

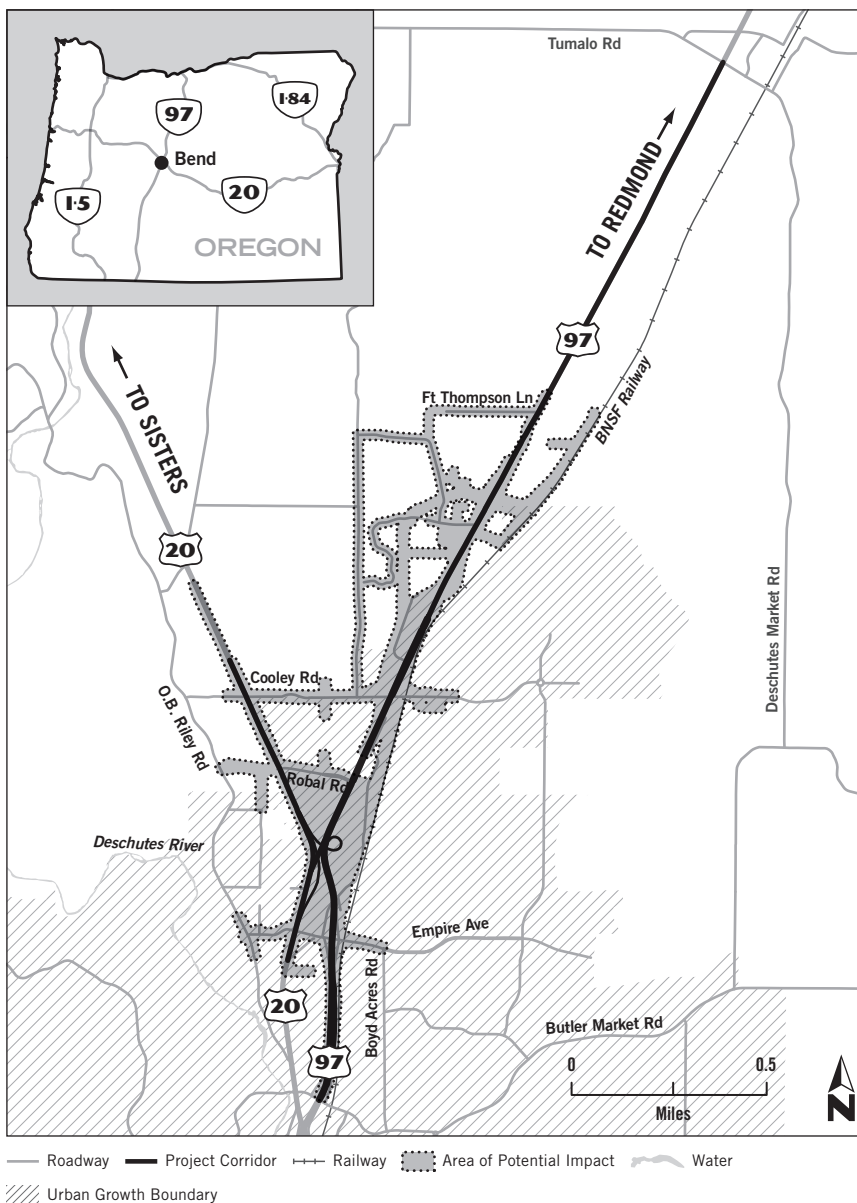
Chapter 1

Purpose of and Need for Proposed Action

1.1 Introduction

The Oregon Department of Transportation (ODOT) and Federal Highway Administration (FHWA) propose to improve an approximate six-mile corridor on US 97 in Deschutes County, Oregon between the Deschutes Market Road/Tumalo Junction interchange and the Empire Avenue interchange (Exhibit 1-1). Solutions that address the traffic problems on the US 97 corridor could result in ancillary improvements to other roadways in the vicinity.

Exhibit 1-1: Project Vicinity Map and Area of Potential Impact



Chapter 1 Content

- 1.1 Introduction
- 1.2 Purpose of the Proposed Action
- 1.3 Need for the Proposed Action
- 1.4 Background
- 1.5 Goals and Objectives

Definition

Area of Potential Impact

The area of potential impact (API) is the area within which potential direct impacts from the proposed action could occur.

Bend is located in Central Oregon, approximately two to three hours from all major metropolitan areas in the Willamette Valley and midway between the Washington and California borders. It is surrounded by the Cascade Mountains on the west and the high desert to the east, providing unique and diverse recreational opportunities year round. Bend is the largest city east of the Cascades and, between April 2000 and July 2006, it was the fourth-fastest growing metropolitan area in the US (US Census Bureau 2007). US 97 is a designated freight route on the National Highway System, is the only major north-south state highway east of the Cascade Mountains in Oregon, complements the I-5 corridor, and is the key transportation corridor for interstate and regional travel of trucks and passenger cars in Central Oregon.

US 97 is classified as a statewide facility and freight route along its entire length, and as an expressway from the City of Redmond through Bend and in many other sections of the highway. US 97 is a critical link in moving goods and people through Central Oregon. In the Bend area, US 97 also serves as a route for local residents to travel to and from home and work, and it is a connection to area shopping, dining, businesses, schools, and recreation.

In the fall of 2004, ODOT began the refinement planning process to develop conceptual solutions to current and projected transportation problems. Traffic analysis showed that US 97 is highly congested in the north end of Bend, especially at the intersections of US 97/Cooley Road and US 97/Robal Road. This planning process culminated with the *US 97 and US 20 Refinement Plan Final Report* (Kittelson and Associates, Inc. 2007), which documented the development, evaluation, and narrowing of a range of system concepts. Two system concepts were forwarded for further alternatives analysis that would comply with the National Environmental Policy Act and other environmental regulations. Improvement of this transportation corridor and specific intersections is essential for the economic viability of Bend, Central Oregon communities, and for the state as a whole.

Definitions

Needs

The needs establish “why” a problem exists or is expected to occur in the future.

Purpose

The purpose asserts “what” is intended to be addressed.

The purpose of and need for a proposed action is essential in establishing a basis for the development of a reasonable range of alternatives for detailed study and comparison in the environmental impact statement (EIS), and assists with the identification and eventual selection of a preferred alternative. Needs establish “why” a problem exists or is expected to occur in the future; the purpose statement asserts “what” is intended to be addressed.

The proposed action’s area of potential impact (API) is the area within which direct impacts could occur. The API, which extends 100-feet outside of the construction limits (the maximum extent of potential ground disturbing activities) for the proposed action’s build

alternatives, generally lies between Fort Thompson Lane to the north, the US 97/Butler Market Road interchange to the south, O.B. Riley Road to the west, and the BNSF Railway to the east. The API is shown in Exhibit 1-1, including the extent which lies within the City of Bend's urban growth boundary (UGB).

This Draft EIS documents all alternatives considered during the development and narrowing of alternatives. A reasonable range of alternatives are analyzed in detail within this Draft EIS to disclose the potential beneficial and adverse environmental impacts that would result from the proposed action. The Draft EIS is published and circulated for public comment, including a public hearing, which in turn contributes to recommending which alternative is identified as the preferred alternative. A Final EIS will be prepared to document the preferred alternative recommendation as well as responses to public and agency comments submitted on the Draft EIS.

