

CHAPTER 2. ALTERNATIVES

Process for Determining DEIS Alternatives

This section summarizes the process by which project alternatives were developed and evaluated. See Chapter 2 of the DEIS for a complete description.

In 1997, ODOT convened a group of people to serve as the “Solution Team” that participated in several ways during the process of defining, describing, analyzing, and selecting among project alternatives. The Solution Team consisted of the following: representatives from ODOT, representatives from FHWA, interested individuals, and representatives from organizations in the Medford area.

As described in subsequent paragraphs, the Citizens Advisory Committee (CAC) and representatives from the general public also participated in the process.

The Solution Team, other ODOT and FHWA representatives, and the CAC developed project goals, as well as evaluation criteria that reflected those project goals. The Solution Team, members of the CAC, and the general public then participated in a collaborative process to define, assess, and sort through options for the South Medford Interchange.

The goals and criteria (shown in Appendix I) were used to screen the alternatives down to a reasonable number to advance into the DEIS. Alternatives that would not have solved the fundamental traffic problem were not advanced for further evaluation. Concepts that might have solved transportation problems at the interchange, but would have caused substantial traffic

and safety problems elsewhere, also were not advanced for further evaluation.

Following development of the goals and evaluation criteria, the Solution Team, other ODOT and FHWA representatives, and the CAC participated in an interactive workshop to draw out a broad range of options that might address the purpose and need for the project. The workshop generated 18 concepts. Of these, five were rejected based on traffic and design-related factors; the remaining 13 were forwarded for further refinement, transportation analysis, and consideration. FHWA concurred with this determination. The reasons for rejecting the five concepts are detailed in Table 2-1 of the DEIS.

The Solution Team and CAC then evaluated the remaining 13 concepts from the workshop according to the following nine transportation factors:

- Increases interchange capacity,
- Maintains and enhances safety and integrity of transportation system,
- Reduces traffic volumes at interchange,
- Improves north-south connections, on the west side of the Interstate,
- Improves north-south connections, on the east side of the Interstate,
- Improves east-west connections,
- Reduces signal delay,
- Minimizes out-of-direction travel, and
- Compatibility with other modes of travel.

The Solution Team, other ODOT and FHWA representatives, and the CAC considered how well the 13 candidate concepts would perform relative to the above-listed nine transportation factors.

They rejected seven of the concepts (the reasons are detailed in Table 2-2 of the DEIS) and forwarded six of the concepts to the next phase of the screening process.

The Solution Team also reviewed numerous design sketches submitted by the public. Of these suggested designs, those that previously had been considered and rejected were not further evaluated. Others failed to meet required safety and design standards. Four concepts were evaluated against the nine transportation factors listed above. Although these concepts scored low as separate alternatives, the local connectivity elements of one of the concepts offered a new approach and was forwarded for testing by the traffic model.

The next step in the screening process used traffic analyses to evaluate the six remaining alternative concepts and the local connectivity concepts. A variety of local street improvements (both with and without interchange improvements), “east-side connectors,” and a South Stage Road interchange concept were evaluated. The results of the traffic modeling helped determine if these alternatives would solve the transportation problem, and helped to identify the best design concepts for each alternative. The Solution Team, other ODOT and FHWA representatives, and the CAC considered the results of the analysis and initially forwarded three alternatives for full analysis in the DEIS: Alternatives 2, 11 and 14, (i.e., the Ellendale, Highland, and Couplet alternatives, respectively).

Subsequently, the Solution Team eliminated Alternative 14 (the Couplet Alternative) from further consideration because there would have been unacceptable levels of congestion at the connection to Riverside Avenue at Boyd Street and at the Stewart Avenue/Barnett Road intersection.

Controlling congestion at the latter intersection is critical because it is a main contributor to the current transportation problem.

At the completion of this alternative screening process, the Solution Team and CAC recommended that the Ellendale and Highland alternatives be advanced as the “Build Alternatives” to be analyzed in the DEIS. The Ellendale and the Highland alternatives were determined to be the only alternatives that would solve both the fundamental transportation problem at the existing South Medford Interchange and adequately address the purpose and need for the project. With FHWA concurrence, the Ellendale, Highland, and No-Build alternatives were forwarded into the DEIS.

