay on OR 126 is as follows:</p> <p>5 – The concept has little possibility of queue backup into the mainline.</p> <p>3 – The concept has some possibility of queue backup into the mainline.</p> <p>0 – The concept has significant possibility of queue backup into the mainline.</p> |
| 6. Economic Development | | | |
| | a. Regional Future Development | <p><i>To what extent does the concept facilitate regional development?</i> This criterion evaluates the extent to which a concept has the capacity to accept additional traffic beyond what is anticipated to be used in 2025. Reserve capacity enhances future development opportunities, because it can accommodate additional traffic increases related to new</p> | <p>The scale for Regional Future Development is as follows:</p> <p>5 – The concept provides for a high level of reserve capacity in 2025.</p> |

TABLE 4-1
OR 126 EMP Phase 2 Criteria and Evaluation Measures

| Evaluation Criteria Categories | Criteria | Criteria Description | Evaluation Measures |
|--------------------------------|---|--|--|
| | | development. Reserve capacity accounts for traffic increases related to development on or near parcels such as the Pierce property or Jasper-Natron area. | 3 – The concept provides for a moderate level of reserve capacity in 2025. 0 – The concept provides for a minimal level of reserve capacity in 2025. |
| 7. Design | | | |
| | a. Adherence to Applicable Design Standards | <p><i>To what extent does the concept adhere to applicable design standards for state designated expressways and freight routes?</i> Design standards criteria note how closely each concept adheres to applicable design standards for current and potential future improvement scenarios. Due to the limited level of design detail presented in the concepts, only the following design attributes of each concept were assessed:</p> <ul style="list-style-type: none"> • Design Speed • Roadway geometry (horizontal/vertical curves and vertical clearance) • Acceleration/deceleration lane lengths • Access/Intersection spacing | <p>The scale for Adherence to Applicable Design Standards is as follows:</p> <p>5 - Meets design standards as proposed, with minimal additional mitigation.</p> <p>3 – Moderate mitigation required to meet design standards.</p> <p>0 – The concept would require one or more design exceptions to meet design standards. Significant amount of mitigation is required.</p> |

5.0 Alternatives Development and Evaluation

5.1 Design Concept Development

Preliminary alternative design concepts were developed for the three Phase 2 locations during a functional planning workshop on 10/21/05. The functional planning workshop involved planning, design, and traffic staff from ODOT; staff from the City of Springfield; staff from Lane County; and the consultant team.

The concepts developed were presented to the public at a public meeting on 11/17/05 and at a Sounding Board meeting on 1/25/06. They were presented to the Ad Hoc Committee on 1/31/06. Some additional suggestions were made, and a total of 15 total initial concepts were developed for all three locations.

The following 15 design concepts were developed (see Appendix C for graphic representations of the initial 15 design concepts):

42nd Street Interchange

- Concept A1: Folded Diamond Interchange
- Concept A2: Traditional Diamond Interchange

52nd Street Intersection

- Concept B1: Expanded Intersection
- Concept B2: Offset Intersection
- Concept B3: 3-Lane Roundabout
- Concept B4: Traditional Diamond Interchange
- Concept B5: Partial Cloverleaf Interchange

McKenzie Highway (Main Street) Intersection

- Concept C1: Expanded Intersection
- Concept C2: Expressway Continuity (at-grade)
- Concept C3: 3-Lane Roundabout
- Concept C4: Single-Point Diamond Interchange
- Concept C5: Continuous Flow Intersection
- Concept C6: Traditional Diamond Interchange
- Concept C7: "Reverse" Single-Point Diamond Interchange
- Concept C8: Grade Separated Left-Turn

5.2 Preliminary Screening

In order to make a detailed screening more meaningful, and for an efficient use of project funds, ODOT asked that the 15 concepts undergo a preliminary screening to reduce the number of concepts for more detailed screening and analysis. The purpose was to screen out any alternatives with potentially fatal flaws. The preliminary screening used the list of top-level criteria developed by the PMT (the criteria categories), as opposed to the more detailed screening used later on in the alternative evaluation process, which used the full list of criteria, sub-criteria, and evaluation measures.

5.2.1 Preliminary Top-Level Screening Criteria

The following top-level criteria were used during the preliminary screening (top-level criteria are noted by bold font). The sub-criteria in parentheses were used to inform the definition of the top level criteria, but were not individually evaluated. The top-level criteria are not listed in order.

1. **Cost** (Cost; Phasing and Timing)
2. **Natural Environment** (Wetlands, Water Quality, Habitat; Air Quality; Noise)
3. **Community Values** (Existing Commercial/Industrial Property Takes; Existing Business Takes; Residential Impacts; Pedestrian, Bicycle and Transit Access; Ability to Serve Future Development)
4. **Transportation Benefits and Performance** (Congestion Improvement/Reduction – expressway; Congestion Improvement/Reduction – Local; Improvement to Freight Mobility)
5. **Safety** (Design Consistency and Driver Expectation; Minimize Conflict Points; Enhance Pedestrian and Bicycle Safety; Minimize Queuing and Delay)
6. **Economic Development** (Regional Future Development)
7. **Design** (Adherence to Applicable Design Standards)

5.2.2 Preliminary Screening Process

The preliminary screening process had four steps.

Step 1 – Assign weights to the seven top-level criteria. The project team assigned weights to each of the seven top-level criteria for each of the three locations. Different weights were assigned for different locations because the criteria have differing levels of importance for each location (e.g., safety is more important for the 52nd Street location than at the McKenzie Highway (Main Street) or 42nd Street locations). The team selected weights that were believed to best represent the stakeholder values for the criteria. The weights for the seven criteria summed to 100.

Step 2 – Rate the concepts according to the criteria. The project team assigned ratings (1, 3, or 5, where 5 was the best rating) for each criterion for each of the 15 concepts. The ratings were assigned based on the project team’s knowledge of the project and stakeholder values. The ratings were qualitative estimates, based on overall impressions of each of the concepts. A higher level of quantitative analysis was used for the next screening of concepts.

Step 3 – Calculate results. For each concept, the consultant team multiplied the rating for each criterion and the criterion weighting for the location. The results for all seven criteria were summed for each concept, resulting in a numerical score.

Step 4 – Compare results. The consultant team compared the summed results for each concept, and generally recommended retaining the concepts that scored the highest because the concepts that scored highest seemed to perform better than other concepts when evaluated according to the criteria. Several informal sensitivity tests were performed for borderline ratings, and the results remained similar.

5.2.3 Preliminary Screening Results

Concepts Recommended for Further Screening and Analysis

The preliminary screening process resulted in eight concepts being recommended for further screening and analysis. The following concepts were recommended for further screening based on the preliminary screening:

42nd Street Interchange

- *A1: Folded Diamond, with both South Access and Olympic Access Variants.* This concept performed well in most categories. The Olympic access variant was requested for further investigation by the Ad Hoc Committee.

52nd Street Intersection

- *B1: Expanded Intersection.* This concept performed average in most categories and well in the cost and natural environment category.
- *B2: Offset Intersection.* This concept performed average in most categories and well in the cost category.
- *B5: Partial Cloverleaf and Traditional Diamond.* This concept performed well in the transportation benefits, safety, economic development, and design categories, average in the community values and natural environment categories, and poorly in the cost category due to the amount of structure required for construction. It was recommended that Concept B3, Traditional Diamond Interchange, be combined with this concept, because the two concepts are very similar.

McKenzie Highway (Main Street) Intersection

- *C1: Expanded Intersection.* This concept performed well in the cost, natural environment, community values, and design categories; average in the transportation benefit and safety categories; and poorly in the economic development category because it is not anticipated to offer much reserve capacity.

- *C3: 3-Lane Roundabout.* This concept performed well in the natural environment and community values categories, poorly in the economic development category (because it is not anticipated to offer much reserve capacity), and average in other categories.
- *C7: "Reverse" Single-Point Diamond Interchange, Single-Point Diamond Interchange, Tight Diamond Interchange.* This concept performed well in the transportation benefits and safety categories and average in most other categories (except cost, due to the significant structure required for construction). It was recommended that Concept C4, Single-Point Diamond Interchange, be combined with this concept, because the two concepts are very similar and redundant. It was also recommended that a tight diamond interchange be considered as a variant to this concept; the tight diamond has a similar footprint, and could be significantly less expensive.
- *C8: Grade Separated Left Turn.* This concept performed average in most categories. This concept places emphasis on the heavy south to east movement and freight route/expressway continuity by removing the south to east left turn from the signal phase.

Concepts Set Aside

Based on the preliminary screening, the following design concepts were set aside:

42nd Street Interchange

- *A2: Traditional Diamond.* This concept performed poorly in the cost category because it requires significant structure and wetland impact. The concept performed poorly in the community values category because the concept eliminates the water district facility, which is considered a serious flaw in terms of community values.

52nd Street Intersection

- *B3: 3-Lane Roundabout.* This concept performed poorly in the design category for several reasons. Roundabouts are not recommended where unequal traffic flows/volumes on legs and mix of traffic (truck percentages) exist. A roundabout in this location seems to contradict ODOT expressway and freight mobility intent standards and does not meet driver expectation. A roundabout at this location does not meet ODOT siting standards, nor does it meet the 2003 Highway Design Manual requirements. There is documented public concern with a roundabout at this location. It performed average in most other categories.
- *B4: Traditional Diamond.* It was recommended that this concept be combined with Concept B5, Partial Cloverleaf, because the two concepts are very similar and redundant.

McKenzie Highway (Main Street) Intersection

- *C2: Expressway Continuity.* This concept performed poorly in the community values category because it requires the elimination of multiple existing businesses. It performed poorly in the economic development category because it is not anticipated to offer reserve capacity.

- *C4: Single-Point Diamond Interchange.* It was recommended that this concept be combined with Concept C7, “Reverse” Single-Point Diamond Interchange, because the two concepts are very similar and redundant.
- *C5: Continuous Flow At-Grade Intersection.* This concept performed poorly in the cost category because of the amount size and complexity of the concept. Multiple signal standards and large areas of new pavement would be needed to construct. It performed poorly in the community values category because it of significant barriers to pedestrians and bicyclists. The concept performed average in most of the other categories.
- *C6: Traditional Diamond.* This concept is considered redundant with the single-point diamond interchange options, except that the traditional diamond interchange includes a greater footprint and greater property impacts. A tight diamond, which has a footprint similar to that of a single point diamond interchange but is far less expensive, could potentially be explored as a variant to the C7 single point diamond concepts.

5.3 Detailed Screening

The eight concepts identified by the preliminary screening for further detailed screening were evaluated based on the criteria and performance measures described in Section 4. Two other concepts were also identified during the detailed screening process, so a total of ten concepts were analyzed with detailed screening. The purpose of the screening was to help narrow the range of concepts for further analysis at 42nd Street, 52nd Street, and McKenzie Highway (Main Street) along the OR 126 Expressway corridor. Agreed-upon ratings and weightings were entered into a screening software program, which then presented results for each of the concepts analyzed. The PMT used these results as a tool to guide their decision-making regarding which concepts should be forwarded for further analysis. Appendix D contains a detailed description of the screening methodology.

5.3.1 Summary of Detailed Screening Results

At the April 20, 2006, PMT meeting, the PMT decided unanimously on a group of design concepts at intersection/interchange locations along the OR 126 Expressway corridor to be forwarded for further analysis during the next phase of the OR 126 EMP. This group of concepts included the following:

42nd Street

- Concept A1: Folded Diamond Interchange (Includes South Access and Olympic Access variants)

52nd Street Intersection

- Concept B1: Expanded Intersection
- Concept B5: Partial Cloverleaf Interchange (Includes Traditional Diamond variant)

McKenzie Highway (Main Street) Intersection

- Concept C1: Expanded Intersection
- Concept C4: Grade-Separated Interchange (Includes Single-Point Diamond, Tight Diamond, and “Reverse” Single-Point Diamond variants)

- **Concept C8: Grade Separated Left-Turn**

At this meeting, the PMT also agreed to examine further a Concept A3, which consists of a tight diamond interchange moved west of the existing interchange location at 42nd Street. This was done with the understanding that the A3 concept would be analyzed in the same manner as the other design concepts, including application of screening criteria such as operational analysis.

At the 8/17/06 PMT meeting, the PMT agreed to examine further a Concept C9, which consisted of a loop ramp at the McKenzie Highway (Main Street) intersection, serving south to east traffic volume movement. Again, this decision was made with the understanding that the C9 concept would be analyzed in the same manner as the other design concepts.

After the 8/17/06 PMT meeting, concepts A3 and C9 were analyzed with the same screening criteria and analysis process as the other concepts.

The Ad Hoc Committee was presented with the recommended concepts listed above on 8/21/06. At that meeting, the Ad Hoc Committee accepted all of the PMT recommendations (including C9), except for Concept C8 (Grade Separated Left Turn), due to expense and impact. The Ad Hoc Committee decided to request that the PMT set aside C8.

Therefore, the Phase 2 list of concepts recommended for further analysis includes the following seven concepts:

42nd Street Interchange

- *Concept A1:* Folded Diamond Interchange (includes South Access and Olympic Access variants)
- *Concept A3:* Tight Diamond Interchange (includes Single-Point Diamond Interchange and Limited Access variants)

52nd Street Intersection

- *Concept B1:* Expanded Intersection
- *Concept B5:* Partial Cloverleaf Interchange (includes Traditional Diamond variant)

McKenzie Highway (Main Street) Intersection

- *Concept C1:* Expanded Intersection
- *Concept C4:* Grade-Separated Interchange (includes Single-Point Diamond, Tight Diamond, and "Reverse" Single-Point Diamond variants)
- *Concept C9:* Loop Ramp (includes 58th Street variant)

Appendix E includes graphic representations of the design concepts recommended for further analysis during Phase 3. Further analysis of these concepts, including the selection of preferred concepts for specific locations, will occur during Phase 3 of the OR 126 EMP. The remainder of this section describes the screening analysis for the design concepts.

5.3.2 Weightings

During the PMT meeting on 3/23/06, the PMT assigned weights to each of the seven criteria categories for each of the three locations (42nd Street, 52nd Street, McKenzie Highway (Main Street)). Different weights were assigned for different locations because the criteria categories have differing levels of importance for each location (e.g., natural environment

considerations are more relevant for the 42nd Street location than the McKenzie Highway (Main Street) or 52nd Street locations because of the wetlands present at the 42nd Street location).

The weighting exercise was an iterative process that ultimately reflected the weights of six people representing the PMT: two City of Springfield representatives, one Lane County representative, one ODOT Transportation Planning and Analysis Unit (TPAU) representative, one ODOT Design representative, and one ODOT Freight representative. The weights for the seven criteria summed to 100.

At the same PMT meeting, the PMT assigned weights to each of the sub-criteria. These were not assigned according to location because it was decided by the PMT that the ratings would probably be similar enough among locations to not affect the end result. The weights for the sub-criteria for each of the seven criteria categories summed to 100 (e.g., the weights for the two cost sub-criteria summed to 100, and so on).

The PMT agreed on the following weightings at the 3/23/06 meeting, as shown in Tables 5-1 and 5-2.

5.3.3 Ratings

The following draft concept ratings are based on the evaluation measures for the sub-criteria. Concept ratings were performed for the future no-build scenario for each location in addition to the ten concepts for year 2025. The tables located in this section describe the rating for each sub-criterion for each concept, and detail how each rating was selected.