The proposed action is listed in the Bend Metropolitan Planning Organization's *2007–2030 Bend Metropolitan Transportation Plan*. It is also included in the Bend Metropolitan Planning Organization's *2008–2011 Metropolitan Transportation Improvement Program*.

1.2 Purpose of the Proposed Action

The purpose of the proposed action is to improve safety and mobility for trucks and automobiles on US 97 by implementing a practical design solution that is affordable within the potential 20-year funding opportunities and that meets the following performance objectives for the medium-term (5-10 years) and long-term (over 10 years) planning periods as defined by the Bend Metropolitan Planning Organization's *2007–2030 Metropolitan Transportation Plan*. Performance objectives for the proposed action include:

- Makes incremental improvements to reduce delay, congestion, and the number and severity of crashes at the US 97/Cooley Road and US 97/Robal Road intersections within the medium-term planning period
- Reduces delay and congestion, and improves safety and operations on US 97 as an expressway between the Deschutes Market Road/Tumalo Junction interchange and Empire Avenue interchange
- Supports economic development consistent with local agency plans; minimizes impacts to existing and planned local economic base; and provides for existing and planned local connectivity within the long-term planning period.

Definitions

Proposed Action

The proposed action is a proposal developed to resolve the problem identified in the purpose and need statement.

Practical Design

Practical design is a strategy to deliver focused benefits for the State's transportation system while working with the realities of a fiscally constrained funding environment.

Congestion

Congestion is travel time or delay in excess of what is normally incurred under light or free-flow travel conditions.

Incremental Improvements

The proposed action would likely be constructed in phases to match incremental, smaller funding packages. Each incremental, or phased, improvement would be designed and implemented to provide operational and safety benefits to US 97.

1.3 Need for the Proposed Action

Based on the current and future traffic conditions on US 97, the proposed action must address the following:

- Congestion at approaches
- Traffic flow within the corridor
- Safety.

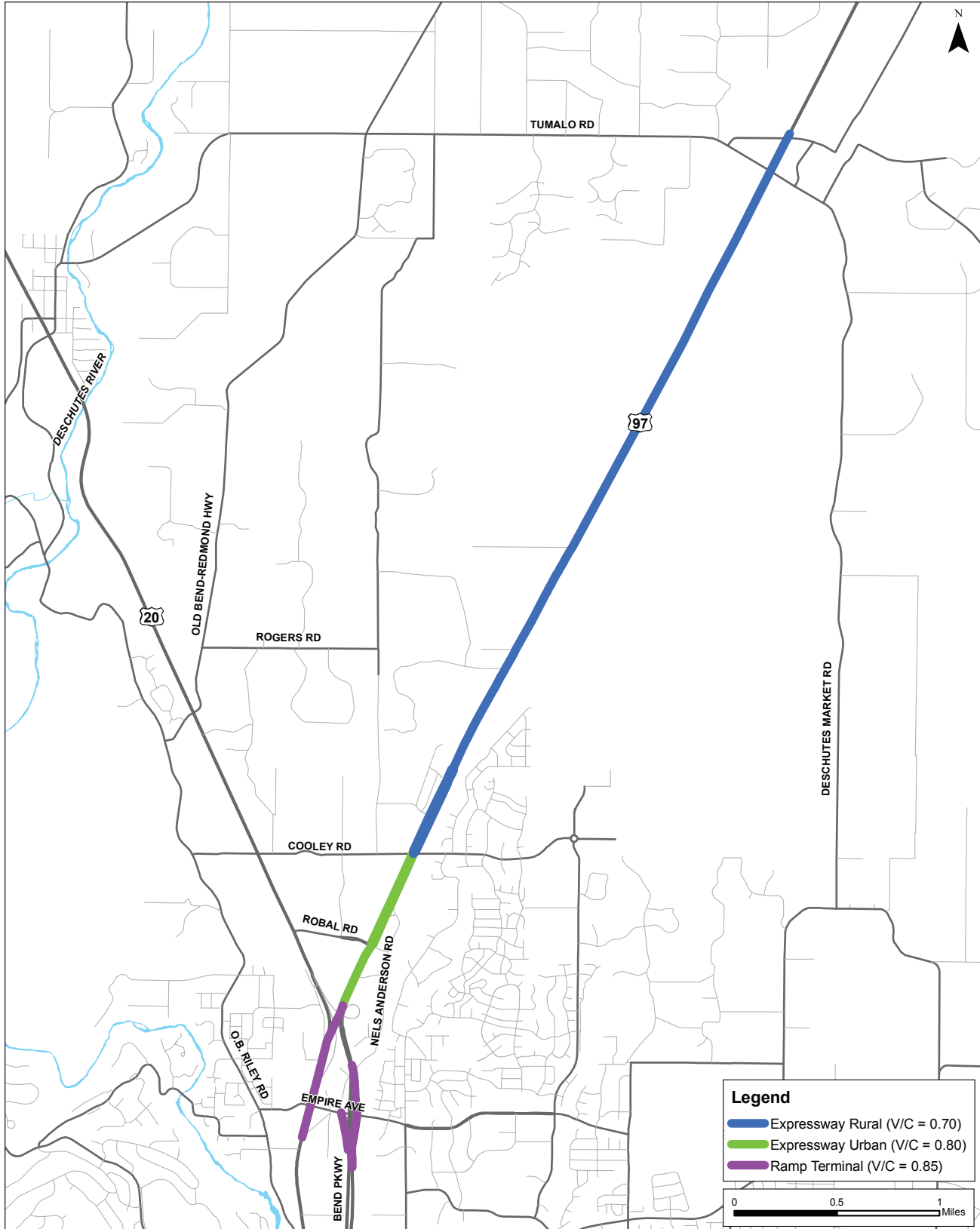
1.3.1 Congestion at Approaches

Congestion occurs when the amount of traffic volume using a roadway exceeds the available capacity of the roadway. Congestion is typically measured at intersections by comparing the number of vehicles using or expected to use a given road segment (volume) with the number of vehicles the road segment is designed to handle (capacity). This is called the volume to capacity (v/c) ratio.

The *1999 Oregon Highway Plan* sets highway-mobility standards for v/c ratios on different types of existing roads in Oregon. The highway-mobility standards v/c ratio is 0.80 for the portion of US 97 located within the Bend Metropolitan Planning Organization boundary. Exhibit 1-2 shows the urban and rural designated expressway segments, and identifies the highway-mobility standard (v/c ratio) for each segment. Exhibit 1-3 illustrates the existing (2007) and future (2035), absent any major improvements, v/c ratios at intersections within the API.

Traffic counts were measured in 2007. In early 2009 the City of Bend performed similar traffic counts. These traffic counts were reviewed and compared to the proposed action's 2007 counts to determine if there were any significant changes in traffic volumes due to the current economic downturn. In addition, 2009 data from ODOT's permanent traffic counter stations were reviewed and compared to the 2007 information. These comparisons showed that anticipated yearly growth in traffic volumes had not occurred, and that there was no appreciable difference in the traffic volumes from 2007 to 2009; thus the 2007 counts are functionally equivalent to 2009 values. Although growth was relatively stagnant during this period, population and employment are expected to grow over the long-term. In conjunction with this growth, traffic volumes are also expected to grow over the long-term, which is demonstrated in the traffic volumes predicted for 2015 and 2035. All traffic modeling conducted for the proposed action follows industry standards and used data generated from the Bend Metropolitan Planning Organization's regional travel demand model.