Assessment of DEIS Alternatives

The DEIS process was used to analyze the following three alternatives:

- **No-Build Alternative:** The No-Build Alternative would maintain the existing interchange in its current configuration (Figure 2 in the DEIS),
- **Highland Alternative:** This alternative would relocate the South Medford Interchange approximately 580 meters (1,903 feet) south of its current location on I-5 (Figure 3 in the DEIS), and
- **Ellendale Alternative:** This alternative would have relocated the South Medford Interchange approximately 950 meters (3,117 feet) south of its current location on I-5 (Figure 4 in the DEIS).

The No-Build Alternative

The No-Build Alternative would maintain the existing interchange between I-5 and Barnett Road. Planned Transportation System Management (TSM) investments

would be slightly above current levels. No expansion of Transportation Demand Management (TDM) programs would occur. Transit service would continue in accordance with the Regional Transportation Plan.

The No-Build Alternative would also include several other projects that have been recently developed, are currently being constructed, or are anticipated to occur, regardless of the outcome of the South Medford Interchange Project. With respect to future roadway projects, the No-Build Alternative would include projects that are in the Tier 1 project list in the *Rogue Valley Regional Transportation Plan*.

The Build Alternatives

Both of the build alternatives would replace the existing interchange with a new Single Point Urban Interchange (SPUI) located to the south. A SPUI is similar to a typical diamond interchange except that the on- and offramps are controlled by a single traffic signal, which allows left turns from the ramps to operate concurrently. This allows more vehicles through the interchange while utilizing less right-of-way.

Both of the build alternatives would also include the following elements:

- The ramps of the old interchange would be removed, but the Barnett Road bridge over I-5 would be retained.
- Center Drive would be relocated at its southern end, and access to the Rogue Federal Credit Union would be modified.
- New bridges throughout the project would require some piers within the Bear Creek floodway, but would not include piers within the channel of the stream.
- Sidewalks and bicycle lanes would be provided on new and relocated streets except for turn-lane improvements along Oregon 99.
- Project-related bicycle lanes would have connections to the Bear Creek Greenway Trail.
- Transit service would be similar to what would be provided under the No-Build Alternative.
- Medians would be installed to provide access control and to protect the mobility function of the facilities.

Highland (Preferred) Alternative

The Highland Alternative interchange would be located approximately 580 meters (1,903 feet) south of the existing interchange. The facility would include new streets that would connect the interchange structure to Barnett Road at its intersection with Highland Drive and to Oregon 99 at its current intersection of Garfield Street and Belknap Road (see FEIS Figure 2-1). Improvements would be made to existing streets including:

- Oregon 99, generally between Stewart Avenue and Belknap Road,
- Barnett Road, from Alba Drive to Ellendale Drive, and
- Highland Drive, between Barnett Road and Greenwood Street.

The estimated project construction cost is expected to be \$52 million (refer to 2002-2005 Oregon Statewide Transportation Improvement Program at www.odot.state.or.us/stip/)

Ellendale Alternative

The Ellendale Alternative interchange would be located approximately 950 meters (3,117 feet) to the south of the existing South Medford Interchange (see Figure 4 of the Executive Summary in the DEIS). Additional turn lanes would be added at several locations on existing roads. Dyer Road at Ellendale Drive would be relocated to the south. A bridge over Larson Creek would replace the existing culvert. The estimated cost range of the alternative was expected to be between \$56 and \$57 million.

Preferred Alternative for the FEIS

On January 29, 2002, the Solution Team, other ODOT and FHWA representatives, and the CAC jointly met to decide which of the alternatives considered in the DEIS would be recommended to go forward to the *Final Environmental Impact Statement* (FEIS). They considered the No-Build, Highland, and Ellendale alternatives with respect to the project's purpose and need, evaluation criteria, and public and agency comments on the DEIS. The CAC unanimously recommended to the Solution Team that the Highland Alternative be forwarded as the "Preferred Alternative". The Solution Team then unanimously recommended the same to ODOT and FHWA.