Ratings Assumptions

Several assumptions were used during the ratings process. The most important of these are as follows:

- In cases when a concept includes variants, one variant was chosen for analysis purposes. It was assumed that the variants will be evaluated in a refinement phase.
- Undeveloped land was assumed to be parcels with structure value less than \$10,000 *plus* vacant land as shown on LCOG's vacant land map.
- Magnitudes of cost were approximated as follows: relatively low investment – under \$3 million; moderate level of investment – \$3-\$10 million; relatively high level of investment – over \$10 million.
- It was assumed that OR 126 would be widened to 3 lanes in each direction.
- For evaluation of concepts, the widening of OR 126 was considered as part of the concept.
- With regard to Natural Environment criterion 2b and Safety criterion 5d, queues were generally considered significant when over 400 feet, moderate when between 200 and 400 feet, and not substantial when under 200 feet.
- With regard to Natural Environment criterion 2c, all concepts were located within 200 feet of residences or sensitive receptors (assuming the widening of the OR 126 mainline

was included as part of the concept); thus, this criterion did not end up being a differentiator among concepts.

TABLE 5-1
Top-Level Criteria Weightings – Agreed to by PMT on 3/23/06

| Criteria Category | 42nd Street | 52nd Street | McKenzie Highway (Main Street) |
|---|-------------|-------------|--------------------------------|
| Cost | 18 | 17 | 14 |
| Natural Environment | 6 | 5 | 3 |
| Community Values | 11 | 12 | 23 |
| Transportation Benefits and Performance | 21 | 22 | 19 |
| Safety | 17 | 20 | 16 |
| Economic Development | 12 | 7 | 12 |
| Design | 15 | 17 | 13 |
| TOTAL | 100 | 100 | 100 |

Notes: These weightings are average weights, based on the input from six PMT members.

TABLE 5-2
Sub-Criteria Weightings – Agreed to by PMT on 3/23/06

| Criteria Category | Sub-Criteria | Ratings |
|---|--|---------|
| Cost | Cost | 33 |
| | Phasing and Timing | 68 |
| Natural Environment | Wetlands, Water Quality, and Habitat | 32 |
| | Air Quality | 35 |
| | Noise | 33 |
| Community Values | Existing Commercial and Industrial Property Takes | 32 |
| | Existing Business Access | 22 |
| | Residential Impacts | 17 |
| | Pedestrian, Bicycle and Transit Access | 20 |
| | Undeveloped Commercial and Industrial Property Takes | 10 |
| Transportation Benefits and Performance | Congestion Improvement/Reduction – Expressway | 44 |
| | Congestion Improvement/Reduction – Local | 22 |
| | Improvement to Freight Mobility | 34 |
| Safety | Design Consistency/Driver Expectation | 30 |
| | Minimize Conflict Points | 22 |
| | Enhance Pedestrian/Bicyclist Safety | 22 |
| | Queuing and Delay | 27 |
| Economic Development | Regional Future Development | 100 |
| Design | Adherence to Design Standards | 100 |

Notes: These weightings are average weights, based on the input from 6 PMT members.

- With regard to Transportation Benefits criterion 4a, congestion improvement was measured at intersections on the mainline or interchange ramp terminals (not along the OR 126 mainline).
- With regard to Transportation Benefits criterion 4b, except for at the 42nd Street/Olympic Street and McKenzie Highway (Main Street)/58th Street intersections, it was determined that local intersection v/c and LOS would remain the same as the future no-build; thus, this criterion did not generally end up being a differentiator among concepts.
- Safety criterion 5b was measured, per the criterion, as the change in number of conflict points rather than changes in turning volumes.
- Economic Development criterion 6a was approximated as follows: high level of reserve capacity – v/c of 0.70 or less; moderate level of reserve capacity – v/c greater than 0.70, but less than 0.95; minimal (or no) reserve capacity – v/c greater than 0.95.
- With regard to Design criterion 7a, the following was assumed: ratings of 5 indicated meeting design standards, including access spacing; ratings of 3 indicated meeting most design standards, and moving toward meeting access spacing; ratings of 0 indicated meeting few design standards and not moving toward meeting access spacing standards.

Appendix F provides material related to the technical analysis of the concept ratings, including items such as land use maps, operations assumptions, and results and excerpts from the HDM.

Appendix G contains operational analysis worksheets and information.

42nd Street Ratings

42nd Street Future Baseline Condition (No-Build)(Table 5-3)

The future baseline condition concept – or no-build concept – reflects anticipated conditions in 2025 if no additional infrastructure aside from the Bob Straub Parkway and implementation of bus rapid transit (BRT) were to occur. This concept assumes the same 42nd Street interchange configuration, number of lanes, traffic control, and access control as exists today.

TABLE 5-3
42nd Street Interchange, Future Baseline Condition (No-Build)

| Criteria and Sub-Criteria | Rating | Explanation |
|---|--------|--|
| Cost | | |
| Cost | 5 | No cost; the interchange configuration remains as is. |
| Phasing and Timing | 0 | The concept does not move toward an “ideal condition,” where v/c meets HDM standard 0.75 by 2025 (v/c for westbound ramps is 3.0+ and v/c for eastbound ramps is 0.95). The concept itself is not phaseable; though it should be noted that the no-build would function as a first step for phasing. |
| Natural Environment | | |
| Wetlands, Water Quality, and Habitat | 5 | The concept has no change in impact on wetlands, water quality, and habitat. |
| Air Quality | 0 | The concept is anticipated to have long queues. |
| Noise | 0 | The concept is located 0-200' from existing residences and Highbanks Trail. |
| Community Values | | |
| Existing Commercial and Industrial Property Takes | 5 | No takes of existing developed commercial or industrial land are required (no change). |
| Existing Business Access | 2 | 8 commercial and industrial accesses are located within 1,320' of the expressway ramp terminals. |
| Residential Impacts | 5 | No takes of residential property are required (no change). |
| Pedestrian, Bicycle, and Transit Access | 5 | The concept does not impact existing or planned nonmotorized facilities or transit (no change). |
| Impact on Undeveloped Parcels | 5 | The concept does not impact undeveloped commercial or industrial land (no change). |
| Transportation Benefits and Performance | | |
| Congestion Improvement and Reduction – Expressway | 0 | The v/c ratio for the westbound ramps is anticipated to be 3.0+. |
| Congestion Improvement and Reduction – Local | 0 | None of the study area intersections (42nd & Marcola; 42nd & Olympic) are anticipated to meet local standards. |
| Improvement in Freight Mobility | 0 | The concept is anticipated to impede freight mobility because v/c ratios are anticipated to be very high, indicating high levels of congestion. |
| Safety | | |
| Design Consistency and Driver Expectation | 5 | The concept provides design and visual cues, although the ramp loops are very tight and not long enough. |
| Minimize Conflict Points | 0 | The concept does not reduce the amount of potentially severe and moderately severe crash turning movements (no change). |
| Enhance Pedestrian and Bicyclist Safety | 3 | The concept maintains the total length of pavement required for crossing (no change). |
| Queuing and Delay | 0 | The concept has high possibility of queue onto the OR 126 mainline (the queue occurs on 42nd Street). |
| Economic Development | | |
| Regional Future Development | 0 | The concept provides for no reserve capacity (v/c is greater than 1.0). |
| Design | | |
| Adherence to Applicable Design Standards | 0 | The concept does not meet ramp geometry standards and does not move toward ODOT interchange access spacing standards. |

Concept A1: 42nd Street – Folded Diamond Interchange (Table 5-4)

The folded diamond interchange concept reconstructs the 42nd Street interchange in a similar configuration, improving the loop ramp geometry for vehicle maneuverability, and lengthening the ramps to accommodate congestion and provide a transition. The concept analyzed was the “North Access” variant, with accesses to Olympic Street and Industrial Avenue on 42nd Street. The concept assumes dual turn lanes/receiving lanes at the westbound ramps, and a 4-5 lane section on 42nd Street. This concept includes two other variants. The South Access variant improves interchange access spacing by consolidating access points on 42nd Street south of the interchange to Industrial Avenue. The Olympic Access variant provides a split eastbound off-ramp that links directly to Olympic Street.

TABLE 5-4
42nd Street Interchange, Concept A1, Folded Diamond Interchange

| Criteria | Rating | Explanation |
|---|--------|---|
| Cost | | |
| Cost | 0 | The concept has a high cost (anticipated to exceed \$10 million). |
| Phasing and Timing | 5 | The concept moves toward an “ideal condition,” where v/c meets HDM standard 0.75 by 2025 for the westbound and eastbound ramps (v/c for westbound ramps is 0.51 and v/c for eastbound ramps is 0.53). The concept could be phased in over time, with pieces constructed at different times. |
| Natural Environment | | |
| Wetlands, Water Quality and Habitat | 3 | The concept would have moderate impact on wetlands, likely due to additional bridge columns. |
| Air Quality | 3 | The concept has a 200-foot eastbound left-turn queue at the eastbound on-ramp and 250 foot eastbound left-turn and southbound through queues at Olympic Avenue – moderate queue lengths overall (between 200 and 400’). |
| Noise | 0 | The concept is located 0-200’ from the Highbanks Trail. |
| Community Values | | |
| Existing Commercial and Industrial Property Takes | 4 | 1 take of existing developed commercial or industrial land is required. |
| Existing Business Access | 2 | 8 commercial and industrial accesses are located within 1,320’ of the interchange ramp terminals (mostly located north of the interchange). |
| Residential Impacts | 5 | No impacts on residential property are required. |
| Pedestrian, Bicycle, and Transit Access | 5 | The concept does not affect existing/planned nonmotorized/transit facilities. |
| Impact on Undeveloped Parcels | 5 | One take of undeveloped commercial or industrial land is required (near the Olympic Street access on 42nd). |
| Transportation Benefits and Performance | | |
| Congestion Improvement and Reduction – Expressway | 5 | The v/c ratios meet both HDM and OHP standards (v/c for westbound ramps is 0.51 and v/c for eastbound ramps is 0.53). |
| Congestion Improvement and Reduction – Local | 3 | The v/c at Olympic/42nd (one of the intersections in the study area) is anticipated to meet local standards (0.74). |
| Improvement to Freight Mobility | 5 | The concept is anticipated to improve freight mobility due to improved geometry. |
| Safety | | |
| Design Consistency and Driver Expectation | 5 | The concept provides design and visual cues consistent with roadway progression. |
| Minimize Conflict Points | 0 | The concept maintains the amount of potentially severe and moderately severe crash turning movements as the current configuration. |
| Enhance Pedestrian and Bicyclist Safety | 5 | The concept does not increase the total length of pavement for crossing, and provides a bridge structure over OR 126. |
| Queuing and Delay | 5 | The concept has little possibility of queue into the mainline (ramp queue of 200’ on the eastbound on-ramp). |
| Economic Development | | |
| Regional Future Development | 5 | The concept provides a high level of reserve capacity (v/c less than 0.70). |
| Design | | |
| Adherence to Applicable Design Standards | 3 | The concept meets most design standards; access spacing is not met, but the concept moves toward interchange access standards by moving the Olympic Street access south (further from the interchange). |

Concept A3: 42nd Street – Tight Diamond/SPUI with interchange moved west (Table 5-5)

The tight diamond interchange concept moves the interchange west of its current location, and provides a direct connection to Olympic Street from the eastbound off-ramp. It maintains 42nd Street as a north-south route for local traffic. The tight diamond was analyzed, but a Single Point Urban Interchange (SPUI) could also be constructed at this location (though likely it would involve more expense). The concept assumes dual turn lanes/receiving lanes onto westbound OR 126. Dual eastbound right-turn lanes would be needed from the eastbound ramp exit. A 4-5 lane section would be needed on 42nd Street. Phasing would be overlapped. The extremely tight spacing between the eastbound ramp terminal and Olympic Street creates some operational challenges that may not be reflected in operational results.

TABLE 5-5

42nd Street Interchange, Concept A3, Tight Diamond Interchange (Interchange Moved West)

| Criteria | Rating | Explanation |
|---|--------|---|
| Cost | | |
| Cost | 0 | The concept has a high cost (anticipated to exceed \$10 million). |
| Phasing and Timing | 0 | The concept moves toward an "ideal condition," where v/c meets HDM standard 0.75 by 2025 for the westbound and eastbound ramps (v/c for westbound ramps is 0.48 and v/c for eastbound ramps is 0.65). The concept is not easily phased. |
| Natural Environment | | |
| Wetlands, Water Quality, and Habitat | 3 | The concept would have moderate impact on wetlands or habitat. |
| Air Quality | 3 | The concept has queues of 265' northbound at the eastbound off-ramp, 300' southbound at Olympic Street, and 300' northbound left turn queue at westbound ramps— moderate queue lengths overall (under 400'). |
| Noise | 0 | The concept is located 0-200' from the Highbanks Trail. |
| Community Values | | |
| Existing Commercial and Industrial Property Takes | 4 | 1 take of existing developed industrial land is required. |
| Existing Business Access | 3 | 6 commercial and industrial accesses are located within 1,320' of the interchange ramp terminals (mostly located north of the interchange). |
| Residential Impacts | 5 | No impacts on residential property are required. |
| Pedestrian, Bicycle, and Transit Access | 5 | The concept does not impact existing or planned nonmotorized facilities or transit. |
| Impact on Undeveloped Parcels | 3 | 4 takes of undeveloped industrial land are required. |
| Transportation Benefits and Performance | | |
| Congestion Improvement and Reduction – Expressway | 5 | The v/c ratios meet both HDM and OHP standards (v/c for westbound ramps is 0.48 and v/c for eastbound ramps is 0.65). |
| Congestion Improvement and Reduction-Local | 3 | The v/c at Olympic/42nd (one of the intersections in the study area) is anticipated to meet local standards (0.59). |
| Improvement to Freight Mobility | 5 | The concept is anticipated to improve freight mobility due to improved ramp geometry and connection to Olympic Street. |
| Safety | | |
| Design Consistency and Driver Expectation | 5 | The concept provides design and visual cues consistent with roadway progression. |
| Minimize Conflict Points | 0 | The concept maintains the amount of potentially severe and moderately severe crash turning movements as the current configuration. |
| Enhance Pedestrian and Bicyclist Safety | 3 | The concept provides a new pedestrian route, and leaves the previous pedestrian route. Crossing distance is greater in total because of this. |
| Queuing and Delay | 5 | The concept has little possibility of queue into the mainline (ramp queue of 250' on the eastbound on-ramp). |
| Economic Development | | |
| Regional Future Development | 5 | The concept provides a high level of reserve capacity (v/c less than 0.7). |
| Design | | |
| Adherence to Applicable Design Standards | 0 | The concept meets most design standards; however, access spacing is made worse (to the south). |

52nd Street Ratings

52nd Street Future Baseline Condition (No-Build)(Table 5-6)

The future baseline condition concept, or no-build concept, reflects anticipated conditions in 2025 if no additional infrastructure aside from the Bob Straub Parkway and implementation of bus rapid transit (BRT) were to occur. This concept assumes the same 52nd Street intersection configuration, number of lanes, and access control as exists today.