Exhibit 1-2: Designated Expressway Segments and Highway-Mobility Standards



Chapter 1	Purpose of and Need for Proposed Action
Chapter 2	Alternatives
Chapter 3	Affected Environment, Environmental Consequences and Mitigation
Chapter 4	Cumulative Impacts
Chapter 5	Local Short-term Uses and Long-term Productivity
Chapter 6	Irreversible and Infringeable Commitment of Resources
Chapter 7	Comments and Coordination

Exhibit 1-3: 2007 and 2035 Volume to Capacity Ratios

Intersection	Designation	OHP Standard	2007 (Peak Hour)	2035 (Peak Hour)
US 97 at Grandview Dr *	Expressway – MPO Urban	0.80	0.55	0.77
US 97 at Clausen Dr *	Expressway – MPO Urban	0.80	0.59	0.82
US 97 at Cooley Rd	Expressway – MPO Urban	0.80	1.10	1.79
US 97 at Lowe's Driveway *	Expressway – MPO Urban	0.80	0.44	0.83
US 97 at Chavre Way *	Expressway – MPO Urban	0.80	0.59	0.80
US 97 at Target Driveway *	Expressway – MPO Urban	0.80	0.42	0.91
US 97 at Robal Rd	Expressway – MPO Urban	0.80	0.91	1.23
US 97 at Nels Anderson Pl/Cascade Village*	Expressway – MPO Urban	0.80	0.79	2.0+
NB US 97 Ramp Terminal at Empire Ave	Ramp Terminal	0.85	0.74	1.33
Empire Ave at Nels Anderson Rd/SB US 97 Ramp Terminal	Ramp Terminal	0.85	1.0+	2.0+

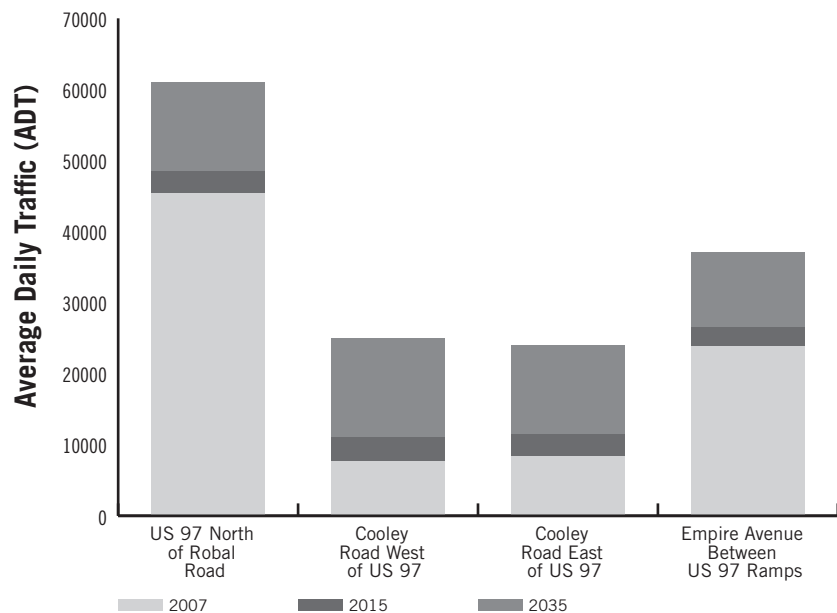
Note: Gray shading means the v/c ratio is higher than the v/c standard for the road type.

* Unsignalized intersection

MPO: Metropolitan Planning Organization; NB: northbound; SB: southbound

Between April 2000 and July 2006, Bend was the fourth-fastest growing metropolitan area in the US (US Census Bureau 2007). Traffic projections show that the average daily traffic on US 97 in the northern portion of the API is projected to increase 34 percent (61,000 vehicles per day) by 2035 (Exhibit 1-4).

Exhibit 1-4: Average Daily Traffic on US 97 (2007, 2015, 2035)



The US 97 Bend North Corridor project is the only improvement that ODOT plans to implement within the API in the near term. ODOT will implement other improvements throughout the Central Oregon region and state within the next several years. Projects from the local agencies' (City of Bend and Deschutes County) financially constrained transportation improvement plans are included in the base Bend

Metropolitan Planning Organization traffic model road network being used for this proposed action.

It is clear from reviewing the traffic information that the anticipated projected growth would increase traffic congestion, resulting in significant queuing and delays in the corridor if no improvements are made by ODOT or local agencies along this section of US 97.

The two major intersections in the API are US 97 at Cooley Road and Robal Road with approximately 41,000 vehicles a day using these intersections (2007). During the peak travel time these two intersections are highly congested. Exhibit 1-5 shows the 2007 peak hour v/c ratio at Cooley Road is 1.10. Absent any major improvements, by 2035 the intersection performance would worsen to 1.79. Similarly, absent any major improvements, by 2035 the intersection performance of US 97 at Robal Road would worsen from 0.91 to 1.23.

There would be three general factors that contribute to the congestion at these intersections:

- The signals at Cooley Road and Robal Road are closely spaced on US 97 (although the signals are currently coordinated to effectively move groups of vehicles through both signals, the existing traffic volumes are so high that these intersections are still congested)
- Each intersection has a large number of vehicles making turns, particularly left turns, from US 97 and the side streets in addition to the large volume of vehicles traveling on US 97 and passing through the intersection
- Vehicles use US 97 for local trips (short trips from residential areas to business areas, or business to business travel) rather using than local streets.

The number of vehicles using these intersections exceeds the capacity of the roadway to adequately move for many motorists in multiple directions.

During the evening peak hours of travel there are high levels of congestion at the US 97/Cooley Road and US 97/Robal Road intersections with observed traffic queues sometimes reaching nearly one-half mile, delays, and drivers waiting through multiple signal cycles. Because the traffic volumes are already at or exceeding the capacity of the intersections, neither intersection has the ability to handle increased growth in traffic. If nothing is done in the short-term, by 2015 these intersections would become major “bottlenecks” for the US 97 corridor, creating a range of traffic congestion and delay related impacts to the surrounding area.

Also if long-term needs are not addressed, by 2035 US 97 and other roadway systems in the API would experience severe congestion during

Definitions

Queuing

Queuing is the amount of traffic stopped to proceed through an intersection. Small queues of a few vehicles are typically acceptable. However, when queues become long and extend through adjacent intersections, drivers become frustrated and may attempt to bypass queues by changing their travel route or travel time, or cut through neighborhoods.

Delay

Delay results from slowed or stopped traffic, and is measured as the additional time spent traveling compared to normal travel times under light or free-flow travel conditions.

Peak Hour

A peak hour (or rush hour) is a part of the day with the highest traffic volume during which traffic congestion on roads is worst. Normally, the two peak hour periods (morning [am] and evening [pm]) occur when people are traveling to or from work or school. The 2007 evening peak hour in the API is 4:00 to 5:00 pm. By 2035, the peak period will likely spread across multiple hours.