Justification for Identification of Preferred Alternative

The Solution Team concluded that the Highland Alternative would solve the congestion and geometric problems at the existing South Medford Interchange. The No-Build Alternative would not solve this fundamental problem. They recommended that the Highland Alternative be advanced over the Ellendale Alternative in part

because the Highland Alternative is reasonably expected to:

- Cause the least harm to the natural environment, with the least adverse impacts to wetlands, riparian areas, and increase in impervious surfaces (water quality/quantity issues);
- Cause the least overall harm to the socioeconomic environment with the least adverse impacts to housing, minority and low income populations or communities, businesses (including access), and recreational resources;
- Require substantially fewer public funds for construction; and
- Address, through reasonable and feasible mitigation measures, public concerns regarding localized and community-wide impacts, as expressed in public comments.

FHWA concurred with the Solution Team's recommendation.

The following provides additional information regarding the recommendation.

Interchange Functionality

The existing interchange provides access from I-5 to regional services in the south Medford area for a large regional population. However, many of the traffic congestion problems at the interchange stem from the large number of travelers that use the interchange to move between origins and destinations within the city. The local street system has connectivity limitations due to physical impediments and past planning decisions. Barnett Road serves as one of two east-west connections that can provide access to I-5, which in turn is one of few roadways that provide north-south connectivity through the city. Barnett Road also carries a substantial amount of east-

west trips, being one of only eight streets that cross I-5 in Medford.

The proposed new interchange and connector would provide clear connections to major regional destinations via Center Drive, Oregon 99, and Barnett Road, east of the Highland Drive intersection. The proposed project's connectors also would substantially improve street network connectivity by adding an east-west link between Barnett Road and Oregon 99, thus freeing up Barnett Road west of Highland Drive to accommodate local east-west travelers. Consequently, the proposed project would substantially help separate intra-regional, inter-regional, and interstate travelers from local travelers, thus improving the overall function of the interchange and the intersecting streets.

Mobility

By the year 2030, seven major intersections in the vicinity of the South Medford Interchange are predicted to exceed applicable ODOT volume-to-capacity (v/c) standards and/or City of Medford Level-of-Service (LOS) standards under the No-Build Alternative. The over-capacity conditions at the existing I-5 offramps would substantially impair the operational efficiency and the safety of the existing interchange and the I-5 mainline. Because congestion would increase on Barnett Road across I-5, increasing numbers of travelers would seek alternative routes through nearby neighborhoods to travel from southeast Medford to the downtown area.

If the Preferred Alternative were built, the local city street system could meet mobility standards at four of the seven intersections through the year 2030. Intersections that would not meet mobility standards would operate as well as or better than they would under the No-Build Alternative in 2030. Because of substantial public concern about

this last point, further discussion is warranted here.

The Solution Team recognized that not all of the transportation goals that had been identified at the outset of the planning process could be met by the Build Alternatives considered in the DEIS. Due to a wide range of traffic problems that stem from street system shortcomings in areas that are substantially outside of the project area, some intersections near the interchange may not meet the volume-to-capacity (v/c) ratio and the project goal of 0.85. The Solution Team considered which goals and elements were "critical" to solving the fundamental problem of the project, and which would be either "desirable" or simply "supportive". The fundamental problem and critical transportation purpose of the project is to reduce congestion and operational problems at the South Medford Interchange.

The Preferred Alternative would satisfy the critical transportation purpose of the project because it would make it possible to achieve the project's transportation v/c goal at the ramp terminal intersections. The Preferred Alternative would not achieve the project's stated v/c or LOS goal at the Oregon 99/Barnett Road, Barnett Road/Black Oak, and Oregon 99/Stewart Avenue intersections (which lie outside the immediate interchange) because of much larger system problems. However, these intersections would operate as well as or better than what would occur under the No-Build Alternative. Therefore, the Solution Team, and other ODOT and FHWA representatives felt the Preferred Alternative would support the overall purpose and need for the project at these intersections.

Pedestrian and Bicycle Amenities

Currently, the pedestrian and bicycle facilities along Oregon 99, Barnett Road,

and Highland Drive within the project area are incomplete. Bicycle lanes do not exist along Barnett Road, and pedestrian facilities along the street are intermittent and limited by features such as the Bear Creek Bridge and the bridge crossing I-5.

To address this issue, the Preferred Alternative would provide the following:

- Pedestrian and bicycle facilities for all new and improved street segments.
- Crosswalks and pedestrian/bicycle refuges to facilitate safe crossing at the proposed interchange. Crosswalks at other four-way intersections also would be improved.
- An additional east-west link, via the new connectors that would link Barnett and Oregon 99 through the new interchange in southeast Medford for pedestrians and bicyclists.
- Connections to the Bear Creek Greenway Trail.