TABLE 5-6
52nd Street Intersection, Future Baseline Condition (No-Build)

| Criteria | Rating | Explanation |
|---|--------|--|
| Cost | | |
| Cost | 5 | No cost; the intersection configuration remains as is. |
| Phasing and Timing | 0 | The concept does not move toward an "ideal condition," where v/c meets HDM standard 0.75 by 2025 (v/c at the intersection is 1.59). The concept itself is not phaseable, though it should be noted that no-build would function as a step toward phasing for an alternative concept. |
| Natural Environment | | |
| Wetlands, Water Quality and Habitat | 5 | The concept has no change in impact on wetlands, water quality, and habitat. |
| Air Quality | 0 | The concept is anticipated to have significant queue lengths, particularly on the eastbound main line. |
| Noise | 0 | The concept is located 0-200' from existing residences (OR 126 mainline, Highbanks). |
| Community Values | | |
| Existing Commercial and Industrial Property Takes | 5 | No takes of existing developed commercial or industrial land are required (no change). |
| Existing Business Access | 5 | No commercial or industrial accesses are located within 200' (City spacing standard) of the intersection. |
| Residential Impacts | 5 | No takes of residential property are required (no change). |
| Pedestrian, Bicycle, and Transit Access | 5 | The concept does not impact existing or planned nonmotorized facilities or transit (no change). |
| Impact on Undeveloped Parcels | 5 | No takes of undeveloped commercial or industrial land are required (no change). |
| Transportation Benefits and Performance | | |
| Congestion Improvement and Reduction – Expressway | 0 | The v/c ratio for the intersection is anticipated to be 1.59. |
| Congestion Improvement and Reduction- Local | 5 | The v/c and LOS for study area intersections meet standards (52nd and Highbanks v/c = 0.46; 52nd and G v/c = 0.05; 52nd and F v/c = 0.05) |
| Improvement to Freight Mobility | 0 | The concept is anticipated to impede freight mobility because the v/c ratio is anticipated to be very high, indicating high levels of congestion. |
| Safety | | |
| Design Consistency and Driver Expectation | 0 | The concept does not provide design and visual cues consistent with roadway progression; drivers do not expect a signal given the surrounding environment (e.g., grassy median, immediate surrounding land uses). |
| Minimize Conflict Points | 0 | The concept maintains the amount of potentially severe and moderately severe crash turning movements as the current configuration (no change). |
| Enhance Pedestrian and Bicyclist Safety | 3 | The concept maintains the total length of pavement crossing for pedestrians and bicyclists (no change). |
| Queuing and Delay | 0 | The at-grade concept would create significant queuing on the OR 126 mainline (queues over 400'). |
| Economic Development | | |
| Regional Future Development | 0 | The concept provides for no reserve capacity (v/c at the intersection is greater than 1.0). |
| Design | | |
| Adherence to Applicable Design Standards | 3 | The concept meets most design standards, including City access spacing standards along 52nd/Highbanks. The skew is barely within the range of acceptability. |

Concept B1: 52nd Street – Expanded Intersection (Table 5-7)

The expanded intersection concept includes the addition of lanes/turn lanes to the existing intersection (an expansion of the intersection). The concept assumes dual eastbound left turn lanes and dual receiving lanes on Highbanks Road. It also assumes separate northbound left turn, through, and right turn lanes, and 3 through lanes in each direction on OR 126. The concept also has a western alignment variant, in which the intersection is moved west of the existing intersection.

TABLE 5-7
52nd Street Intersection, Concept B1, Expanded Intersection

| Criteria | Rating | Explanation |
|---|--------|---|
| Cost | | |
| Cost | 3 | The cost is moderate (expected to be \$3-\$10 million). The cost accounts for realignment and other factors. |
| Phasing and Timing | 5 | The concept results in an “ideal condition,” where v/c meets HDM standard 0.75 by 2025 (v/c at the intersection is 0.73). The concept is very flexible and could be a first step to other improvements. |
| Natural Environment | | |
| Wetlands, Water Quality and Habitat | 5 | The concept has no impact on wetlands, water quality, and habitat. |
| Air Quality | 0 | The concept has significant queue lengths (two over 400') – 425' eastbound left turn, and 475' for the eastbound/westbound through queue. |
| Noise | 0 | The concept is located 0-200' from existing residences (along Highbanks and near G and 52nd). |
| Community Values | | |
| Existing Commercial and Industrial Property Takes | 5 | No takes of existing developed commercial or industrial land are required. |
| Existing Business Access | 5 | No commercial or industrial accesses are located within 200' (City spacing standard) of the intersection. |
| Residential Impacts | 3 | 2 residential property takes are required (north of the intersection). |
| Pedestrian, Bicycle, and Transit Access | 5 | The concept does not affect existing or planned nonmotorized facilities or transit. |
| Impact on Undeveloped Parcels | 5 | No takes of undeveloped commercial or industrial land are required. |
| Transportation Benefits and Performance | | |
| Congestion Improvement and Reduction – Expressway | 5 | The v/c ratio for the intersection is anticipated to be 0.73, which meets OHP and HDM standards. |
| Congestion Improvement and Reduction- Local | 5 | The v/c and LOS for study area intersections meet standards (52nd and Highbanks v/c = 0.46; 52nd and G v/c = 0.05; 52nd and F v/c = 0.05). |
| Improvement to Freight Mobility | 3 | The concept is anticipated to somewhat improve freight mobility. |
| Safety | | |
| Design Consistency and Driver Expectation | 0 | The concept does not provide design and visual cues consistent with roadway progression; drivers do not expect a signal given the surrounding environment (e.g., grassy median, immediate surrounding land uses). |
| Minimize Conflict Points | 0 | The concept maintains the amount of potentially severe and moderately severe crash turning movements as no build. |
| Enhance Pedestrian and Bicyclist Safety | 0 | The concept increases the total length of pavement crossing for pedestrians and bicyclists. |
| Queuing and Delay | 0 | The at-grade concept would create significant queuing on the OR 126 mainline (queues over 400'). |
| Economic Development | | |
| Regional Future Development | 3 | The concept provides for moderate levels of reserve capacity (v/c at the intersection is less than 0.95, but greater than 0.70). |
| Design | | |
| Adherence to Applicable Design Standards | 3 | The concept generally meets design standards, including City access spacing standards along 52nd/Highbanks. The at-grade intersection may be an issue for ODOT at this location. |

Concept B2: 52nd Street – Offset Intersection (Table 5-8)

The offset intersection concept includes two at-grade intersections rather than one intersection (one located north of OR 126 off Highbanks Road and one located south of OR 126 off 52nd Street). The concept assumes dual eastbound left turn lanes and dual receiving lanes on Highbanks Road. This intersection arrangement removes signal phases from the single intersection.

TABLE 5-8
52nd Street Intersection, Concept B2, Offset Intersection

| Criteria | Rating | Explanation |
|---|---------------|---|
| Cost | | |
| Cost | 3 | The cost is moderate (expected to be \$3-\$10 million). The cost accounts for realignment, the addition of a signal, and other factors. |
| Phasing and Timing | 3 | The concept moves toward an "ideal condition," where v/c meets HDM standard 0.75 by 2025 (v/c at the western intersection is 0.75 and at the eastern intersection is 0.70). The concept is fairly flexible and could be a step to other improvements. |
| Natural Environment | | |
| Wetlands, Water Quality and Habitat | 5 | The concept has no impact on wetlands, water quality, and habitat. |
| Air Quality | 3 | The concept has moderate queue lengths (two under 400') – 325' eastbound left turn, and 375' for the eastbound/westbound through queue. |
| Noise | 0 | The concept is located 0-200' from existing residences (along Highbanks and near G and 52nd). |
| Community Values | | |
| Existing Commercial and Industrial Property Takes | 5 | No takes of existing developed commercial or industrial land are required. |
| Existing Business Access | 5 | No commercial or industrial accesses are located within 200' (City spacing standard) of the intersection. |
| Residential Impacts | 4 | 1 residential property take is required (north of the western intersection). |
| Pedestrian, Bicycle, and Transit Access | 5 | The concept does not affect existing or planned nonmotorized facilities or transit. |
| Impact on Undeveloped Parcels | 5 | 1 take of undeveloped commercial or industrial land is required (minimal amount of takes; located south of the eastern intersection). |
| Transportation Benefits and Performance | | |
| Congestion Improvement and Reduction – Expressway | 5 | The v/c ratio for the intersection is anticipated to be 0.75 at the western intersection and 0.70 at the eastern intersection, which meets both OHP and HDM standards. |
| Congestion Improvement and Reduction- Local | 5 | The v/c and LOS for study area intersections meet standards (52nd and Highbanks v/c = 0.46; 52nd and G v/c = 0.05; 52nd and F v/c = 0.05) |
| Improvement to Freight Mobility | 0 | The concept is anticipated to impede freight mobility due to the closely spaced intersections. This may not be properly reflected in the traffic model results. |
| Safety | | |
| Design Consistency and Driver Expectation | 0 | The concept does not provide design and visual cues consistent with roadway progression; drivers do not expect a signal given the surrounding environment (e.g., grassy median, immediate surrounding land uses). |
| Minimize Conflict Points | 0 | The concept is not anticipated to reduce the number of conflict points. |
| Enhance Pedestrian and Bicyclist Safety | 0 | The concept increases the total length of pavement crossing for pedestrians and bicyclists. |
| Queuing and Delay | 0 | The at-grade concept is anticipated to create significant queuing on the OR 126 mainline (queues over 375' as measured by the model, and perhaps longer due to freight traffic). |
| Economic Development | | |
| Regional Future Development | 3 | The concept provides for moderate levels of reserve capacity (v/c at the intersection is less than 0.95, but greater than 0.70). |
| Design | | |
| Adherence to Applicable Design Standards | 0 | The concept meets City access spacing standards along 52nd/Highbanks, but would not be expected to meet ODOT expressway spacing standards. |

Concept B5: 52nd Street – Partial C4zloverleaf Interchange (Table 5-9)

The partial cloverleaf interchange provides a grade-separated alternative for the 52nd Street intersection location. The cloverleaf is located in the southeast quadrant of the interchange. The cloverleaf avoids property impacts on the southwest of the interchange. This concept requires realignment of Highbanks Road to move toward access spacing standards. The concept assumes a single through lane on 52nd Street, dual westbound right turn lanes, and a 4-lane bridge. A variant to this concept would be a traditional diamond interchange design.

TABLE 5-9
52nd Street Intersection, Concept B5, Partial Cloverleaf

| Criteria | Rating | Explanation |
|---|--------|--|
| Cost | | |
| Cost | 0 | The cost requires an interchange structure (anticipated to exceed \$10 million). |
| Phasing and Timing | 3 | The concept results in an “ideal condition,” where v/c meets HDM standard 0.75 by 2025 (v/c at the westbound ramps is 0.41 and at the eastbound ramps is 0.46). The concept could not necessarily be phased in over time. |
| Natural Environment | | |
| Wetlands, Water Quality and Habitat | 5 | The concept has no impact on wetlands, water quality, and habitat. |
| Air Quality | 5 | The concept has relatively short queue lengths – 150’ westbound left turn, and 125’ northbound through queue. |
| Noise | 0 | The concept is located 0-200’ from existing residences (along Highbanks and near G and 52nd). |
| Community Values | | |
| Existing Commercial and Industrial Property Takes | 4 | 1 partial take of existing developed commercial or industrial land is required (eastbound on-ramp). |
| Existing Business Access | 5 | No commercial or industrial accesses are located within 1,320’ (ODOT interchange spacing standard) of the interchange. |
| Residential Impacts | 4 | 1 partial residential property take is required (located north of the interchange). |
| Pedestrian, Bicycle, and Transit Access | 5 | The concept does not affect existing or planned nonmotorized facilities or transit. |
| Impact on Undeveloped Parcels | 3 | The concept requires 3 takes of undeveloped commercial or industrial land (moderate amount of takes; located north and south of the interchange). |
| Transportation Benefits and Performance | | |
| Congestion Improvement and Reduction – Expressway | 5 | The v/c ratio for the intersection is anticipated to be 0.46 at the eastbound ramps and 0.41 at the westbound ramps, which meets OHP and HDM standards. It should be noted that a traditional diamond would also meet both OHP and HDM standards (v/c of 0.56 westbound and 0.41 eastbound). |
| Congestion Improvement and Reduction- Local | 5 | The v/c and LOS for study area intersections meet standards (52nd and Highbanks v/c = 0.46; 52nd and G v/c = 0.05; 52nd and F v/c = 0.05) |
| Improvement to Freight Mobility | 5 | The concept is expected to improve freight mobility. |
| Safety | | |
| Design Consistency and Driver Expectation | 5 | The concept provides design and visual cues consistent with roadway progression and environment. |
| Minimize Conflict Points | 3 | The concept reduces head-on conflicts. |
| Enhance Pedestrian and Bicyclist Safety | 5 | The concept decreases the total length of pavement crossing for pedestrians and bicyclists. |
| Queuing and Delay | 5 | The concept has little possibility of queue into the mainline (queue of 225’ on the eastbound off-ramp). |
| Economic Development | | |
| Regional Future Development | 5 | The concept provides high levels of reserve capacity (v/c < 0.70). |
| Design | | |
| Adherence to Applicable Design Standards | 3 | The concept meets most design standards; it does not meet interchange access spacing standards (9 accesses within 1,320’), but Highbanks Road realignment provides more distance to the first access from the interchange. |

McKenzie Highway (Main Street) Ratings

McKenzie Highway (Main Street) – Future Baseline Condition (No-Build) (Table 5-10)

The future baseline condition concept, or no-build concept, reflects anticipated conditions in 2025 if no additional infrastructure aside from the Bob Straub Parkway and implementation of BRT were to occur. This concept assumes the same McKenzie Highway (Main Street) intersection configuration, number of lanes, and access control as exist today.

TABLE 5-10

McKenzie Highway (Main Street) Intersection, Future Baseline Condition (No Build)

| Criteria | Rating | Explanation |
|---|---------------|--|
| Cost | | |
| Cost | 5 | No cost; the intersection configuration remains as is. |
| Phasing and Timing | 0 | The concept does not move toward an "ideal condition," where v/c meets HDM standard 0.75 by 2025 (v/c at the intersection is 2.50). The concept would be a first step to other improvements. |
| Natural Environment | | |
| Wetlands, Water Quality and Habitat | 5 | The concept has no change in impact on wetlands, water quality, and habitat. |
| Air Quality | 0 | The concept is anticipated to have significant queue lengths. |
| Noise | 0 | The concept is located 0-200' from existing residences (northwest of the intersection). |
| Community Values | | |
| Existing Commercial and Industrial Property Takes | 5 | No takes of existing developed commercial or industrial land are required (no change). |
| Existing Business Access | 0 | 12 commercial or industrial accesses are located within 990' (ODOT highway spacing standard) of the intersection. |
| Residential Impacts | 5 | No takes of residential property are required (no change). |
| Pedestrian, Bicycle, and Transit Access | 5 | The concept does not impact existing or planned nonmotorized facilities or transit (no change). |
| Impact on Undeveloped Parcels | 5 | No takes of undeveloped commercial or industrial land are required (no change). |
| Transportation Benefits and Performance | | |
| Congestion Improvement and Reduction – Expressway | 0 | The v/c ratio for the intersection is anticipated to be 2.50. |
| Congestion Improvement and Reduction- Local | 0 | No significant impacts. |
| Improvement to Freight Mobility | 0 | The concept is anticipated to impede freight mobility because the v/c ratio is anticipated to be very high, indicating high levels of congestion. |
| Safety | | |
| Design Consistency and Driver Expectation | 5 | The concept provides appropriate design and visual cues consistent with the terminus of an expressway. |
| Minimize Conflict Points | 0 | The concept maintains the amount of potentially severe and moderately severe crash turning movements as the current configuration (no change). |
| Enhance Pedestrian and Bicyclist Safety | 3 | The concept maintains the total length of pavement crossing for pedestrians and bicyclists (no change). |
| Queuing and Delay | 0 | The at-grade concept is expected to create significant queuing on the OR 126 mainline (queues over 400'). |
| Economic Development | | |
| Regional Future Development | 0 | The concept provides for no reserve capacity (v/c at the intersection is greater than 1.0). |
| Design | | |
| Adherence to Applicable Design Standards | 0 | The concept meets most design standards, but does not move toward meeting access spacing standards (12 accesses within 990'). |

Concept C1: McKenzie Highway (Main Street) – Expanded Intersection (Table 5-11)

The expanded intersection concept includes the addition of lanes/turn lanes to the existing intersection (an expansion of the intersection). The concept assumes triple southbound left turn lanes and an expansion to triple through lanes on McKenzie Highway (Main Street), along with dual northbound left turn lanes and dual through lanes on OR 126/Bob Straub Parkway. It is not likely that further expansion at this intersection could improve the operational analysis.