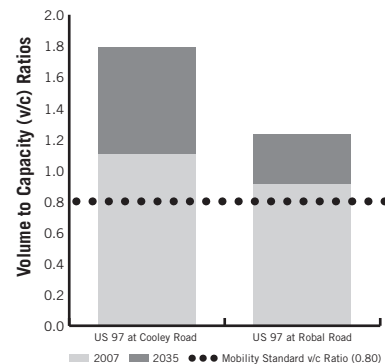


Exhibit 1-5: Volume to Capacity Ratios (2007 and 2035)

peak hours of travel. In 2035, most of the significant unsignalized intersections would be over capacity with many having a v/c ratio of 2.0 or greater. In addition, 10 out of 18 signalized intersections would exceed the v/c ratio standard (a v/c ratio of greater than 1.0). US 97 would experience periods of heavy congestion that spreads over multiple hours of the day. Traffic would wait through multiple signal cycles. The queuing would be so intense that adjacent intersections and turning lanes would be blocked by through traffic. This would result in long queues of stopped or crawling traffic lasting several hours. Turn lane queues would wait so long they would back up onto the US 97 travel lanes and stop through traffic on US 97. Travelers would experience delays many times greater than current conditions. Traffic delays would result in longer travel times for freight movement which would lead to higher costs for businesses and consumers. Traffic delays would also hinder access to and from businesses and future development opportunities, increase driver frustration that can lead to risk-taking and accidents, and decrease the local quality of life.

1.3.2 Traffic Flow within the Corridor

The *1999 Oregon Highway Plan* defines the primary function of an expressway for interurban travel and connections to ports and major recreation areas with minimal interruptions. Traffic flows at an acceptable level or rate on US 97 outside the API, moving freely and operating at normal speeds. However, in the API traffic flow is interrupted and slowed, especially during peak hours. Vehicles cannot effectively move along US 97 due to traffic congestion and slower speeds from the numerous public road approaches and private driveways as well as travelers using US 97 to make short, local trips, such as to local businesses. Local users are often making more turning movements onto and off of the highway, which puts local use in conflict with regional through users and contributes to congestion and traffic flow problems. Approximately 75 percent of the trips on US 97 are local and regional trips, which reduces the functional effectiveness of US 97 to provide statewide and regional (interurban) trip mobility.

Traffic flow is normally measured for a corridor rather than specific intersections like congestion. Traffic flow can be measured in a number of different ways between two points: travel time, travel delay (time spent in slowed or stopped conditions), average speed, and length of queues at intersections or interchanges.

Average daily traffic in the API is estimated to grow by over 40 percent by 2035. Therefore, without improvements traffic flow on US 97 is projected to worsen; it would take longer for motorists and freight to move between points within and through the API, and vehicles would spend more time waiting in stopped conditions.

Exhibit 1-6 compares average travel times and average speed for the heavily used one-mile segment of US 97 between Cooley Road and Nels Anderson Place. As travel times increase over time (3–4 minutes in the 2007 evening peak hour to 8–14 minutes in the 2035 evening peak period), the result would be a substantial decrease in average speeds on US 97 between Cooley Road and Nels Anderson Place (13–15 mph in 2007 to less than 4–6 mph in 2035) due to the severe congestion. These worsened traffic flow conditions would have negative impacts on residents and businesses in Bend and those who rely on US 97 for local and regional movement of goods and services. Planned and future residential, commercial and industrial land development could be restricted if the transportation system cannot support the additional traffic volumes.

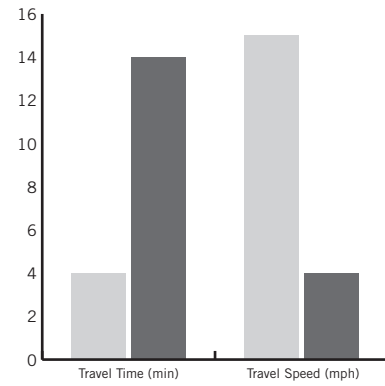


Exhibit 1-6: US 97 Average Travel Time and Speed: Cooley Road to Nels Anderson Place (2007 and 2035)

Traffic queuing is another factor that characterizes traffic flow. A traffic queue is a stopped line of vehicles. Traffic queues can block other traffic from moving freely through an intersection or along a highway segment. Traffic flow worsens as the time that traffic is blocked by traffic queues increases. Exhibit 1-7 summarizes the extent of existing and future queue blocking at the US 97/Cooley Road and US 97/Robal Road intersections during the evening peak hour (ODOT 2010f).

Exhibit 1-7: Significant Queue Blocking During Evening Peak Hour (2007 and 2035)

Intersection	Approach Direction	Blocked Lane	2007		2035		
			Average Percent of Time Intersection Blocked	Other Intersections/ Driveways Blocked	Blocked Lane	Average Percent of Time Intersection Blocked	Other Intersections/ Driveways Blocked
US 97 at Cooley Road	Eastbound	Left	35%	Loop Road Lowes Driveway	Left	63%	Loop Road Lowes Driveway
	Westbound	Left	11%	None	Left	84%	Boyd Acres Road
	Northbound	Left	12%	None	Left	25%	None
	Southbound	Left	18%	Clausen Drive	Left	70%	Clausen Drive
US 97 at Robal Road	Eastbound	None	None	None	Left	19%	Cascade Village Driveway
	Westbound	Shared-Through/Right ¹	32%	None	Left ¹	55%	Nels Anderson Road
	Northbound	Left	14%	None	Left	>30% ²	None
	Southbound	Left	18%	Target Driveway	Left	>10% ²	Target Driveway

¹ In 2007, the shared-through/right movement is blocked at this intersection, which also has a left turn lane. In 2035, travel patterns have changed slightly due to population and employment growth, which would lead to the left turn lane becoming blocked over half the peak hour.

² The 2007 northbound and southbound queue blockage times are based on actual conditions. In both years, blockage times would vary depending on the signal timing allocated to the two directions. For example, in 2007 the southbound movement has less volume, so it receives less signal “green time.” In the future, traffic volumes would increase this movement and so it would receive more signal “green time” which would result shorter queues and less blockage. Conversely the northbound movement (with heavier volumes) would then receive less “green time” and queues would lengthen and cause more blockage. The traffic analysis conducted for the project typically adjusts signal time; however, the 2035 model became so congested that precise blockages times could not be established for all movements.

Currently, traffic at these two intersections can be blocked anywhere from 11 to 35 percent of the time (ODOT 2010f). This signifies considerable disruption to traffic flow on US 97. In 2035, absent any major improvements, traffic flow at these intersections is forecast to be even more disrupted with traffic blocked anywhere from more than 10 percent to 84 percent of the peak hour (ODOT 2010f). By 2035, US 97 would be drastically over capacity due to the limited capacity of the signalized intersections and the impacts of the non-signalized intersections and access to the commercial development to US 97. Many of these intersections would experience long queues that spill into other intersections and cause blockages. These blockages would increasingly slow US 97 traffic flow over time and congest and block side street traffic, which in turn would make it difficult for motorists to access nearby businesses and residential areas and pass through the corridor.

1.3.3 Safety

Outside of the API, traffic on northbound and southbound US 97 moves freely and at normal operating speeds. As vehicles enter the API, crash rates increase because drivers are not expecting the congestion. In addition, there are many conflict points at public and private approaches; leaving little space between approaches in some areas.

Exhibit 1-8 shows the number of crashes each year between 2004 and 2009. During that time, the annual number of total crashes varied from 39 to 63. The average annual cost of these crashes is \$4.1 million.

Definition

Conflict Point

Conflict points are commonly used to explain the accident potential of a roadway. A conflict point is a location where two traffic streams cross. This could occur when a vehicle crosses, merges with, or diverges from another vehicle traveling on cross streets or driveways.