These improvements may encourage more people to use alternative modes of transportation.

ODOT established a subcommittee of the CAC in response to potential impacts to pedestrian and bicycle facilities along Highland Drive in the Bear Creek Park area and along Barnett Road from approximately Ellendale Drive to Stewart Avenue. (Please see discussion of the solutions from this subcommittee that are now included as part of the project under “Description of Preferred Alternative”.)

Air Quality

An analysis of worst-case air quality hot-spots indicated that, under the Preferred Alternative, concentrations of air pollutants would be below the State and Federal

standards at each intersection for the 2000, 2010, 2020, and 2030 analysis years. The analysis also predicted that the concentrations under the Preferred Alternative would be lower than under the No-Build Alternative at each intersection. Overall, the Preferred Alternative would improve operational characteristics at numerous intersections and would reduce emissions of air pollutants within the Medford airshed.

Natural, Cultural, and Social Environment

The proposed project is located within the naturally sensitive Bear Creek drainage basin. Consequently, the proposed project has been planned and would be built to provide several measures to minimize adverse impacts to the stream. Key mitigation measures added to the project, and reduced impacts due to selection of the Highland Alternative include:

- New proposed bridges would span Bear Creek and would minimize the number of support piers that must be constructed within the stream’s two-year flood channel;
- New bridge structures would span portions of the 100-year floodway that lies beyond the two-year flood channel and might contain piers but should not include roadway structural fill;
- No increases in water surface elevations are anticipated within the 100-year floodway;
- The Highland Alternative would result in minor impacts to wetland and riparian resources; estimated to be approximately 0.04 hectares (0.1 acres) and 0.3 hectares (0.7 acres), respectively. In comparison, the Ellendale Alternative would impact approximately 0.2 hectares (0.5 acres) and 0.5 hectares (1.2 acres), respectively;

- Measures to mitigate unavoidable wetland and riparian impacts are proposed to be developed and implemented through continued coordination with regulatory and resource management agencies that have jurisdiction over the affected resources;
- The Highland Alternative might affect one potential archaeological site. In comparison, the Ellendale Alternative might affect two potential sites; and
- The Highland Alternative would not directly displace any low-income households. The Ellendale Alternative would directly displace 53 such households, which would constitute a disproportionately adverse impact to a low-income neighborhood.

Economy and Tourism

Severe congestion associated with the No-Build Alternative would deter travelers. Consequently, businesses and industry that are presently located in the general vicinity of the interchange (particularly those associated with regional services or that are reliant on efficient distribution of goods and services regionally) would suffer adverse economic impacts. The Highland Alternative would:

- Contribute to local and regional economies by providing improvements that would facilitate the movement of freight and make the interchange area more user-friendly for people seeking services in the general project area, and
- Enhance the aesthetic quality of the interchange by providing clear roadway connections, directional signage, and landscaping.

Description of Preferred Alternative

FEIS Figures 2-1 and 2-2 illustrate the Preferred Alternative. The Preferred Alternative described in this FEIS was based on the Preferred Alternative that was described in the DEIS. Both versions are quite similar, but the newer version has some important refinements. Both would involve removing the existing ramps, building a new SPUI south of the existing interchange, and providing new connector streets between the interchange and Barnett Road and between the interchange and Oregon 99.

Refined Design

The design of the Preferred Alternative has been refined based on consideration of public and agency comments on the DEIS, permitting requirements, and additional engineering and design safety review. The refinements to the Preferred Alternative are described below.

Removal of Project “Buffered Footprint”

The DEIS considered a “primary footprint” and a “buffered footprint”. Subsequent design refinements allowed for a single project footprint to be considered in the FEIS. The main differences between the footprint of the project considered in the DEIS and that of the refined project footprint discussed in this FEIS are discussed below.

Utility and Maintenance Rights-of-Way and Temporary Construction Easement Areas

After considering maintenance-related and emergency-related needs to access the Highland Drive connector bridge, ODOT decided to propose acquiring access rights-of-way along the new roadways. Up to 1 meter (3 feet) of permanent utilities and maintenance rights-of-way would be provided along the relocated Center Drive improvements and along new segments of the Highland Drive and Garfield Street connectors at existing ground levels. Portions of the east side of the Highland Drive connector and the Garfield Street connector, which would involve large areas of fill, would require 3 meters (10 feet) of right-of-way extending from the beginning of the fill on both sides. Along the east side of the Highland Drive connector, an additional 2 meters (6.5 feet) of right-of-way easement may be needed for short-term, temporary construction access to the east side of the bridges that cross Bear Creek.