TABLE 5-11

McKenzie Highway (Main Street) Intersection, Concept C1, Expanded Intersection

| Criteria | Rating | Explanation |
|---|---------------|--|
| Cost | | |
| Cost | 5 | The cost is minimal (expected to be less than \$3 million). The cost accounts for realignment, the addition of a signal, and other factors. |
| Phasing and Timing | 3 | The concept does not move toward an "ideal condition," where v/c meets HDM standard 0.75 by 2025 (v/c at the intersection is 0.96). The concept itself is not phaseable; though it should be noted that it could function as a step toward phasing for an alternate concept. |
| Natural Environment | | |
| Wetlands, Water Quality and Habitat | 5 | The concept does not impact wetlands, water quality, or habitat. |
| Air Quality | 0 | The concept is anticipated to have significant queue lengths (450' southbound left turn; 525' eastbound through; 400' northbound/southbound through). |
| Noise | 0 | The concept is located 0-200' from existing residences (northwest of the intersection). |
| Community Values | | |
| Existing Commercial and Industrial Property Takes | 5 | No takes of existing developed commercial or industrial land are required. |
| Existing Business Access | 0 | 12 commercial or industrial accesses are located within 990' (ODOT highway spacing standard) of the intersection. |
| Residential Impacts | 5 | No takes of residential property are required. |
| Pedestrian, Bicycle, and Transit Access | 3 | The concept somewhat impacts existing or planned nonmotorized facilities or transit. |
| Impact on Undeveloped Parcels | 5 | No takes of undeveloped commercial or industrial land are required. |
| Transportation Benefits and Performance | | |
| Congestion Improvement and Reduction – Expressway | 3 | The v/c ratio for the intersection is anticipated to be 0.96 (higher than standards, but less than 1.0). |
| Congestion Improvement and Reduction- Local | 0 | No significant impacts. |
| Improvement to Freight Mobility | 3 | The concept is not anticipated to significantly affect freight mobility. |
| Safety | | |
| Design Consistency and Driver Expectation | 3 | The concept provides somewhat appropriate design and visual cues consistent with the terminus of an expressway. |
| Minimize Conflict Points | 0 | The concept maintains the amount of potentially severe and moderately severe crash turning movements as the current configuration. |
| Enhance Pedestrian and Bicyclist Safety | 3 | The concept does not significantly increase the total length of pavement crossing for pedestrians and bicyclists. |
| Queuing and Delay | 0 | The at-grade concept is expected to create significant queuing on the OR 126 mainline (queues over 400'). |
| Economic Development | | |
| Regional Future Development | 0 | The concept provides for minimal reserve capacity (v/c at the intersection is greater than 0.95 at 0.96). |
| Design | | |
| Adherence to Applicable Design Standards | 0 | The concept meets most design standards, but does not move toward meeting access spacing standards (12 accesses within 990'). |

Concept C3: McKenzie Highway (Main Street) – 3-Lane Roundabout (Table 5-12)

The 3-lane roundabout assumes 3 lanes. The concept assumes triple lanes on each approach and on each exit. This location for a roundabout does not meet many of ODOT's and the HDM requirements, such as pedestrian, freight, and signal concerns for example.

TABLE 5-12

McKenzie Highway (Main Street) Intersection, Concept C3, 3-Lane Roundabout

| Criteria | Rating | Explanation |
|---|---------------|--|
| Cost | | |
| Cost | 3 | The cost is anticipated to be moderate (expected to be \$3-\$10 million). |
| Phasing and Timing | 0 | The concept does not move toward an "ideal condition," where v/c meets HDM standard 0.75 by 2025 (v/c at the intersection is 1.52). The concept itself is not easily phaseable or able to be phased. |
| Natural Environment | | |
| Wetlands, Water Quality and Habitat | 5 | The concept does not impact wetlands, water quality, or habitat. |
| Air Quality | 0 | The concept is anticipated to have significant queue lengths. |
| Noise | 0 | The concept is located 0-200' from existing residences (northwest of the intersection). |
| Community Values | | |
| Existing Commercial and Industrial Property Takes | 5 | No takes of existing developed commercial or industrial land are required. |
| Existing Business Access | 0 | 12 commercial or industrial accesses are located within 990' (ODOT highway spacing standard) of the intersection. |
| Residential Impacts | 5 | No takes of residential property are required. |
| Pedestrian, Bicycle, and Transit Access | 0 | The concept impacts the Thurston transit facility, and bike facilities on McKenzie Highway (Main Street). |
| Impact on Undeveloped Parcels | 5 | No takes of undeveloped commercial or industrial land are required. |
| Transportation Benefits and Performance | | |
| Congestion Improvement and Reduction – Expressway | 0 | The v/c ratio for the intersection is anticipated to be 1.52. |
| Congestion Improvement and Reduction- Local | 0 | No significant impacts. |
| Improvement to Freight Mobility | 0 | The concept is anticipated to impede freight mobility; the v/c ratio indicates high levels of congestion during the peak period. |
| Safety | | |
| Design Consistency and Driver Expectation | 5 | The concept provides appropriate design and visual cues consistent with the terminus of an expressway. |
| Minimize Conflict Points | 3 | The concept reduces the amount of potentially severe and moderately severe crash turning movements (sideswipe and rear-end still possible). |
| Enhance Pedestrian and Bicyclist Safety | 0 | The concept increases the total length of pavement crossing for pedestrians and bicyclists. |
| Queuing and Delay | 0 | The at-grade concept is anticipated to create significant queuing on the OR 126 mainline (queues over 400'). |
| Economic Development | | |
| Regional Future Development | 0 | The concept does not provide for reserve capacity (v/c is more than 1.0). |
| Design | | |
| Adherence to Applicable Design Standards | 0 | The concept does not meet certain ODOT roundabout guidelines, and does not move toward meeting access spacing standards (12 accesses within 990'). |

Concept C7: McKenzie Highway (Main Street) – Single-Point Diamond Interchange (Includes Tight Diamond, and “Reverse” Single-Point Diamond variants) (Table 5-13)

The grade-separated interchange concept provides an alternative that is oriented toward moving traffic north and south. Operational analysis was performed on the single-point diamond concept. This concept assumes triple eastbound and westbound through lanes on McKenzie Highway (Main Street), dual northbound left turn lanes, and triple southbound left turn lanes. Variants to this concept include the Tight Diamond variant,⁶ or the “reverse” single-point diamond interchange, in which the north-south through movement is elevated over McKenzie Highway (Main Street) (where the intersection remains).

TABLE 5-13

McKenzie Highway (Main Street) Intersection, Concept C7, Single-Point Diamond Interchange (Grade-Separated Concept)

| Criteria | Rating | Explanation |
|---|--------|---|
| Cost | | |
| Cost | 0 | The cost is anticipated to be relatively high (to exceed \$10 million). |
| Phasing and Timing | 5 | The concept moves toward an “ideal condition,” where v/c meets HDM standard 0.75 by 2025 (v/c at the SPDI intersection is 0.73). The concept could be phased. |
| Natural Environment | | |
| Wetlands, Water Quality and Habitat | 5 | The concept does not impact wetlands, water quality, or habitat. |
| Air Quality | 3 | The concept is anticipated to have moderate queue lengths (350’ southbound left turn; 475’ eastbound through). |
| Noise | 0 | The concept is located 0-200’ from existing residences (to the northwest). |
| Community Values | | |
| Existing Commercial and Industrial Property Takes | 5 | No takes of existing developed commercial or industrial land are required. |
| Existing Business Access | 0 | 23 commercial or industrial accesses are located within 1,320’ (ODOT interchange spacing standard) of the interchange ramp terminal. |
| Residential Impacts | 2 | 2 residences are displaced (northwest quadrant). |
| Pedestrian, Bicycle, and Transit Access | 5 | The concept does not affect existing or planned nonmotorized facilities, but affects the Thurston transit facility. The concept provides a bridge. |
| Impact on Undeveloped Parcels | 5 | No takes of undeveloped commercial or industrial land are required. |
| Transportation Benefits and Performance | | |
| Congestion Improvement and Reduction – Expressway | 5 | The v/c ratio for the intersection is anticipated to be 0.73, which meets OHP and HDM standards. |
| Congestion Improvement and Reduction- Local | 0 | No significant impacts. |
| Improvement to Freight Mobility | 5 | The concept is anticipated to improve freight mobility. |
| Safety | | |
| Design Consistency and Driver Expectation | 5 | The concept is consistent with the terminus of an expressway if designed appropriately. |
| Minimize Conflict Points | 3 | The concept reduces the amount of potentially severe and moderately severe crash turning movements (removes severe conflicts). |
| Enhance Pedestrian/Bicyclist Safety | 4 | The concept does not increase the total length of pavement for crossing. |
| Queuing and Delay | 5 | The concept has little possibility of queue into the mainline (queue of 350’ on the southbound off-ramp). |
| Economic Development | | |
| Regional Future Development | 3 | The concept provides for moderate levels of reserve capacity (v/c > 0.70). |
| Design | | |
| Adherence to Applicable Design Standards | 5 | The concept meets most design standards, and moves toward meeting access spacing standards (relocation of access at the transit center). |

⁶ A diamond interchange would improve operational performance (v/c of 0.69 at northbound ramps and 0.71 at southbound ramps with triple southbound left turns).

Concept C8: McKenzie Highway (Main Street) – Grade-Separated Left Turn (Table 5-14)

The grade-separated left turn concept provides a grade-separated south to east left turn intended to facilitate the movement of through traffic, including freight. The concept assumes that the flyover remains elevated until east of 58th Street to avoid merging, weaving, and capacity issues. The concept also assumes triple northbound, southbound, eastbound and westbound through lanes, along with triple southbound left-turn lanes and dual northbound left-turn lanes.

TABLE 5-14

McKenzie Highway (Main Street) Intersection, Concept C8, Grade-Separated Left Turn

| Criteria | Rating | Explanation |
|---|---------------|---|
| Cost | | |
| Cost | 0 | The cost is anticipated to be relatively high (to exceed \$10 million). |
| Phasing and Timing | 3 | The concept does not move toward an "ideal condition," where v/c meets HDM standard 0.75 by 2025 (v/c at the intersection is 0.94). The concept could be phased in over time. |
| Natural Environment | | |
| Wetlands, Water Quality and Habitat | 5 | The concept does not impact wetlands, water quality, or habitat. |
| Air Quality | 3 | The concept is anticipated to have moderate to significant queue lengths (500' eastbound through; 425' northbound and southbound through; 200' southbound left turn). |
| Noise | 0 | The concept is located 0-200' from existing residences (northwest of the intersection). |
| Community Values | | |
| Existing Commercial and Industrial Property Takes | 4 | The concept requires 1 take of existing developed commercial or industrial land (east of the intersection). However, the impact of the ramp on properties southeast of McKenzie Highway (Main Street) could be significant. |
| Existing Business Access | 0 | 12 commercial or industrial accesses are located within 990' (ODOT intersection spacing standard on Main) of the intersection. |
| Residential Impacts | 5 | No residential takes are required. |
| Pedestrian, Bicycle, and Transit Access | 3 | The concept does not impact existing or planned nonmotorized facilities, but impacts the Thurston transit facility. |
| Impact on Undeveloped Parcels | 5 | No takes of undeveloped commercial or industrial land are required. |
| Transportation Benefits and Performance | | |
| Congestion Improvement and Reduction – Expressway | 3 | The v/c ratio for the intersection is anticipated to be 0.94, which is higher than standard, but less than 1.0). |
| Congestion Improvement and Reduction- Local | 0 | No significant impacts. |
| Improvement to Freight Mobility | 5 | The concept is anticipated to improve freight mobility. |
| Safety | | |
| Design Consistency and Driver Expectation | 5 | The concept is consistent with the terminus of an expressway and provides south-east mobility per the heaviest turning movement. |
| Minimize Conflict Points | 0 | The concept maintains the amount of potentially severe and moderately severe crash turning movements. |
| Enhance Pedestrian and Bicyclist Safety | 3 | The concept maintains the total length of pavement crossing for pedestrians and bicyclists. |
| Queuing and Delay | 5 | The concept has little possibility of queue into the mainline. |
| Economic Development | | |
| Regional Future Development | 3 | The concept provides for moderate reserve capacity (v/c is between 0.70 and 0.95). |
| Design | | |
| Adherence to Applicable Design Standards | 3 | The concept meets most design standards, and moves toward meeting access spacing standards (deletion of access at the transit center and potential consolidation near the columns required to support the grade-separated structure). |

Concept C9: McKenzie Highway (Main Street) – Loop Ramp (Table 5-15)

The loop ramp concept is oriented to providing a more direct movement from southbound OR 126 to eastbound McKenzie Highway (Main Street), the highest volume directional movement during the p.m. peak hour. The concept assumes triple through lanes on McKenzie Highway (Main Street) in this area. The southbound on-ramp to the Bob Straub Parkway is a drop lane, and the southbound off-ramp from Bob Straub Parkway is an add lane and becomes the third through lane on McKenzie Highway (Main Street). With the drop lane, the loop ramp can then become a free-flow movement that becomes the third through lane beyond the loop ramp. The concept also assumes dual northbound left-turn lanes at the northbound Bob Straub Parkway off-ramp signal and a protected left-turn phase to accommodate eastbound to northbound maneuvers.