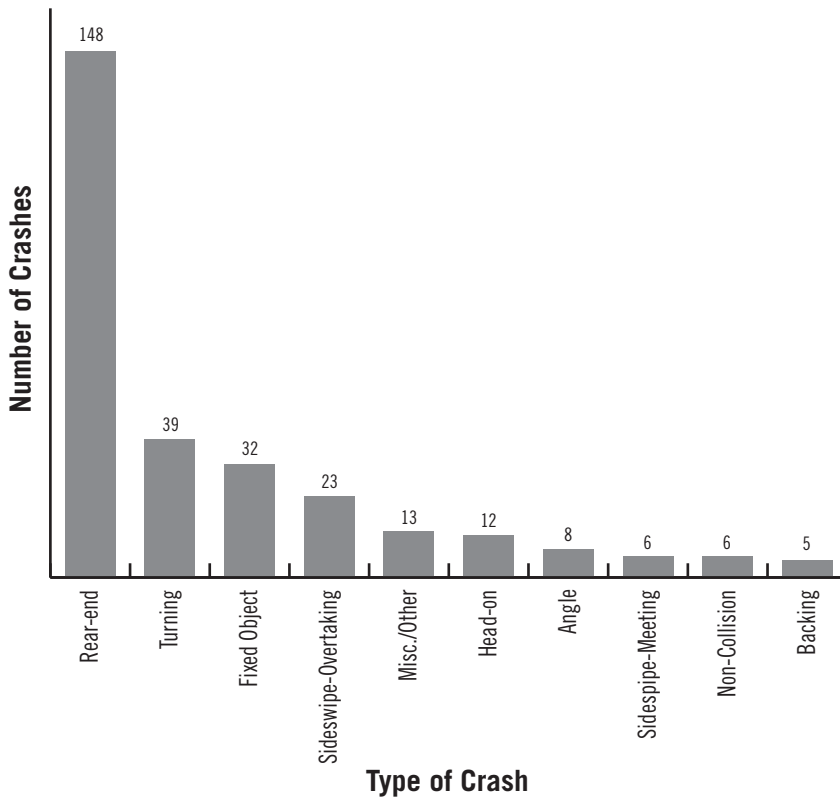
Exhibit 1-8: Number and Type of Crashes on US 97 within the API from 2004 to 2009

Crash Type	2004	2005	2006	2007	2008	2009	Total
Angle	1	4	2	0	1	0	8
Backing	2	0	2	0	0	1	5
Fixed Object	2	6	12	6	3	3	32
Head-on	0	5	1	0	6	0	12
Miscellaneous/Other	1	5	1	2	2	2	13
Non-Collision	0	0	1	1	2	2	6
Rear-end	22	32	26	24	21	23	148
Sideswipe-Meeting	0	2	0	0	1	3	6
Sideswipe-Overtaking	3	5	7	1	3	4	23
Turning	8	4	2	8	12	5	39
Total	39	63	54	42	51	43	292
Fatal/Injury A Crashes	0	0	1	7	2	10	20
Intersection/Related	16	19	13	13	24	16	101

The number of crashes has generally remained constant over time (from 2004 to 2009) with a spike in 2005. The number of severe injury (Injury A) or fatal crashes has increased over the past six years.

In the API, a majority of crashes on US 97 between 2004 and 2009 were rear-end crashes (Exhibit 1-9). Rear-end collisions and fixed object collisions are generally caused by motorists driving too fast for conditions, losing control of the vehicle and either hitting another vehicle or object (tree, abutment, ditch, etc). Turning and angle crashes are caused by motorists making turns with improper gaps in traffic or failing to yield the right of way. Many times the traffic volume on the highway is high enough so that there are a limited number of available gaps, so the motorist chooses to move into a smaller gap that has a higher crash risk. Driving under the influence or fatigue can be a factor in these kinds of collisions and these also have the greatest chance of a fatality or severe injury because of the high rate of speed. Sideswipe collisions are caused by driver error and result from improper passing movements (sideswipe-meeting) or trying to avoid a stopped vehicle (sideswipe-overtaking) in the roadway.

Exhibit 1-9: Types of Crashes on US 97 within the API between 2004 and 2009



Of the 292 crashes during this six-year period, 19 percent (56) occurred at or near the intersection of US 97 and Cooley Road and 18 percent (52) occurred at or near the intersection of US 97 and Robal Road. The types of accidents that have occurred at these two intersections are shown in Exhibit 1-10 and Exhibit 1-11.

Exhibit 1-10: Types of Crashes on US 97 near the Intersection of Cooley Road (2004–2009)

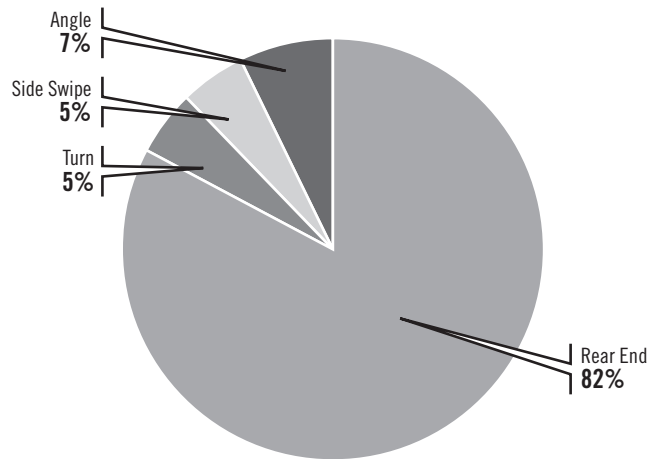
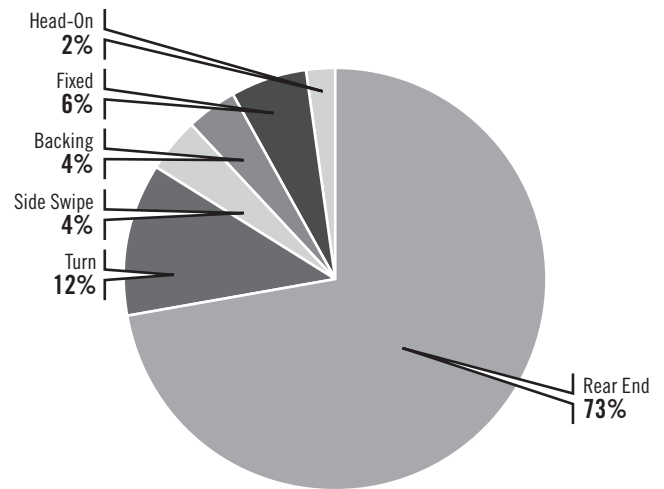


Exhibit 1-11: Types of Crashes on US 97 near the Intersection of Robal Road (2004–2009)



These two intersections are listed in the top 5 percent of ODOT’s 2010 Safety Priority Index System, which uses 2007–2009 crash data. The Safety Priority Index System is a method developed by ODOT for identifying locations with the highest crash history on state highways. The Safety Priority Index System score is based on three years of crash data and considers crash frequency, crash rate, and crash severity. Each year, ODOT generates a list of the top 10 percent Safety Priority Index System sites, and the top 5 percent sites (those that have the highest scores and present the worst safety conditions to motorists) receive priority investigation to determine if a correctable and feasible solution can be implemented. Exhibit 1-12 shows that the intersections of US 97 at Cooley Road and US 97 at Robal Road have been listed in the top 10 percent of the Safety Priority Index System every year between 2006 and 2010.