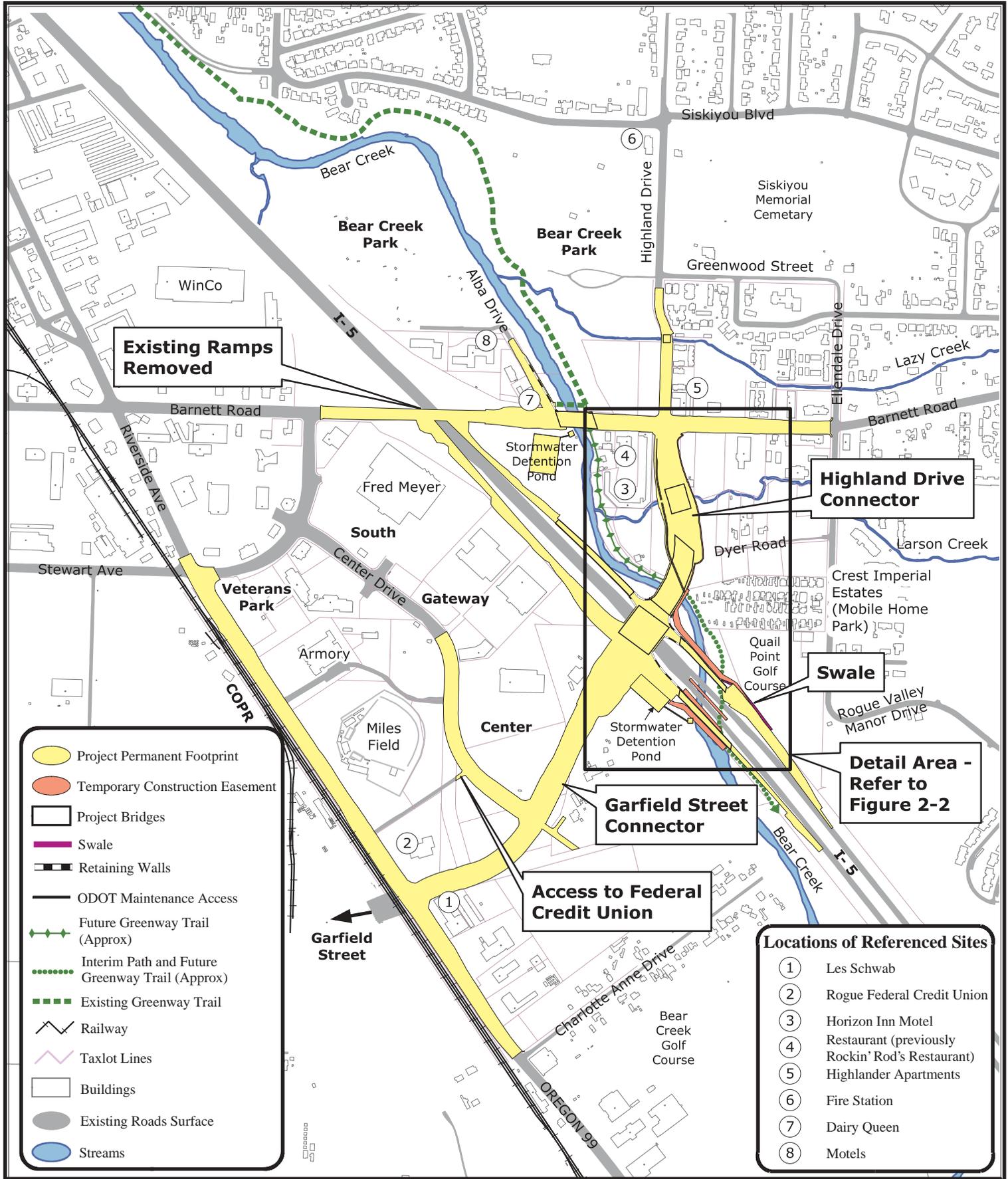
Temporary construction bridges would be needed to construct the permanent bridge crossings for Larson Creek and Bear Creek. Two temporary construction bridges consisting of steel pipe piles, or other temporary support, would likely be constructed to cross Bear Creek. Approximately 130 piles would be installed within the two-year flood channel of Bear Creek, including about 30 piles that may need to be installed within the portion of the channel that carries flood flows during the two-year runoff events. Some piles may be anchored on small concrete pads where bedrock is exposed in the stream channel. For all temporary bridges, appropriate measures would be taken to prevent construction materials or waste from entering the stream. Temporary construction bridges and access roads would be removed, alignments would be moved back to the