TABLE 5-15
McKenzie Highway (Main Street) Intersection, Concept C9, Loop Ramp

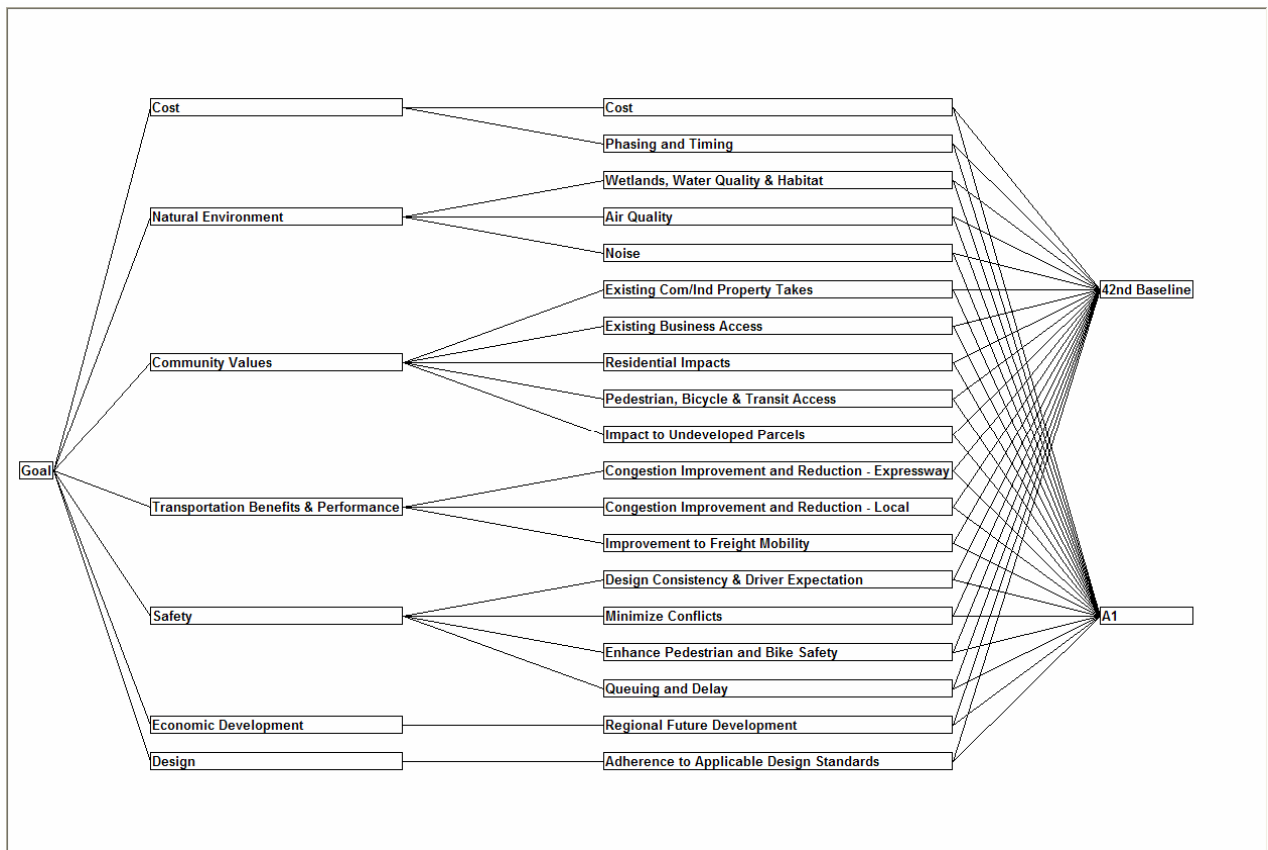
| Criteria | Rating | Explanation |
|---|--------|---|
| Cost | | |
| Cost | 0 | The cost is anticipated to be relatively high (to exceed \$10 million). |
| Phasing and Timing | 3 | The concept moves toward an "ideal condition," where v/c meets HDM standard 0.75 by 2025 (signal operates at 0.67 V/C). It would be difficult to phase this concept. |
| Natural Environment | | |
| Wetlands, Water Quality, and Habitat | 5 | The concept does not affect wetlands, water quality, or habitat. |
| Air Quality | 3 | The concept is anticipated to have moderate queue lengths (325' eastbound through queue). |
| Noise | 0 | The concept is located 0-200' from existing residences (northwest). |
| Community Values | | |
| Existing Commercial and Industrial Property Takes | 5 | No takes of existing developed commercial or industrial land are required. |
| Existing Business Access | 0 | 23 commercial or industrial accesses are located within 1,320' (ODOT interchange spacing standard) of the interchange ramp terminal. |
| Residential Impacts | 2 | Residential takes may be required. |
| Pedestrian, Bicycle, and Transit Access | 3 | The concept impacts the Thurston transit facility and the bicycle facility along McKenzie Highway (Main Street). |
| Impact on Undeveloped Parcels | 5 | No takes of undeveloped commercial or industrial land are required. |
| Transportation Benefits and Performance | | |
| Congestion Improvement and Reduction – Expressway | 5 | The v/c ratio for the McKenzie Highway (Main Street) /OR 126 interchange (signalized northbound off-ramp) is anticipated to be 0.70, which meets OHP and HDM standards. The stop or yield controlled movements within this concept all operate with a v/c ratio better than 0.70. |
| Congestion Improvement and Reduction- Local | 0 | No significant impacts. |
| Improvement to Freight Mobility | 5 | The concept is anticipated to improve freight mobility. |
| Safety | | |
| Design Consistency and Driver Expectation | 5 | The concept is consistent with the terminus of an expressway if designed appropriately. |
| Minimize Conflict Points | 3 | The concept moderately reduces the amount of potentially severe and moderately severe crash turning movements. |
| Enhance Pedestrian and Bicyclist Safety | 3 | The concept maintains the total length of pavement crossing for pedestrians and bicyclists. |
| Queuing and Delay | 5 | The concept has little possibility of queue into the mainline |
| Economic Development | | |
| Regional Future Development | 5 | The concept provides for a high level of reserve capacity (v/c = 0.67). |
| Design | | |
| Adherence to Applicable Design Standards | 5 | The concept meets most design standards, and moves toward meeting access spacing standards (relocation of access at the transit center). |

5.3.4 Detailed Screening Results

Once agreed upon by the PMT, the weightings and ratings were entered into Criterium DecisionPlus software to display results. Figure 5-1 displays the interaction between the layers of criteria, as included in the software package. At its most basic level, the software works with weighted averages and results in graphs that show how each design concept scored relative to the no-build and to one another, as well as the strengths and weaknesses of each design concept in terms of the criteria.

It should be noted that the software results were used as a tool for the PMT to make a decision. Differences of a few percentage points do not matter, and the design concepts being forwarded to Phase 3 of the EMP will all undergo further analysis; therefore, the specific order or scores of the design concepts should not be assumed final.

FIGURE 5-1
Criteria DecisionPlus Software Structure



Figures 5-2, 5-3, and 5-4 show the final scores for the design concepts according to the PMT-approved weightings and ratings of criteria.

FIGURE 5-2
42nd Street Design Concept Results

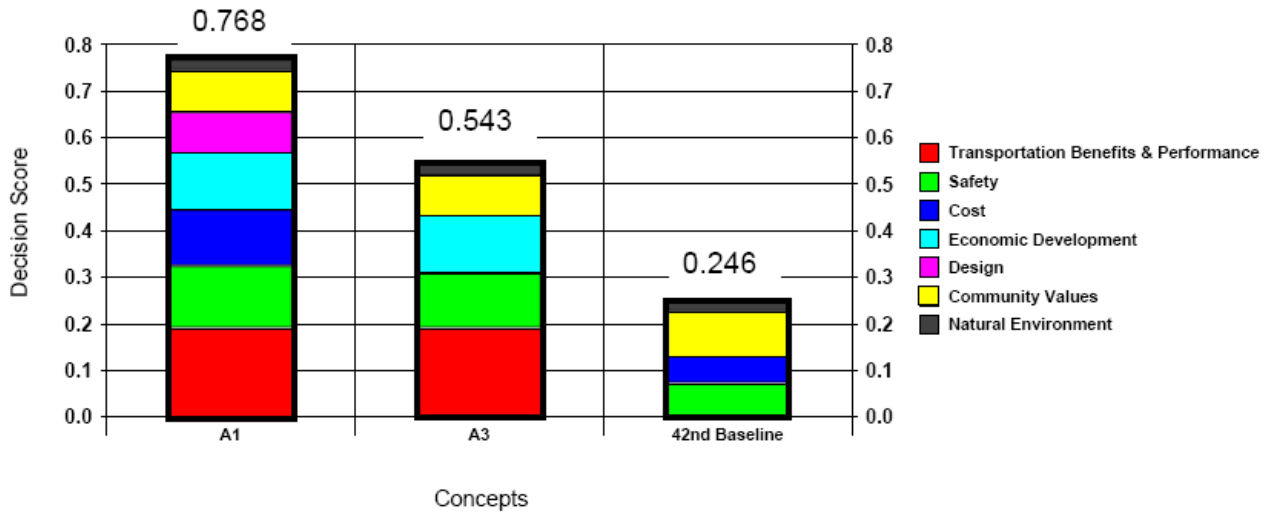


FIGURE 5-3
52nd Street Design Concept Results

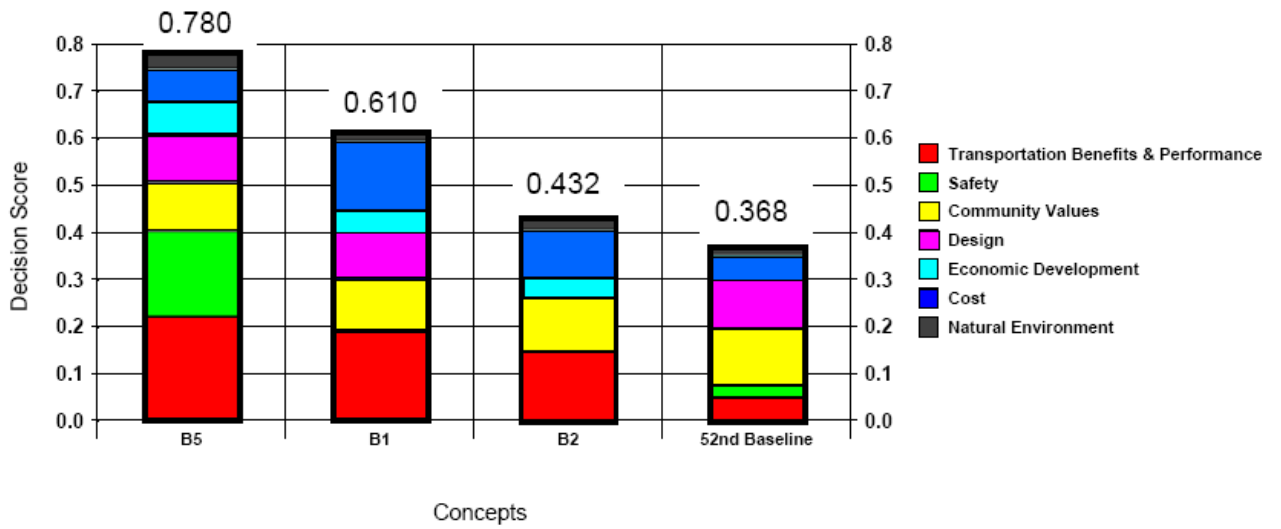
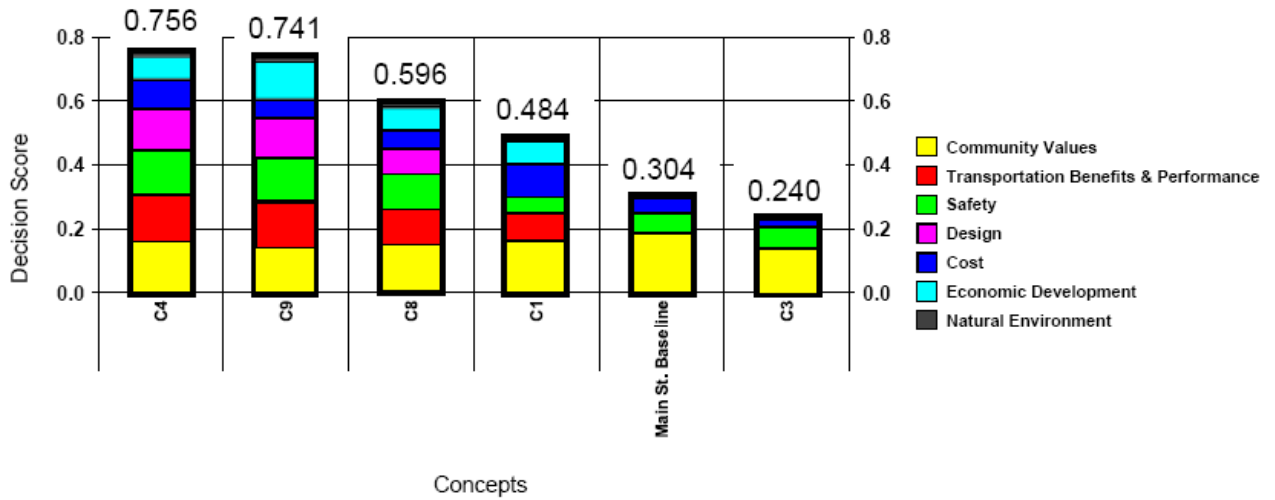


FIGURE 5-4
McKenzie Highway (Main Street) Design Concept Results



5.4 Recommendations

The analysis results from the screening resulted in the following recommendations for design concepts for further Phase 3 analysis:

42nd Street Interchange

- *Concept A1*: Folded Diamond Interchange (Includes South Access and Olympic Access variants)
- *Concept A3*: Tight Diamond Interchange (Includes Single-Point Diamond Interchange and Limited Access variants)

52nd Street Intersection

- *Concept B1*: Expanded Intersection
- *Concept B5*: Partial Cloverleaf Interchange (Includes Traditional Diamond variant)

McKenzie Highway (Main Street) Intersection

- *Concept C1*: Expanded Intersection
- *Concept C4*: Grade-Separated Interchange (Includes Single-Point Diamond, Tight Diamond, and “Reverse” Single-Point Diamond variants)
- *Concept C9*: Loop Ramp (Includes 58th Street variant)

5.5 Other Recommendations for Phase 3

The PMT identified several items in addition to design concepts for evaluation during Phase 3. One observation was that the McKenzie Highway (Main Street) and 58th Street intersection would need to be included in the development of a solution for the OR 126 and McKenzie Highway (Main Street) location, due to its proximity. Several PMT members also noted that access management plans and local circulation plans will need to be implemented at each access location along the OR 126 Expressway corridor in conjunction with interchange/intersection design and policy.

Some PMT members expressed concern with the planning horizon (2025) as well as the lack of queuing analysis during Phase 2. Phase 3 will update traffic data to year 2035 to ensure a 20-year planning horizon, and will include more detailed operational analysis such as queue analysis.

6.0 Policy Framework Options

6.1 Introduction

It is critical when proposing large capital improvements, such as building or reconfiguring an interchange or intersection, that policies are developed to protect and ensure wise use of public investments in the transportation system.

Without implementing policies – without a connection between land use and transportation – it is possible that infrastructure improvements could be filled to capacity before the planned lifetime of the improvement, diminishing the effectiveness of the public investment. This has state, regional, and local impacts, as premature saturation of an improved intersection/interchange equates to reduced mobility for through-travelers, businesses, and residents. Policies help state and local jurisdictions ensure that any improvements will help minimize congestion and potential for crashes experienced by travelers.

This section discusses the types of potential policy concepts that could be refined and implemented to accompany the physical improvement recommendations at the 42nd Street, 52nd Street, and McKenzie Highway (Main Street) locations along OR 126. These concepts have been identified, researched, and documented so that they may also be applicable to other locations along the OR 126 Expressway corridor, including Pioneer Parkway and Mohawk Boulevard. The policy concepts summarized in this report are intended to enable ODOT, the City of Springfield, and Lane County in the preservation of the OR 126 Expressway corridor's function and operation over the 20-year planning horizon from build year, while considering the land use context of the corridor.

Future phases of the project will refine these concepts and specifically identify appropriate application of the concepts for the OR 126 corridor.

6.2 Potential Policy Frameworks

- Two prime categories of policy frameworks relevant to the OR 126 EMP are explored over the following pages: access management concepts and land use/transportation management concepts, including local roadway circulation. These framework categories comprise the main substance of Oregon's IAMPs and EMPs.

- An IAMP is an agreement between the state (ODOT) and local jurisdictions on how to manage the large public investment made for a new or improved interchange. The IAMP typically is a package of policies and actions that address how best to protect the interchange's function.⁷ An IAMP identifies necessary transportation improvements, land use, and access management actions and identifies phasing for improvements and state and local policy, plan, or ordinance changes. IAMPs in other jurisdictions in the state have included measures to prevent excessive transportation facility-induced development in the vicinity of an interchange. Under current IAMP guidelines, local governments adopt the IAMP or pieces of the IAMP; the local government generally adopts the IAMP as a refinement or amendment to its TSP, the transportation element of the comprehensive plan. OTC adopts IAMPs as State Highway facility plans.⁸

IAMPs consider and protect the structure design life of an interchange; which can the life of the structure may be up to 50 years. Although traffic volumes are typically projected for a future 20-25 years into the future with reasonable certainty. The IAMP may contain specific actions to ensure that local plans, zoning, development code and the planned local street network are consistent with and complement the function and design of the interchange. It is expected that IAMPs will be updated periodically over time.

An EMP is a long-range plan that identifies needed improvements to a specific expressway and employs strategies to ensure that those public improvements are protected in the long term.

OR 126 is classified by the OHP as an Expressway and as a Freight Route. An Expressway is a special road designation proffered by the OTC that recognizes the importance of a route for freight movement, regional traffic, and intrastate travel, in addition to the highway's use as a local route. The OHP identifies several classifications of state facilities, which all have specific guidelines and/or standards. Expressways are a subset of OHP highway classifications that provide for high-speed, high-volume travel between cities and connections to ports and major recreation areas with minimal interruptions. A secondary function of Expressways is to provide for long distance intra-urban travel in metropolitan areas. Freight Routes are a system of state highways that facilitate efficient and reliable freight movement between and within states. Freight Routes are primarily state highways that carry a significant tonnage of freight by truck and/or serve as primary freight connections to urban areas and other states.

In the influence area of the OR 126 Expressway is the McKenzie Highway, locally known as Main Street. The McKenzie Highway is classified as a Statewide Highway on the National Highway System. The Central Lane Metropolitan Planning Organization classifies 42nd Street and High Banks Road (north side of 52nd Street) as minor arterials and 52nd street as a collector.