Exhibit 1-12: US 97 at Cooley Road and Robal Road: Safety Priority Index System Scores for 2006–2010

Intersection		2006	2007	2008	2009	2010
US 97 at Cooley Road	Top 5%	■	■			■
	Top 10%			■	■	
US 97 at Robal Road	Top 5%	■	■	■	■	■
	Top 10%					

Another safety concern along US 97 pertains to the numerous at-grade public road approaches and private driveways. US 97 is designated as an expressway, where the primary purpose is to provide a high speed, high volume, safe transportation facility for interurban travel with minimal interruptions. Public road approaches are highly controlled, so much so that signalized intersections and private driveways are not appropriate for these types of facilities. Users of the facility develop expectations and driving habits based on the high operating speeds and design character of the facility that are not consistent with at-grade approaches on the corridor.

The 1999 *Oregon Highway Plan* sets out access management spacing standards for approach road spacing and at-grade intersections. For an expressway, or a new bypass road that would be managed as an expressway, the rural (outside of the Bend city limits) spacing standard is 5,280 feet (one-mile) and the urban spacing standard is 2,640 feet (1/2-mile). In all segments of US 97 within the API the approach locations are such that the existing spacing is substantially less than the applicable standards. As shown in Exhibit 1-13 between Fort Thompson Lane and Grandview Drive, a distance of approximately 6,780 feet, there are 5 public road approaches with US 97 and 27 private driveways. Between Grandview Drive and Empire Avenue, a distance of approximately 9,250 feet, there are 9 public road approaches with US 97 and 3 private driveways. The extremely high density of the at-grade approaches creates a significant potential for crashes and reduces the efficiency of the facility by contributing to higher congestion. As the traffic volumes on US 97 increase, the number of crashes would increase as there would be fewer opportunities and gaps for vehicles entering from public and private approaches. In addition, the severity of crashes associated with these types of conflicts on a high speed facility is very high.

Within the API the US 97 facility is currently in good condition and the geometrics meet standards, therefore the safety issues are a result of the existing operational conditions. With no operational improvements (such as eliminating approaches, turn movements, and traffic signals) the number of crashes would increase over time. In addition, the volume of traffic would first exceed the capacity of the intersections and then the capacity of the roadway segments, resulting in queues that would block the intersections, creating severe impacts and disruptions to travel times on this corridor.

Definitions

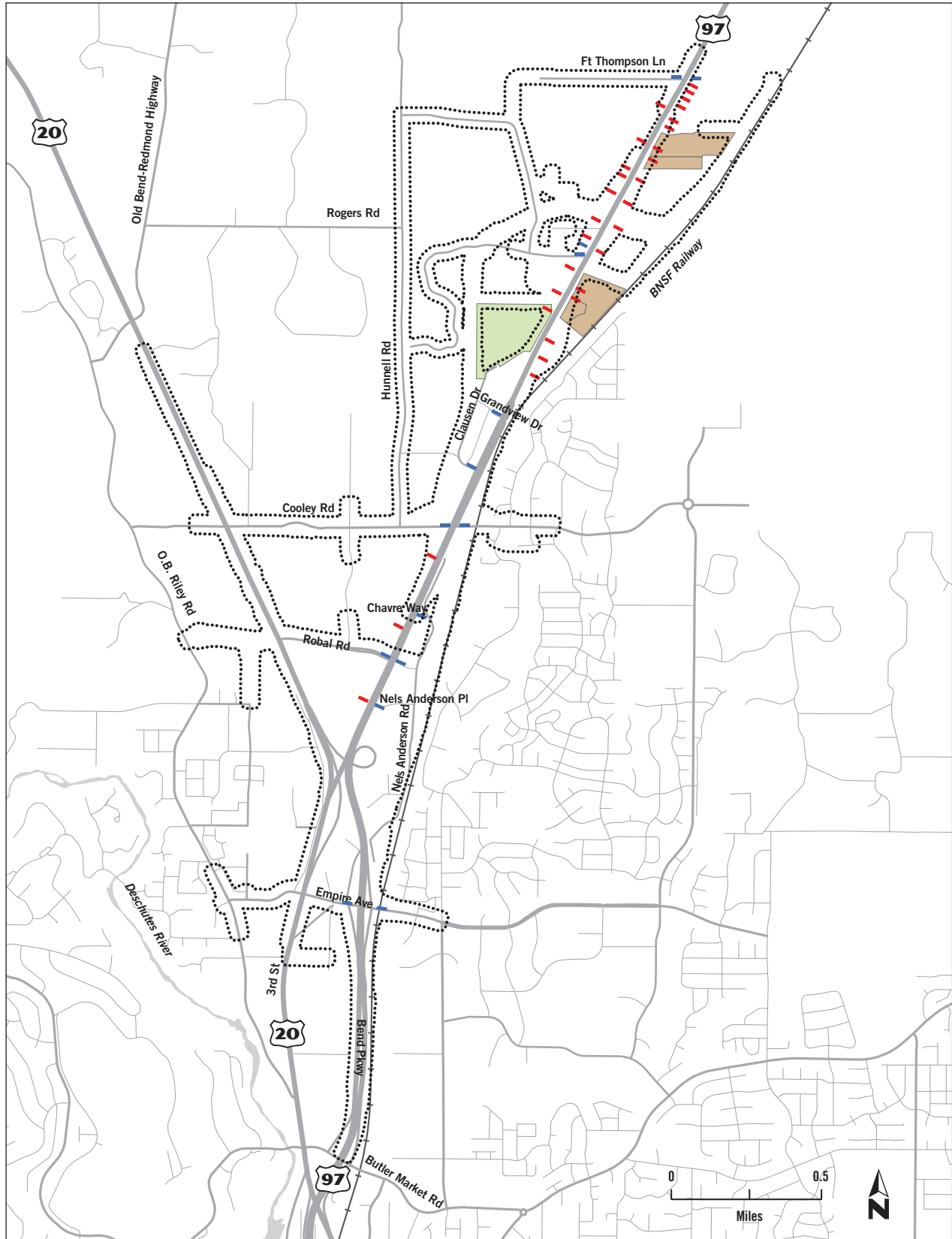
Public Approach Road

Public approach road is an existing or planned city street or county road connection that provides vehicular access to and from a highway.

Private Driveway

Private driveway is an approach that serves vehicular access to a roadway from one or more properties and that is not a public approach road.

Exhibit 1-13: Current At-grade Approaches on US 97



1.4 Background

Project stakeholders have consistently requested the transportation infrastructure improvements associated with the proposed action should be economically feasible and support economic development. Thus, the following discussion defines how the proposed action could be economically feasible in terms of regional funding projections and local land use plans.

1.4.1 Ability to Implement the Proposed Action within the Medium-term and Long-term Planning Periods

Over the past 20 years, highway modernization projects for all of Central Oregon have totaled approximately \$275 million. Recent highway modernization projects in Central Oregon have received approximately \$115 million (US 97 Bend Parkway) and approximately \$90 million (US 97 Reroute Phase 1 in Redmond). In addition, some of the approximately \$40-\$42 million projected in the Bend Metropolitan Planning Organization's long range revenue forecast for the 2007–2030 planning period would likely be available for this project. This forecast may not necessarily account for the potential full range of alternative financing mechanisms (e.g., impact fees, tax increment financing, local improvement districts, state infrastructure bank, local option transportation taxes, fair share mitigation, public-private partnership, transportation concurrency).