original contours, and other disturbed areas would be replanted (in accord with landscaping and restoration plans that would be approved for the project).

The project would reserve the option to provide maintenance access to the existing and proposed bridges crossing Larson and Bear creeks. The project currently proposes securing permanent right-of-way for maintenance access along the west side of the Highland Drive connector between Barnett Road and the proposed Highland Drive connector's bridge crossing over Bear Creek. One point of access to the maintenance right-of-way would be located at the southwest corner of the Barnett Road /Highland Drive connector intersection. The precise locations for other potential access to this right-of-way from the existing road would be determined during final design. No maintenance access bridge across Larson Creek is proposed in the foreseeable future for this project; however, if Jackson County were to construct a bridge across the stream for an interim (temporary) multipurpose path along the west side of the Highland Drive connector (see discussion under "Interim Multipurpose Path"), that bridge might be used for long-term maintenance access by ODOT.

Highland Drive Improvements North of Barnett Road

After considering public comments on the need for improved pedestrian access in the vicinity of Highland Drive and Bear Creek Park, the Preferred Alternative was refined to include a sidewalk along the east side of Highland Drive, extending from Barnett Road to Greenwood Street (a sidewalk already extends from Greenwood Street to Siskiyou Boulevard on this side of the street). South of Greenwood Street to Barnett Road, all of the improvements would be constructed within the City of



Existing Ramps Removed

Highland Drive Connector

Swale

Detail Area - Refer to Figure 2-2

Garfield Street Connector

Access to Federal Credit Union

Locations of Referenced Sites	
1	Les Schwab
2	Rogue Federal Credit Union
3	Horizon Inn Motel
4	Restaurant (previously Rockin' Rod's Restaurant)
5	Highlander Apartments
6	Fire Station
7	Dairy Queen
8	Motels