The OR 126 EMP will ultimately include an IAMP for each interchange proposed along the OR 126 Expressway corridor. Any at-grade solutions would require access management plans, per Oregon Administrative Rules (OAR) 734-051-0010, Highway Approaches, Access

⁷ Interchange function is how an interchange performs in terms of safely and efficiently moving traffic and people. An interchange's function is dependent in part on its classification and location.

⁸ Note: Any changes in IAMP guidelines or practices will be monitored throughout the remainder of the OR 126 EMP process.

Control Spacing Standards and Medians. Appendix H depicts the relevant ODOT spacing standards.

This section is organized in the two types of policy concepts: access management and land use/transportation management.

6.2.1 Access Management

Access Management Goals

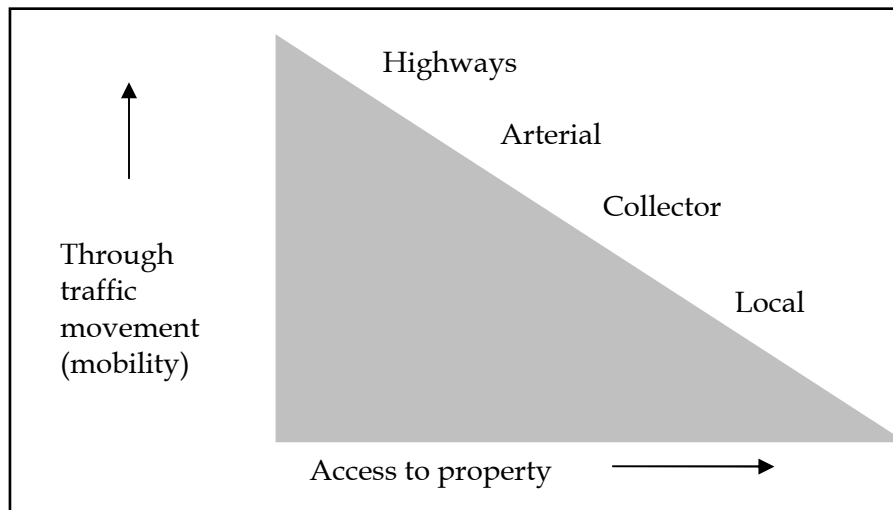
ODOT's Access Management Unit's website,⁹ states the goals of access management are as follows:

- Reduce congestion
- Improve safety
- Lessen the need for highway widening
- Conserve energy
- Reduce air pollution

Access management improves safety and traffic flow by reducing the number of turns onto and off of the highway. Drivers slow down to make turns off the highway and accelerate after making a turn onto the highway. The differences in travel speed caused by turning vehicles interrupt the flow of traffic and increase the frequency and severity of crashes.

As illustrated in Figure 6-1, access management balances mobility with access and varies by roadway classification.

FIGURE 6-1
Through Traffic Movement Versus Access to Property



⁹ http://www.oregon.gov/ODOT/HWY/ACCESSMGT/about_us.shtml (accessed 8/2/06).

Access management also promotes economic development. There are two ways that this happens: through improved safety and reduced congestion. Accidents create unexpected delays for the persons involved, and also for vehicles traveling on the roadway behind the crash site. Cars involved in an accident often block part of the roadway, and even if this does not occur, travel lanes may be used for emergency vehicles to access a crash site. This creates a bottleneck, limiting the ability for other vehicles to continue at normal speeds. Lower accident rates mean fewer unexpected delays, which equate to greater travel time reliability. This reliability is paramount to the movement of goods and travelers through a city or through the region. Similarly, congestion increases vehicle delay, which affects overall travel times. Reduced congestion achieved through access management concepts leads to reduced travel times – trucks and people get to their destination faster. For businesses, this equates to lower costs and greater productivity.

Access management offers a set of mechanisms to protect the long-term functionality of infrastructure investments, and an opportunity to coordinate land use and transportation decisions that could affect the function of a highway or interchange. Controlled, consolidated access points in the vicinity of an interchange, for example, channel traffic through fewer approach points in a more organized and consistent manner than if access points consisted of individual driveways.

ODOT and local governments have the authority to control access to transportation facilities to preserve the function of a facility – ensuring that it is not overly congested – thus making access management an important tool. ODOT and Lane County have adopted access management standards for different classifications of roadways. Generally, the more traffic a roadway is expected to carry, the longer the distance required between accesses. The City of Springfield has adopted block length standards for some classifications of roadways. Often, local jurisdictions also have adopted access management standards.

Access Management Plans

An access management plan is an agreement between ODOT and local governments on how to manage access along transportation facilities. To implement state access management standards and policies, ODOT works with local governments to develop an access management plan or an access management component in comprehensive plans, corridor plans, and/or TSPs involving the state and local system.

Access spacing standards are defined by the Oregon Administrative Rules (OAR) 734-051. The applicable standards for the OR 126 Expressway corridor are listed as Tables 7 and 8 of the access spacing standards. These are provided in Appendix H of this report. The OAR 734-051 access spacing standards specify a goal for public and private approaches to be at least 1,320 feet from all interchange ramp terminals. All highway or interchange construction or modernization projects in Oregon must either comply with the access spacing standards listed in OAR 734-051, or demonstrate that the project will improve access spacing conditions over what currently exists, moving in the direction of the access management spacing standards.

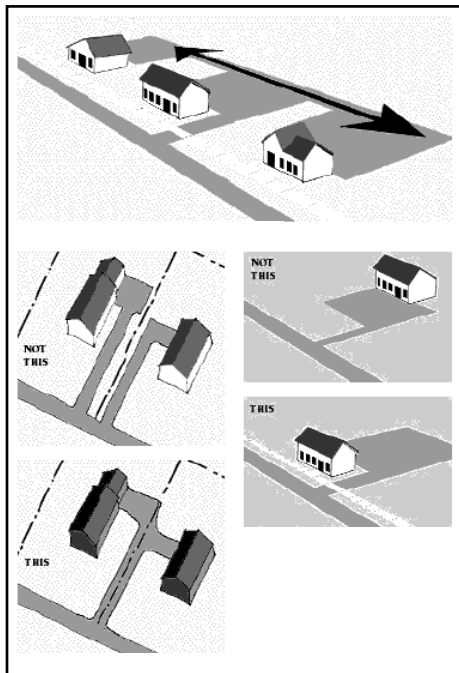
Access Management Concepts

Access management plans typically include combinations of access management concepts to balance traffic movement needs, property rights, and property access. Local jurisdictions are part of the team that produces access management plans, and, if the plan is an element of an IAMP, local jurisdictions adopt the access management provisions as part of the IAMP adoption process, often as part of city code or plans or by reference. This section describes specific access management concepts that could be employed at access locations along the OR 126 Expressway corridor.

1. Close or Relocate Approaches

This concept terminates or relocates direct access to and from a particular property and either a state highway or a local street. Access termination is generally obtained either through purchase of the approach (relocation of access) or purchase of the property. Purchase of the approach alone is generally more desirable, and is accomplished when reasonable alternate access is available via the local road network. The approach is then relocated from the state highway or local arterial to the local road network. Turns that were originally made directly to and from the highway or interchange crossroad are now made to and from an appropriately spaced local road.¹⁰ Approach closures where alternative access is available are often a type of short-term access decision for a highway improvement project.

FIGURE 6-2
Examples of Methods to Consolidate or Improve Approaches



In areas where reasonable alternate access is not available, the property can be purchased in order to close approaches. Because property acquisition can be sensitive, this action is typically a long-term access decision, reserved for cases where the closure of the approach is critical and alternative solutions are not able to be identified. One alternative long-term action is construction of a frontage road (see item 4 below).

The Fort Hill IAMP (draft as of October 2006) included the purchase of several highway approaches on the south side of OR 18/22 (Salmon River Highway). Reasonable alternative access to the highway was available via the Yamhill River Road, located south of and parallel to OR 18/22 through the project area. Properties between the two roads had driveway access onto Yamhill River Road, and Yamhill River Road connected with OR 18/22 at the new Fort Hill Interchange.

¹⁰ The 1,320-foot spacing standard applies both to highway approaches in the vicinity of an interchange, as well as to crossroads intersecting highways via interchanges, although implementation of standards to crossroads is done at the discretion of the local jurisdiction. This standard applies only to interchange areas; for intersection improvements, the crossroad standards (ODOT or local) apply.

2. Consolidate Approaches

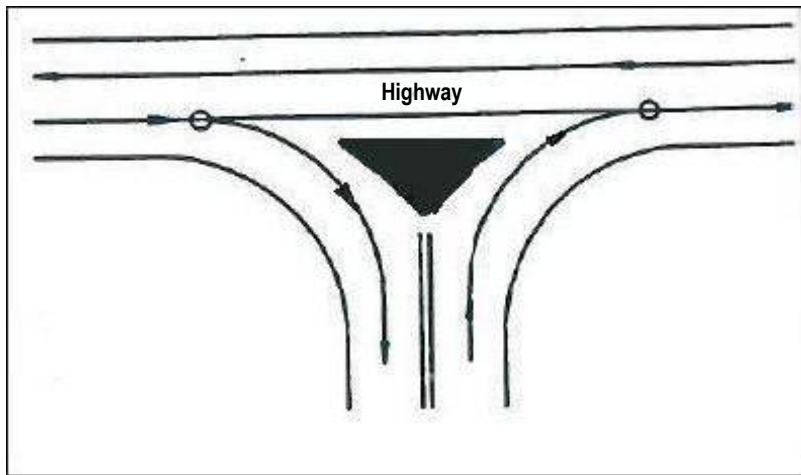
Consolidating approaches reduces the number of driveways used to serve one or several parcels. This concept is typically employed when one parcel has multiple driveways, or when two or more parcels are closely spaced and each have separate driveways. Figure 6-2 illustrates this concept.

Several residential parcels along OR 218 in Dallas, OR have multiple driveways. The access management plan prepared for the TSP recommended consolidating these driveways so that only one access to and from each individual property was allowed.

3. Restrict Approach Access

One option to managing access, typically employed when no alternative access is available to a particular parcel through the local roadway network, is to restrict access to right-in, right-out, disallowing, left turns to and from the highway or interchange crossroad. Restricting access reduces the number of potential conflict points for a given area, leading to improved safety. This concept is sometimes, though not always, employed in conjunction with the construction of a nontraversable median (see Concept 7). However, access can also be restricted to right-in and right-out only using right-only or no left turn signage, or through use of a driveway channelizing island. A driveway channelizing island, illustrated in Figure 6-3, is a triangular raised island placed in a driveway or roadway to channelize traffic and discourage left turns. Channelizing islands are more prevalent on local or collector streets, though are sometime employed on arterials in conjunction with a nontraversable median.

FIGURE 6-3
Example of a Channelizing Island Designed to Discourage Left Turns In and Out



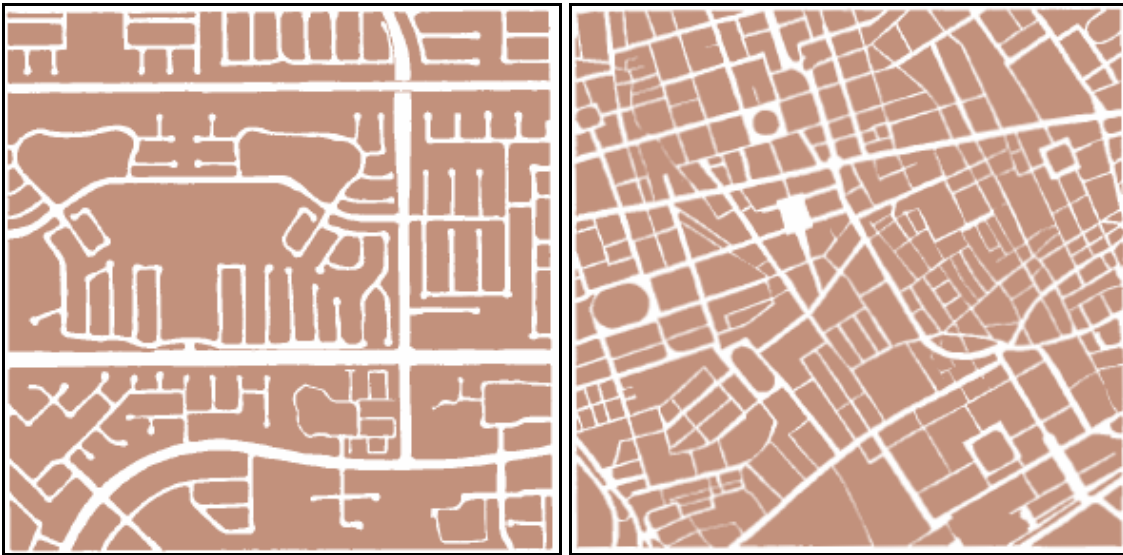
The I-5/Woodburn IAMP included the right-in, right-out access management strategy to maintain traffic flow on and to limit access to OR 219. A nontraversable median will be extended west of Old Arney Road to make it a right-in, right-out only road, and to reduce the number of driver attempts at mid-block U-turns on OR 219. East of I-5, OR 214 would have a median

barrier that would eliminate all private road approaches. Lawson Way, which intersects OR 214, would be limited to right-in turns only.

4. Improve Local Roadway Circulation

The primary purpose of a local street network is to serve short-distance trips made within a city. One way to protect the design life of an interchange, or to increase the effectiveness of improvements made along a highway, is to also make improvements to the local arterial and collector grid network. Improvements to the local grid network could include improvements to existing intersections, improvements to existing local roads, extending local roads to connect with other local roads to extend the local arterial and collector grid lines, and constructing new local arterials and collectors (see Figure 6-4 for examples). ODOT and local jurisdictions work with each other to identify improvements to the local street network that would protect the design life of an interchange or state/local roadway system.

FIGURE 6-4
Street Networks: Curvilinear vs. Linear Patterns



Note: A street network with few intersections (left) concentrates trips onto the main arterial or highway, whereas a local street grid with more intersections (right) allows local trips to avoid using the highway (Photo and caption from ODOT Transportation and Growth Management Program).

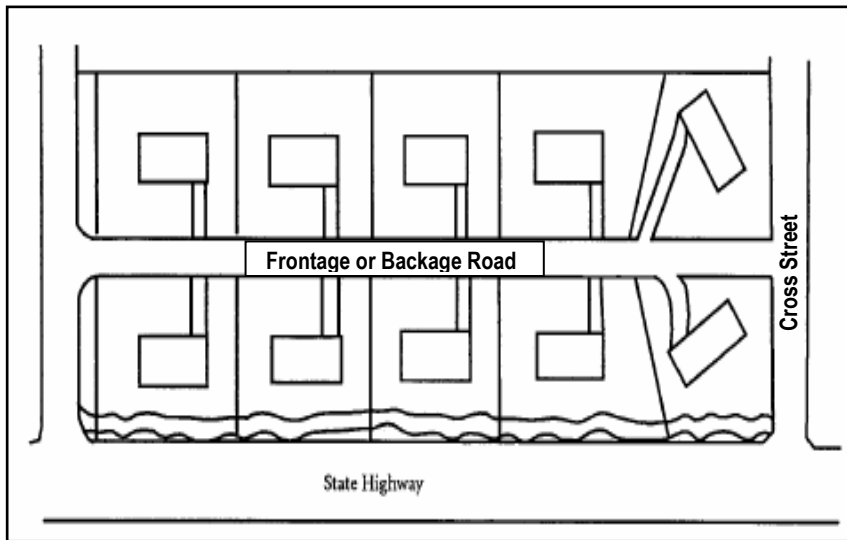
The Jackson School Road IAMP recommends that the City of North Plains improve their local roadway network concurrently with expansion of their Urban Growth Boundary (UGB). The plan calls for the City of North Plains to amend its TSP to identify a new arterial or collector with an east-west orientation north of US 26. The new arterial or collector would provide residents and employees in the expansion area with quick access to west North Plains, providing an alternative to using US 26.