Based on past experience and forecasts for Central Oregon, it is conceivable that a project of this importance could receive up to \$250 million over the 20–30 year timeframe. An expectation that the project would receive more than \$250 million is not reasonable given the numerous highway modernization needs in other Central Oregon communities.

Understanding this limitation is also important in terms of the \$115 million investment made in the US 97 Bend Parkway over the past 15 years. The proposed action would connect into the north end of the Bend Parkway. In accordance with policies outlined in the *Oregon Highway Plan* and consistent with current ODOT guidance on practical design solutions, any new project must have a consistent approach to the design and to the urban corridor context created by the Bend Parkway. Staying within the corridor context would ensure a balanced investment which, for example, would solve an existing safety and congestion problem without creating new safety, congestion, and traffic flow problems somewhere else in the corridor, and would include the importance of consistent design values for overall driver expectations and safety.

Definition

Bend Parkway

The Bend Parkway is a 6.9-mile long, four-lane limited access facility, with a raised median, bike lanes on the shoulders, sidewalks in some areas, and left-turn lanes at selected intersections. It includes signalized intersections and interchanges. It begins just north of the US 20/US 97 junction (approximately at Empire Avenue) and extends south to near Romaine Village Way.

City of Bend's Proposed UGB Expansion Chronology

- 2004: City of Bend began the process of demonstrating the need for expanding its UGB
 - 2007-2008: City of Bend conducted 66 public meetings, some in conjunction with Deschutes County, on the UGB expansion. Additional public work sessions occurred with the Bend Planning Commission along with liaisons from the Deschutes County Planning Commission.
 - January 9, 2009: City amended *Bend General Plan* to include the *2008 Economic Opportunities Analysis*
 - April 16, 2009: City submitted UGB Expansion Proposal to the Oregon Department of Land Conservation and Development (DLCD) for approval
 - January 8, 2010: Oregon DLCD issued a Director's Report that remanded the proposal back to the City
 - January 29, 2010: City of Bend appealed the DLCD decision
 - November 3, 2010: Oregon Land Conservation and Development Commission issued Remand and Partial Acknowledgement Order 10-Remand-Partial ACKNOW-001795 pertaining to the Bend UGB expansion and related adopted materials. The *2008 Economic Opportunities Analysis* was found to meet Goal 9 and is not required to be modified by the remand order.
 - 2011-2012: City of Bend working to resolve issues remanded by DLCD
- Source: City of Bend 2011a and 2011b.

Although it is conceivable that this proposed action could receive total project funding of up to \$250 million, it would be unreasonable to assume that such a significant amount of funding could be raised within the first 10 years. Smaller funding packages, however, would be more likely, which would enable incremental improvements to be made. Each increment would need to provide some congestion relief and improve traffic flow and safety on US 97 to support the long-term solution.

Recently, Central Oregon received approximately \$90 million for the first phase of the US 97 Reroute Phase I in Redmond. Thus, it would be reasonable to assume that the US 97 Bend North Corridor project could receive a similar amount of up to approximately \$90 million for an initial project phase (first 10 to 15 years) that would provide some congestion relief and improvement in traffic flow and safety.

1.4.2 Current and Future Economic Lands

The City of Bend has identified the economic lands between US 97 and US 20 as an important component to its current and future economic base. In this vicinity, land can be generally described as being inside the current UGB or being inside a proposed expansion of the UGB that was approved by the Bend City Council on January 5, 2009. Each area is unique in terms of the current and future land use entitlement and development status and each area's role and importance to the regional economy.

Economic Lands within the Existing Urban Growth Boundary

Land inside the current UGB is mostly developed as a regional retail center. This is the largest regional retail commercial center in the region consisting of Jefferson, Crook, and Deschutes counties and serves as a destination for these and more distant rural locations. Retail trade (as a component of trade, transportation and utilities) is one of the largest employment sectors and has one of the highest percentages of payroll in Deschutes County, and is therefore important to the local economy (City of Bend 2008). There are approximately 150 acres of land in this area with a *Bend General Area Plan* and zone designation of Commercial General. Approximately 120 acres are developed with large national retail chains and other smaller retail and service uses employing over an estimated 1,000 people (City of Bend 2008). The remaining 30 acres is undeveloped, with a portion of this owned by a large retail company. In addition to the 150 acres are approximately 55 acres of land in an urban reserve zone with a *Bend General Area Plan* designation of Mixed Employment.

The City of Bend expects retail trade to be one of the fastest growing employment sectors in the region and city between 2006 and 2016 and beyond (City of Bend 2008). This is in part due to population growth,

but also due to Bend's role as the "central city" or regional center of Central Oregon (City of Bend 2008). The area between US 97 and US 20 is widely viewed as one of the most ideal locations in the region for retail uses due to its proximity to the largest market (Bend), but also its relatively close proximity to Sisters, Redmond, and intervening rural areas. Considering the expectations for future growth in the retail sector, existing concentration of retail uses in the US 97/US 20 area, the number of employees present in existing uses in the area, and potential for additional employment growth, protecting and enhancing employment opportunities in this area are important to the City of Bend.

Economic lands are identified as those lands designated in the *General Area Plan* as Commercial, Industrial/Mixed Employment, Public Facilities, and Medical. Of the total 5,000 acres of economic lands within the City's UGB, 74 percent is developed and 26 percent is vacant. Vacant Commercial lands are particularly scarce (272 acres) to support a 20-year planning period. Of the 698 acres of Industrial lands, 494 acres are located at the Juniper Ridge site; the remaining 204 acres are located elsewhere in the City and tend to be in small parcels versus larger, more suitably sized parcels. The City's *2008 Economic Opportunities Analysis* describes economic land supplies and illustrates that Bend has relatively few parcels over 5 acres and a relatively high amount of parcels under 5 acres than is considered "ideal" for economic development. This inventory of economics lands suggests that, all else being equal, it is critical for the City to preserve its relatively short supply of economic lands over 5 acres in size.

The *2008 Economic Opportunities Analysis* also shows that within the City's current inventory of available Industrial and Mixed Employment lands, there are three parcels of 20+ acres, four parcels of 10-20 acres, eight parcels of 5-10 acres, and 103 parcels less than 5 acres. Part of the City's analysis seeks to address limited land supplies by adding additional Commercial and Mixed Employment lands to the vicinity between US 97 and US 20 north of Cooley Road, which is zoned Urban Area Reserve. Many of these parcels are greater than 5 acres.

Economic Lands within the Urban Growth Boundary Expansion Area

The City recognizes that the opportunity for employment and economic growth are constrained by the quantity and size of existing economic lands within its UGB. On January 5, 2009, the City of Bend amended its *General Area Plan* and adopted the UGB expansion area to include approximately 250 acres of land between US 97 and US 20 as well as in other locations around Bend. Simultaneously, the City adopted the *2008 Economic Opportunities Analysis* (City of Bend 2008), which analyzes the current development status of

Definition

Juniper Ridge

The Juniper Ridge project is a major asset for the entire Bend community and a long-term investment in the City's economic future. Juniper Ridge is a master-planned, mixed-use community, and represents the community's vision of "smart growth": growth that is responsible, sustainable, and of high quality. The master plan for Juniper Ridge is designed to attract diversified, family-wage employment, a university campus with research-and-development capabilities, and opportunities for high-quality residential neighborhoods that embrace the qualities of development already proven to be successful and desirable in Bend. Estimates are that the project can create 12,000 to 15,000 new jobs over its lifetime. Source: City of Bend 2011b.

economic lands, provides a factual basis to grow the City’s economy between 2008 and 2028, and briefly discusses ideal locations for new commercial and industrial development as well as issues related to economic land supplies.