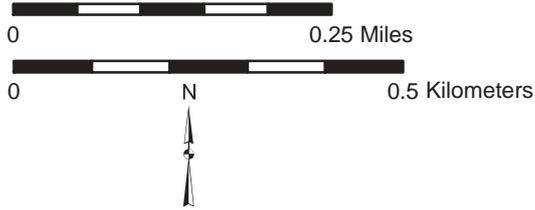


Figure 2-1
Preferred Alternative

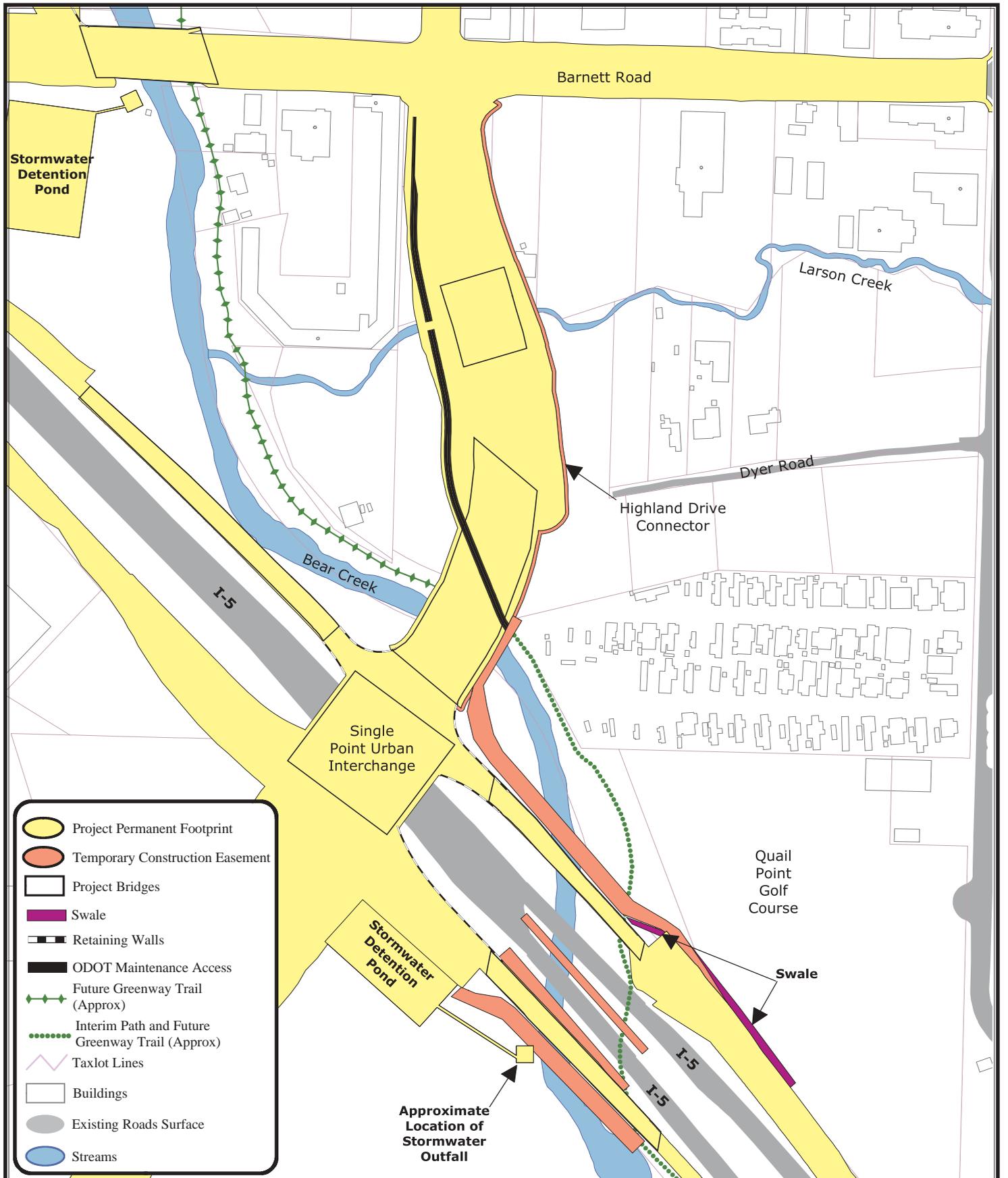


Figure 2-2

Detail of Interchange Area

Medford's existing Highland Drive right-of-way, except for a narrow strip of land south of Lazy Creek and along the Bear Creek Park frontage. (See the discussion under "Bear Creek Park Access" to see how these improvements would link with other pedestrian and bicycle improvements.)

Oregon 99 Improvements

Sidewalk, bicycle lane, and existing travel lane improvements along the east side of Oregon 99 would be extended to Charlotte Anne Drive. These improvements, located south of the recently constructed intersection with Garfield Street, were modified due to alignment and safety factors. Slight refinements to existing roadway lanes and sidewalks would also be required along the edge of the existing streets on the northeast and southeast corners of the Oregon 99/Stewart Avenue intersection. To minimize impacts to historic and park properties along Oregon 99, the sidewalk between the railroad tracks and the west side of the highway were eliminated from the design. Pedestrian access would be maintained along the east side of the highway with connections to other sidewalks west of the highway provided at Oregon 99 intersections with Garfield Avenue and Stewart Avenue.

Barnett Road Improvements

To provide improved pedestrian and bicycle facilities along Barnett Road, improvements to sidewalks and bicycle lanes would be extended to the Barnett Road/Stewart Avenue and Barnett Road/Ellendale Drive intersections. The western improvements extending to Stewart Avenue would be made within the existing street right-of-way. The eastern improvements extending to Ellendale Drive would require additional right-of-way (up to 0.60 meters [2.0 feet] of additional width) along both sides of Barnett

Road east of the project limits that were described in the DEIS.

Lengthening of Ramps on New Interchange

Although the ramps that would serve the new interchange would remain in the same general location as presented in the DEIS, the ramp lengths in the refined design would be extended requiring some additional fill, longer bridge sections, and/or retaining walls. The ramp lengthening was needed to meet geometric requirements after considering environmental constraints, safety, and design allowances for potential future improvements to I-5. All refinements would be located within the existing I-5 right-of-way.