5. Frontage or Backage Roads

Frontage and backage roads provide alternative access for public and private approaches through one or more consolidated access points, usually a cross road (Figure 6-5). Creating frontage and backage roads for property access to the highway or interchange crossroad reduces the number of conflict points and travel times on the highway or interchange crossroad. ODOT and local jurisdictions will often coordinate together to identify the appropriateness of frontage or backage roads.

A frontage road provides access to the front side of properties located along a major roadway and is located between the property and the major roadway. Care must be taken to ensure adequate separation between the major roadway in question and the intersection of the frontage road and the cross road. If the frontage road is set back from the roadway by only a few car lengths, cars exiting the frontage road enter the functional area of the roadway intersection, creating conflict points with other vehicles.

FIGURE 6-5
Frontage and Backage Roads



Note:
Frontage roads provide an alternative to direct roadway access, improve safety, and reduce travel times on the highway.

A backage road provides access to the rear side of properties located along a highway or

interchange crossroad and can also provide access to properties located on the opposite side of the backage road. Generally, backage roads allow for a greater distance between the highway and the intersection of the cross street and the backage road. Backage roads can also allow for development to occur closer to a highway or interchange crossroad, in some cases creating a more pedestrian-friendly environment or promoting visibility of businesses.

The Fort Hill IAMP includes construction of a new frontage road as part of the interchange project. The frontage road is constructed to provide alternate local access to parcels located along the north side of OR 18/22, and serves as both a frontage road to parcels located north of the road, and as a backage road to parcels located immediately north of the highway.

6. Shared Parking Lots/Joint Access

Sharing access with adjacent businesses and connecting parking lots can help ease traffic conflicts and improve pedestrian safety. This concept is similar to driveway consolidation, but is specific to nonresidential uses where many users (customers, visitors) are accessing a business or service. Furthermore, the local access to a specific use is provided within the parking lot area, and not via the highway or interchange crossroad.

Typically, requirements for connected parking lots are found in local development code and standards. The *Woodburn Development Ordinance Guidelines for the Number and Location of Driveways* states that the number of driveway accesses should be minimized based on overall site design, including consideration of the functional classification of abutting streets; on-site access pattern, including cross connected parking and circulation, joint access, turnarounds, and building orientation; and the access needs of the use in terms of volume, intensity, and duration of trips generated. All lots created by a partition that access a Major or Minor Arterial street should be accessed via a single, shared driveway with an onsite turnaround, unless otherwise required.

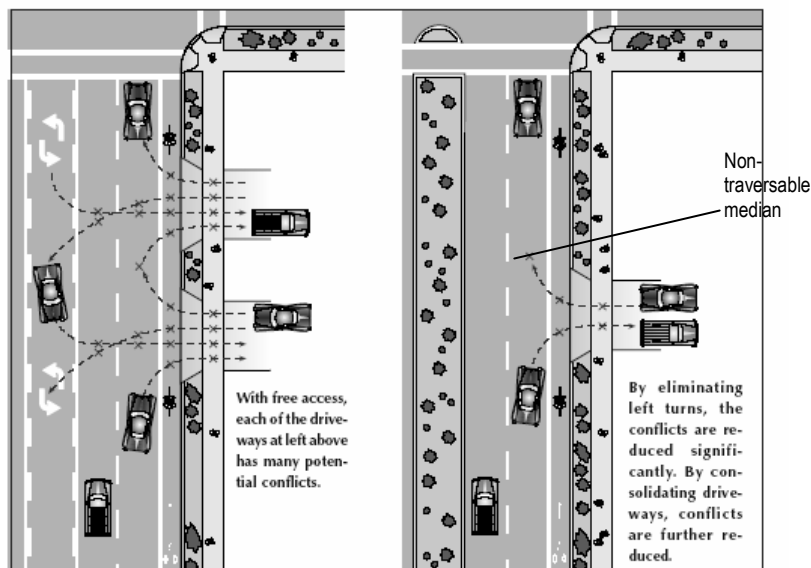
Such code requirements are especially beneficial in areas with constrained parking. The City of Lake Oswego's *Lake Grove Village Center Plan* calls for the provision of rear alley access to parking lots, where appropriate, in conjunction with consolidated access, which is expected to reduce turning movements onto and off of Boones Ferry Road and create a more pedestrian friendly environment. For rear alley access and shared driveways to provide access to all businesses, connections between parking lots and crossover easements will be required.

Crossover and cross access easements are discussed in Section 6.2.2, Land Use and Transportation Management Concepts, under 8, Deed Restrictions.

7. Construct Medians

The construction of nontraversable medians, as illustrated in Figure 6-6, is typically done for the purpose of disallowing left turns and restricting access to right-in, right-out. An analysis of crash data in seven states found that raised medians reduced crashes by over 40 percent in urban areas.¹¹

FIGURE 6-6
Right-In, Right-Out-Only Consolidated Access With a Nontraversable Median



¹¹ *Benefits of Access Management*, U.S. Department of Transportation, Federal Highway Administration, FHWA-OP-03-066.

The I-5/Woodburn IAMP calls for the construction of full median control along OR 214 for a segment of ¼ mile to the east and west of the I-5 interchange. The construction of a median would reduce the number of driver attempts of mid-block U-turns, eliminate all private road approaches, and allow right-in only turn movements to one local road.

8. Shift or Relocate Accesses

Relocating highway approaches to increase their distance from an interchange is a typically low-impact alternative to approach closure. Relocating a highway approach from the near side to the far side of a parcel can sometimes (though not always) provide sufficient distance from the interchange ramp connections. This in turn protects the integrity of the ramp operations and the safety of those using the ramp.

The North Ontario IAMP calls for the relocation of access points for properties located off OR 201. At the time a new interchange and bridge are constructed, property access will be consolidated and a new access point will be constructed approximately 1,125 feet north of the new westbound I-84 ramp terminal. Meeting the access management standard of 1,320 feet would have required expanding the Malheur River Bridge in order to accommodate a left turn bay and would require the acquisition of several residential properties. OR 221 also has low traffic volumes. Locating the consolidated access point 1,125 feet was considered a good compromise that moved toward the standard, and required a deviation letter from the Region Access Management Engineer.

9. Narrow Driveway Width

Occasionally, driveway width can be wider than necessary with no discernable boundaries or curbs. Driveways can also sometimes be too narrow for the safe entry and exit of more than one vehicle at the same time. Both situations create operational and safety concerns. A properly designed driveway helps turning traffic move off the roadway more quickly and reduces the likelihood of crashes and congestion backups.

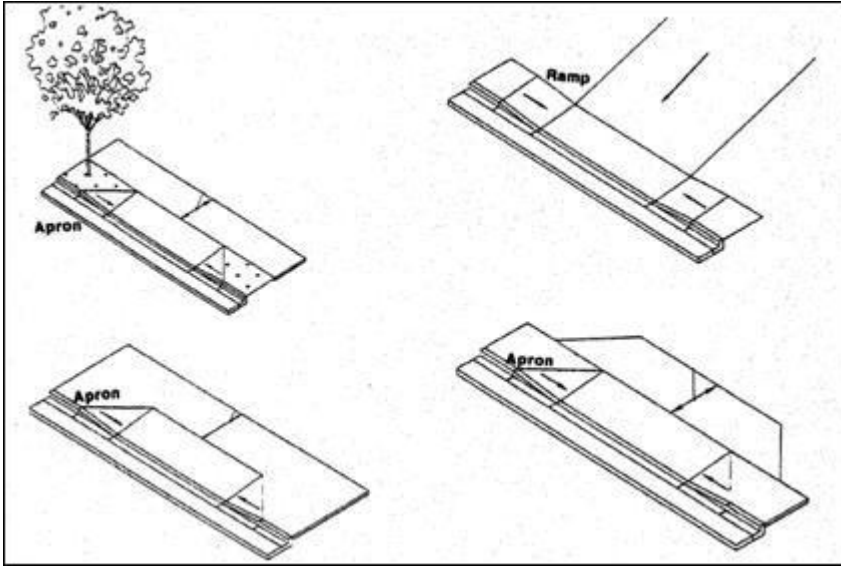
The more a turning vehicle must slow to enter a driveway, the greater the speed differential (the difference between the speeds of vehicles continuing along the highway versus those turning onto driveways). As the speed differential increases, the likelihood of crashes involving faster moving vehicles on the highway and turning vehicles increases. Driveways that are too wide may create confusion for motorists who may have a hard time deciding where to enter, and make pedestrians more vulnerable, due to the longer crossing distance, increasing the risk of a crash with an entering vehicle. Figure 6-7 illustrates examples of acceptable driveways.

The City of Springfield Development Code stipulates both minimum and maximum driveway widths to allow safe and efficient vehicle access based on adjacent land use. For single-family and duplex residential uses, the minimum driveway width is 12 feet and the maximum is 24 feet. For industrial uses, the minimum driveway width is 24 feet and the maximum is 35 feet.

6.2.2 Land Use and Transportation Management

The interplay between transportation systems and land use patterns is well documented. The access improvements provided by roads, interchanges, intersections, and transit help shape land development, while the distribution and types of land uses affect travel patterns and the function of transportation facilities.

FIGURE 6-7
Acceptable Driveway Designs



Purpose of Coordinating Land Use and Transportation

Development that is not coordinated with transportation improvements, or is not consistent with long-range growth management plans and policies, can quickly congest the capacity of the local and regional road network and create safety and mobility problems at nearby intersections and interchanges. This uncoordinated development greatly reduces the effectiveness of the transportation network and causes substantial problems for safety and economic development. This could be especially problematic when large investments are made to improve the transportation system, considering the increasingly competitive environment for funding for future projects.

Coordinating land use with transportation improvements helps to increase the effectiveness of the transportation network, both in minimizing improvements that are made to it and in ensuring that excessive congestion is not created due to development that is incompatible with the transportation network, existing development, and applicable plans and policies. IAMPs have been used as a tool for land use and transportation management in Oregon.

Land Use and Transportation Management Concepts

This section describes specific land use and transportation management concepts that could be employed along the OR 126 Expressway corridor.

1. Changes in Land Use

Local zoning and comprehensive plan designations can be used to manage an interchange area to ensure facility function. Changes may be made in existing designations that decrease traffic demands on the interchange, or an IAMP may recognize and strengthen existing zoning designations that support the function of the interchange.

Policy 1B of the OHP relates to interchange area traffic management and directs ODOT to work with local governments to avoid expansions of the UGB near interchanges, and to instead promote compact development away from state highways. When a UGB expansion occurs near an interchange, ODOT works with local governments to develop an IAMP to protect the interchange function. Section 0060 of the Transportation Planning Rule requires local transportation and land use plans to be compatible with the OHP.

The Jackson School Road IAMP supported the existing Exclusive Farm Use (EFU) land use designation surrounding the Jackson School Road interchange, finding the designation is effective in protecting resource lands and land uses surrounding the interchange. Uses that would generate high traffic volumes, such as churches and schools, are not allowed within 3 miles of an EFU land without a goal exception. This IAMP relies on the Oregon and Washington County land use regulations, but also calls for ODOT involvement in reviews of proposed land use actions in the vicinity of the interchange.

2. System Development Charges

System development charges (SDCs) require developers to pay for improvements necessitated by development. This charge is a one-time fee imposed on parcel owners at the time of development.

An SDC fee is intended to recover a fair share of the costs of impact on existing and planned facilities that provide capacity to serve new growth. ORS specifies an SDC as the sum of two components: a reimbursement fee, designed to recover costs associated with capital improvements already constructed or under construction; and an improvement fee, designed to recover costs associated with capital improvements to be constructed in the future. SDC fee calculations charge for the incremental cost attributable to the proposed development (the cost of the facility that is in excess of what would otherwise be needed) and does not charge for the entire cost of the facility, sometimes referred to as "local equivalent" facility. For example, if the traffic generated by a proposed development would require a collector instead of a local street, an SDC charge could recover the cost to construct a collector in excess of the cost to construct a local street. The SDC would not charge the entire cost to construct the collector facility. A Traffic Impact Analysis (TIA) assesses the impact of proposed development on existing and planned transportation system, and thus supports the use of SDCs.

The City of Springfield assesses SDCs for transportation facilities. SDC charges apply to new commercial, industrial, professional, and residential development or a change of use. The City of Springfield charges SDCs based on the trip rate of the specific type of development and the cost per trip. The cost per trip is \$103.28.¹² Trip rates for developments are based on the Institute for Transportation Engineers (ITE) Trip Generation Manual, or a developer can submit a trip generation study outlined and approved by the City of Springfield.

The City of Medford established a surcharge to their street system development charge (SSDC) in 2001 to contribute \$15 million toward the South Medford Interchange. Each new development participates in the cost of the improvements to be made to the interchange at a pro rata share representative of its impact. It is assumed that all traffic generators in the City affect the interchange, and all surcharge to the SSDCs are calculated the same regardless of the location of the development.

¹² City of Springfield System Development Charge Fact Sheet, Effective rates for July 1, 2005 through June 30, 2006.

The State of Washington uses concurrency, which is similar to SDCs but phases development to match available transportation facilities. Concurrency fees charge new growth for the specific transportation facilities that they need in order to exist, and those facilities are built concurrently with development.

The North Ontario IAMP evaluated zoning alternatives and recommended the use of TIAs. A TIA generally provides a mitigation section that outlines specific improvements needed to accommodate the development that a jurisdiction should recommend as conditions of approval. Jurisdictions could require developers to implement the mitigation, or pay SDCs in lieu of providing the improvements. Requiring that a TIA be part of any development application in the interchange area supports the use of SDCs and helps ensure transportation facility function.

3. Trip Budgets

The purpose of the trip budget is to manage the amount of vehicle trips, in order to ensure the safe and efficient operation of the interchange and its vicinity. A trip budget is most effective when an interchange is not able to accommodate all the forecasted traffic at buildout. The budget represents the maximum number of trips allowed for the interchange area on a parcel-by-parcel basis. A land owner can use this budget for any combination of land uses or development scenarios that are all equivalent in their peak-hour trip generation.

The Woodburn IAMP linked the trip budget to the City's economic development goals. The trip budget was established to be consistent with the expected trip generation from future development in the vicinity of the interchange. The City, through a conditional use permitting process, then allocates trips from the budget for a specific development as it occurs.

4. Overlay Districts

Overlay districts are zoning districts with special characteristics created to guide development in unique or unusual locations. They typically start with an existing base zone and, in the case of IAMPs, provide greater local control over the type and scale of development to occur. ODOT and local jurisdictions work together to create overlay districts.