A critical component of promoting economic growth is providing an adequate supply of serviceable lands in competitive locations for employment uses within the City. The area between US 97 and US 20 has nearly all of the requisite site characteristics to attract a variety of economic development opportunities such as flat topography, access to transportation facilities, adequate parcel sizes, high visibility, and central location relative to employees and customers (City of Bend 2008). The existing land development pattern and uses in the area already demonstrate its suitability for retail and support uses. While this area shows great promise to attract new development of many different types and intensities, limited capacity of the transportation network prevents existing vacant acreage from being developed to its highest and best use.

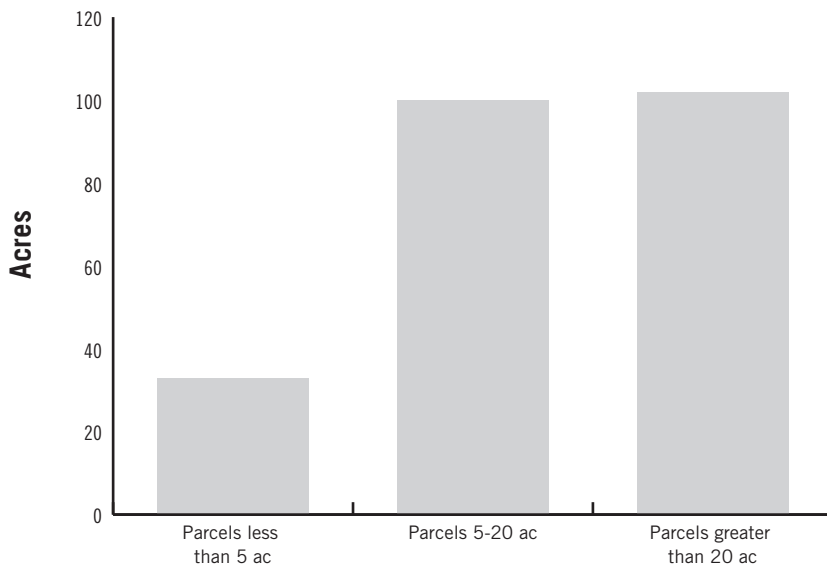
Part of the *2008 Economic Opportunities Analysis* seeks to address limited land supplies by adding Commercial and Mixed Employment lands to the vicinity between US 97 and US 20 north of Cooley Road, which are zoned Urban Area Reserve but are designated as Commercial and Mixed Employment lands in the *General Area Plan* as a result of the proposed UGB expansion. Exhibit 1-14 summarizes the 34 parcels and 235 acres of economic lands designated as Urban Area Reserve between US 97 and US 20 north of Cooley Road that could potentially be affected by the proposed action. Many of these parcels are greater than 5 acres and are currently in short supply inside the existing Bend UGB. The *2008 Economic Opportunities Analysis* identifies the characteristics of good employment land that includes criteria such as flat topography, adequate parcel size, close proximity to transportation (including air), adequate services, visibility for commercial centers, access to alternate modes of transportation and other criteria. The City of Bend identified the Urban Area Reserve lands between US 97 and US 20 as the most ideal location for new commercial and industrial development in the Bend area.

The *2008 Economic Opportunities Analysis* also emphasizes that Bend is a cultural and economic center of the region, providing 54 percent of the region’s jobs while only having 37 percent of the region’s population in 2004. Existing Commercial lands between US 97 and US 20 that are occupied provide an important employment base within the current UGB. Employment densities for day employees range 13-20 employees per net acre, while employment densities for industrial uses tend to be lower at 11-15 employees per net acre. Commercial lands were nearly

half of the land added to the UGB for economic purposes. The UGB expansion added to the existing regional retail center in the north, while also adding a component of mixed use and residential. These proposed land uses attempt to strengthen the City’s role as a regional retail center, while also attempting to provide a better mix of housing and jobs in the north of Bend.

The City’s 2008 *Economic Opportunities Analysis* and UGB expansion proposal illustrates the value of this area to the city’s long-term economic development strategy. In short, it builds upon an existing economic strength, and combats an economic weakness of limited commercial land supplies in the north of Bend. Bend has demonstrated its role as a regional retail center and has shown sustained employment growth in the retail sector for years. Moreover, the area between US 97 and US 20 north of Cooley Road is identified as the best location for commercial and industrial development in Bend (City of Bend 2008).

Exhibit 1-14: Current Inventory of Urban Area Reserve/Economic Lands between US 97 and US 20



1.5 Goals and Objectives

Project goals and objectives are desirable outcomes that the proposed action would like to achieve beyond the minimum threshold requirements addressed in the purpose and need statement. This Draft EIS documents all of the alternatives considered during the alternatives screening phase; identifies those alternatives that are included in the reasonable range of alternatives for detailed study and comparison; and includes detailed environmental analysis on the reasonable range of alternatives. The Draft EIS is published and circulated for public comment, including a public hearing. The public comments received will contribute to the decision on which alternative is identified as the preferred alternative (or solution) for the project. A

Key Point

Emergency service providers strive towards a 3 minute response time for fire and emergency medical response.

Final EIS will be prepared to document the preferred alternative as well as responses to public and agency comments submitted on the Draft EIS.

Upon public review and comments on the analysis of the range of alternatives studied in the Draft EIS, ODOT and FHWA will also consider the following goals and objectives when identifying a preferred alternative (or solution) for the proposed action.

Goal 1 – Improve transportation system linkage and operation

- Minimize impacts and consider improvements to local street operations and connectivity.
- Consider improved connection between US 97 and US 20.
- Maintain or improve the function of US 20 as a regional transportation route.
- Maintain or improve emergency service response times.

Goal 2 – Provide local and regional access

- Provide regional connectivity to US 97 and US 20.
- Maintain access to commercial and industrial areas.

Goal 3 – Consider planned economic development opportunities

- Balance planned land use and zoning as currently identified in the City of Bend's *Bend Area General Plan* and *Bend Urban Area Transportation System Plan*, *Deschutes County Comprehensive Plan*, and Bend Metropolitan Planning Organization's *2007–2030 Metropolitan Transportation Plan* with US 97 transportation system improvements.
- Provide design in transportation system to accommodate planned future land use and economic development.

Goal 4 – Develop a cost effective and sustainable project

- Consider opportunities for public and private cost sharing.
- Consider long-term maintenance feasibility and cost.

Goal 5 – Develop a project that fits into the context of the community

- Involve stakeholders to deliver a project that fits into the existing human and natural surroundings.
- Consider past system and corridor work when framing solutions.
- Use practical design principles to minimize cost and impacts and deliver focused benefits.

Goal 6 – Improve bicycle and pedestrian safety and connectivity

- Enhance safety, access, and mobility for pedestrians and bicyclists.