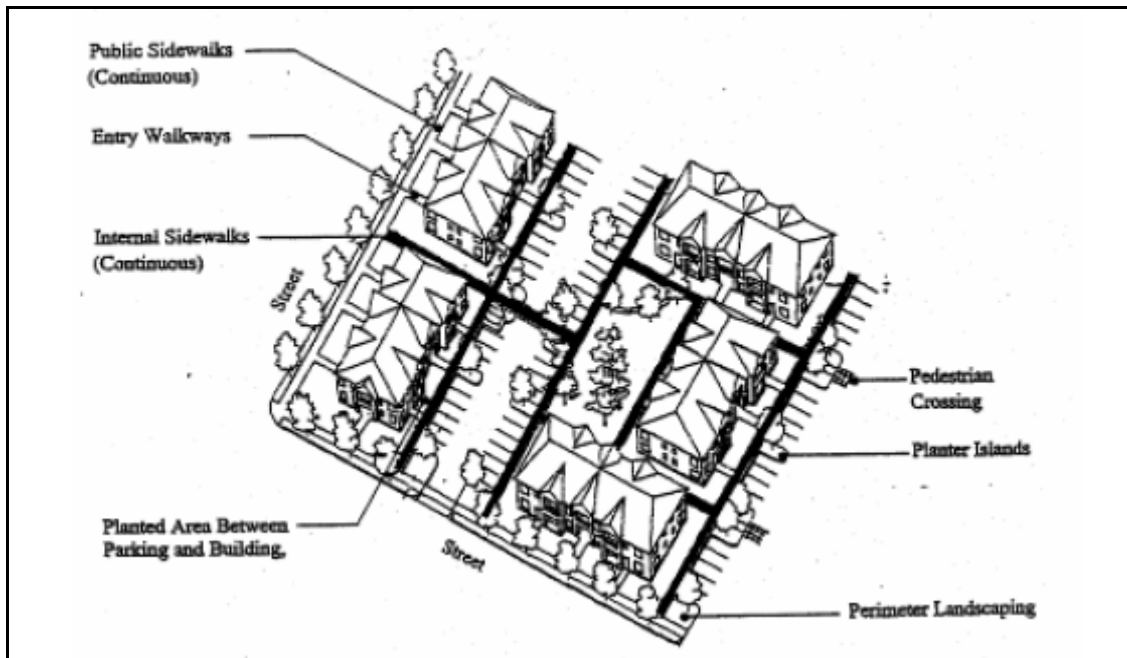
Overlay districts are a tool used to implement other concepts summarized in this report. Preserving interchange facility function and capacity benefits the local economy because reliable freeway access is critical to retention of employers and businesses within the urban area. In addition to using an overlay district to protect interchange facility function, an overlay district can have other local benefits such as protecting the natural environment, encouraging pedestrian-oriented and/or mixed-use design, and promoting redevelopment and rehabilitation for future use and development in a way that preserves the unique character of an existing area.

The Woodburn IAMP created an Interchange Management Area (IMA) Overlay District, revising the Woodburn Development Ordinance. The IMA Overlay District manages trip generation from the development of vacant land uses within the district and from comprehensive plan amendments within a specified trip budget. Budgeting trip generation in the IMA Overlay District gives the State assurance that the City intends to manage development within the overlay district at levels that protect the function of the interchange and preserve the capacity provided by the interchange improvements. Preserving interchange capacity is important to the City of Woodburn because reliable freeway access is critical to retain employers within the urban area.

5. Design Standards

Design standards can create criteria for site design that encourages walking, bicycling, transit, and/or carpool trips. Typical elements addressed by design standards are illustrated in Figure 6-8. These design standards include well managed vehicular access, greater multi-modal potential, and fewer characteristics that contribute to operational problems near interchanges. Design standards are generally part of a jurisdiction's development code.

FIGURE 6-8
Design Standard Examples



Note: Design standards can be used to control building orientation, access and circulation, parking and loading, landscaping and other design elements.

Design standards can address building size, lot coverage, building setbacks, floor area ratios, building heights, building orientation, block length, bus stops, bike racks, and parking, which can be required in back of buildings, as well as other categories of standards. Design standards generally allow more flexibility than conventional land use regulations due to the complexity and site-specific nature of development.

6. Alternate Mobility Standards

The Oregon Highway Plan (OHP) outlines a provision for alternate mobility standards for scenarios where mobility standards **cannot** be met. Alternate standards must satisfy requirements in the OHP, including local commitments to specific actions to manage transportation demand and ensure efficient use of the state highway system. These local commitments could include improvement of the local street network, management of traffic operations to minimize crashes, management of travel demand, enhancing alternative transportation modes, and management of land use to limit vehicle demand on state highways. Alternate mobility standards on state highways require approval by the OTC and result in an amendment to the OHP. The local jurisdiction and ODOT must agree that lower or higher mobility standards than those of the OHP are warranted.

Lower alternate mobility standards (allowing **higher** levels of congestion) could be employed where an intersection/interchange is located in a built, urban environment where the local jurisdiction is already taking aggressive steps to manage vehicular congestion and support the use of other modes of travel, but congested conditions still result.

In contrast, the adoption of alternate, **higher** mobility standards (allowing **lower** levels of congestion) can be an effective method to ensure the interchange will operate efficiently beyond the 20-year planning horizon. These more stringent standards help to assure that the reserve capacity available at the interchange is not consumed prematurely by the first developers to locate near the interchange.

Alternate mobility standards can be method for managing the use of reserve capacity in a manner that (in contrast to a trip budget) does not require constant monitoring of planned development by the local agency. They effectively allow ODOT and the local jurisdiction to manage the use of capacity over time, because proposed developments would be required to adhere to the changed standard, instead of a local agency using conditions of approval on a case-by-case basis. Alternate mobility standards can be both temporary and permanent; examples are provided below.

The Rogue Valley Council of Governments obtained temporary alternate mobility standards for the South Medford Interchange. State funds for a new interchange would not be available until 2010, and, in the year 2000, the interchange exceeded the State's mobility standards for 5 hours per day and suffered from gridlock 2 hours per day. The Council of Governments anticipated worsening congestion conditions and further failure to meet the State mobility standards. With continued failure to meet mobility standards, future development identified in the City of Medford's Comprehensive Plan could not be accommodated. The Council of Governments requested temporary alternate mobility standards in order to accommodate the mixed-use, transit-oriented development desired by the region. The Council of Governments requested to temporarily change the interchange mobility standards from 0.85 to 1.0 or greater, allowing development to occur as intended and to bring the interchange into compliance until the new interchange is built.

Lane Council of Governments (LCOG) is developing a set of recommendations to pursue adoption of permanent alternate mobility standards. These alternate mobility standards could apply to all or some ODOT transportation facilities within the region. LCOG's justification for an alternate mobility standard arises from a desire to balance the mobility needs of through vehicle and commercial traffic with the livability goals cited through regional land use planning efforts. For example, a congested area with land use patterns consistent with the Regional Transportation Plan (RTP) may focus on lowering the mobility standard, allowing more congestion, and put an emphasis on alternative modes such as transit, bicycling, and walking. The proposal for an alternate mobility standard is coordinated with local commitments to addressing congestion, including bus rapid transit, development at transportation nodes, priority bike projects, intelligent transportation system investments, and improvements to the local street system. LCOG's proposed standards have not yet been presented for approval as of October 2006.

7. Transportation Demand Management

Transportation Demand Management (TDM), sometimes referred to as "Transportation Options," is a general term for strategies that aim to make more efficient use of the existing transportation system. The purpose of TDM measures is to reduce demand, particularly during peak travel periods. These strategies attempt to influence people's travel decisions directly, instead of increasing capacity.

TDM employs strategies that provide incentives or disincentives that promote nonauto mode use (transit, biking, and walking). Specific TDM measures include alternative work schedules, promotion of transit, car-sharing, better bike and transit integration, fees for parking or parking restrictions, and the establishment of park and ride facilities, among others.

The I-5 Woodburn IAMP calls for the creation of a permanent park-and-ride lot sited on three ODOT properties adjacent to I-5 to serve Woodburn's local transit service, paratransit service, and express commuter service between Wilsonville to Salem. Promoting the use of existing transit facilities with the establishment of a park-and-ride lot relieves some travel demand for interchange facilities.

8. Deed Restrictions

Two types of deed restrictions are used to support access management. These are conservation easements and crossover or cross-access easements. Figure 6-9 provides an example of a crossover easement.

Access provisions can be written directly into a deed, which made them legally binding even upon sale of the property. For example, a deed restriction could include a stipulation that access be provided by side streets instead of the main highway or arterial.

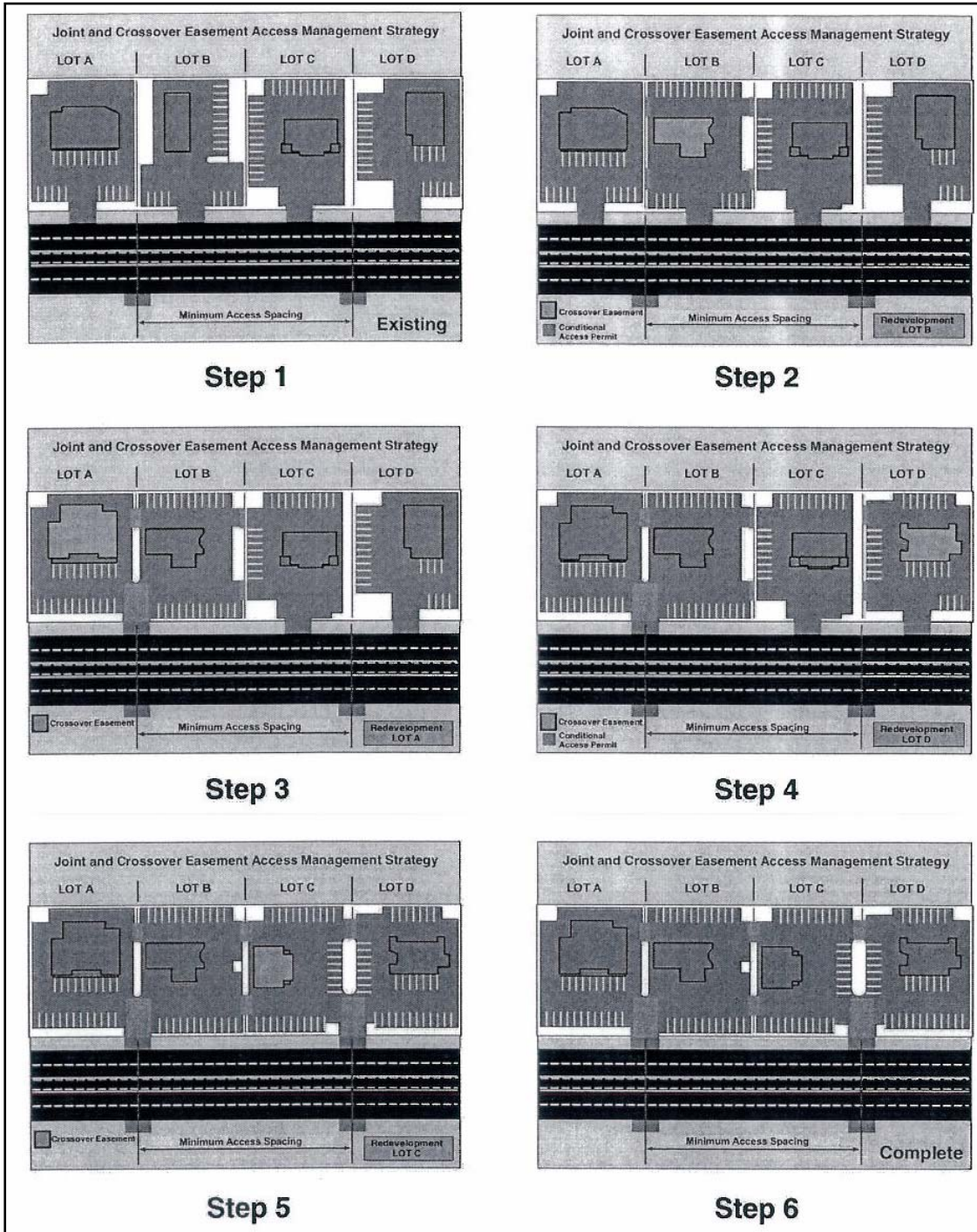
Conservation easements are tools for property owners to protect their land from development. This may be appropriate in a case where the property owner is willing to permanently limit development on portions of the parcel while clustering development elsewhere.

A crossover or cross-access easement on a property deed is a grant of property rights to create a service drive providing vehicular access between two or more continuous sites, as is the case of connected parking lots. As illustrated in Figure 6-9 access is provided between two private parcels by agreement to both parties. When agreement is made, the individual approaches to the roadway network can be combined. This typically requires some reconfiguration of circulation and parking within the parcel.

The North Ontario Interchange Area Management Plan recommended the establishment of crossover easements on all compatible parcels (considering topography, access, and land use) to consolidate future access between adjacent parcels. Figure 6-9 is an illustration from the plan of how the process could facilitate compliance with access management objectives over the long run.

Appendix I shows the policy compliance matrix that will be filled in during Phase 3 of the EMP planning process.

FIGURE 6-9
Example of Crossover Easement



Source: Kittelson & Associates, Inc. 2005.

7.0 Next Steps

The next steps for the OR 126 EMP project are Phases 3 and 4, which are described below.

7.1 Phase 3

ODOT will initiate Phase 3 of the OR 126 EMP in early 2007. Phase 3 will continue to focus on the eastern portion of the OR 126 Expressway corridor, including the McKenzie Highway (Main Street) and , 52nd Street and 42nd Street interchange and intersection locations. Appendix J includes the final Scope of Work for Phase 3 of the OR 126 EMP.

Phase 3 will include determination of environmental review level necessary for the 42nd and 52nd Street locations, as well as a scoping of the environmental process for the Main Street location.

Phase 3 will also include development of functional plans for each of the locations (IAMPs, access management plans), which will examine all of the design concepts and variants forwarded from Phase 2 in greater detail, include access and local circulation plans, and refine the set of policy concepts to match chosen design concepts for specific locations. Final policy concepts will be prepared to align with physical roadway improvement recommendations.

Both the physical roadway improvement recommendations and the policy concepts will comprise the IAMPs developed for each intersection or interchange improvement area along the OR 126 Expressway corridor within the study area. The IAMPs will then be organized into an EMP, which will also include access management decisions. Ultimately, the OR 126 EMP (or individual IAMPs comprising the EMP) would be adopted by the OTC, in a coordinated effort with Lane County and the City of Springfield. Specific policy and code language will be incorporated into local plans and codes in accordance with state laws.

The PMT and Ad Hoc Committee will continue to meet regularly throughout Phase 3 of the EMP, and public involvement will be critical, especially work with property owners regarding access management or other potential policy changes.

7.2 Phase 4

Phase 4 of the OR 126 EMP will commence after the conclusion of Phase 3, and will focus on the western portion of the corridor, including the Pioneer Parkway, Mohawk Boulevard and 42nd Street interchanges. Phase 4 will include a decision process to arrive at recommendations regarding design concepts and policy concepts appropriate for treating the traffic and safety problems at the west end of the corridor.

8.0 Bibliography

City of Dallas. *Transportation System Plan*, June 2005, Oregon.

City of Lake Oswego. *Lake Grove Village Center Plan*, 2005, Oregon.

City of Medford. *Municipal Code*, 1995, Oregon.

City of Springfield. *Springfield Development Code*, 2006, Oregon.

City of Woodburn. *Development Guidelines and Standards*, 2002, Oregon.

Lane Council of Governments. *Alternative Mobility Standards Overview*, 2006, Oregon.

Federal Highway Administration. *Benefits of Access Management*. FHWA Document FHWA-OP-03-066 (2003), Washington D.C.

Maze, Tom; Plazak, David, et al. *Access Management Handbook*, Center for Transportation Research and Education, Iowa State University Research Park, 2000, Iowa.

Oregon Administrative Rule 223-297. *System Development Charges*, 1989, Oregon

Oregon Administrative Rule 734-051 (Division 51). *Highway Approaches, Access Control, Spacing Standards and Medians*, 2004, Oregon.

Oregon Department of Transportation, Planning and Implementation Unit. *Interchange Area Management Plan Guidelines*. Final Draft, October 24, 2005, Oregon.

Oregon Department of Transportation, Transportation Development Division. *Oregon Highway Plan*, 1999 (amendments through 2006), Oregon.

Oregon Department of Transportation, Transportation and Growth Management Division. *Main Street... when a highway runs through it: A Handbook for Oregon Communities*, 1999, Oregon.

Oregon Department of Transportation. *Fort Hill Interchange Area Management Plan (Draft)*, July 2006, Oregon.

Oregon Department of Transportation. *Jackson School Road Interchange Area Management Plan*, 2003, Oregon.

Oregon Department of Transportation *North Ontario Interchange Area Management Plan*, 2005, Oregon.

Oregon Department of Transportation. *Amendment to 1999 Oregon Highway Plan Alternate Highway Mobility Standards, South Medford Interchange*, 2000, Oregon.

Oregon Department of Transportation. (2005). *Woodburn Interchange Area Management Plan*, Oregon.