Extension of Highland Connector Bear Creek Bridge

After considering the biological issues raised by agencies regarding measures to minimize potential impacts Bear Creek resources, the proposed new bridge, which would be located just north of the SPUI, would be lengthened to the north with an additional 25 meter (82 foot) span. Doing so would allow free passage of an increased volume of stream flow that would be needed to meet hydraulic requirements and a preferred structural design.

Bridge Pier Locations

In attempting to balance engineering limitations and needs to minimize potential impacts to Bear Creek as recommended by regulatory agencies, ODOT's refined roadway and bridge design would place most of the permanent piers in a portion of the flood plain that is outside of the two-year flood channel. However, engineering requires that three piers must be placed within the two-year flood channel. These include:

- For the I-5 Southbound onramp one pier would be located in the two-year flood channel;
- For the I-5 Northbound offramp two piers would be located in the two-year flood channel.

Bear Creek Park Access

In response to considerable public comments regarding access to Bear Creek Park, and through a collaborative process with the City of Medford and ODOT, members of the South Medford CAC Sub-team for Pedestrian and Bicycle Safety identified existing pedestrian and bicycle access and safety issues in the Barnett Road/Highland Drive/Siskiyou Boulevard/Bear Creek Park area. The Sub-team developed an improved design for people walking and bicycling to and from Bear Creek Park. Access to the park would be aided by the sidewalk that would be constructed under the South Medford Interchange Project along the east side of Highland Drive south of Greenwood Street. As a related City project, a Highland Drive pedestrian crossing at this intersection would help people access the park from the east. The City also plans to make improvements along Highland Drive between the northern end of the South Medford Interchange Project and the Siskiyou Boulevard intersection. The City would construct sidewalk and a landscape strip within the park along its southern and eastern perimeters bounding the interchange project and Bear Creek Park (Figure 2-3). (See further description of related City improvements under “Changes in Reasonably Foreseeable Future and Related Actions”).

Newly Defined Roadway Access Points

In response to public and property owner concerns about access to properties, ODOT

has identified new locations for providing access from the proposed project to several properties. Most notable are combined accesses to the Best Western Motel and Rockin Rod’s Restaurant (now closed). Such access would be needed because the increased elevation of Barnett Road (resulting from that road’s Bear Creek Bridge replacement) would not allow existing access points to remain. A modified stub-out is planned for Center Drive on the south side of the Garfield connector. Also planned are closures of the currently shared access between Les Schwab Tire/Skinner Auto Sales and the access between Oregon 99 and the parking lot for Kim’s Restaurant.

Stormwater Facilities

The project description in the DEIS included potential locations for stormwater biofiltration swales (vegetated filtering ditches) that would treat runoff from the new roadway. Agency concerns about water quality impacts to Bear Creek prompted reconsideration of the stormwater collection system. Further design refinements, coordinated with water quality and hydraulic analyses, led ODOT to drop the swale system described in the DEIS. ODOT refined the Preferred Alternative analyzed in this FEIS to provide two stormwater detention and water quality treatment ponds and a small biofiltration swale (Figure 2-2).

Each pond would include a discharge pipeline and outfall to Bear Creek. The ponds would improve the water quality of the stormwater by allowing sediment to settle out. Additionally, some stormwater would infiltrate into the ground rather than discharge into Bear Creek. Infiltration would allow the water to arrive at Bear Creek as groundwater, resulting in the cleaner and cooler water entering the stream. During minor rain events (often the events that produce the most heavily polluted

stormwater) it is possible that all of the stormwater would be handled via infiltration/evaporation (rather than discharging to the creek directly).

One detention pond would be located in the area of the ramps that would form the southeastern portion of the existing interchange (the existing ramps are proposed to be removed). The other detention pond would be located in the southwestern portion of the new interchange area. These ponds would detain stormwater and help control the rate of release of floodwater to streams. An outfall pipe would extend from each pond to discharge into Bear Creek. The two discharge points and flow dissipation features would be located within the floodplain but not within the two-year flood channel.

A biofiltration swale would be constructed generally along the eastern boundary of the I-5 northbound offramp. The swale would collect runoff that drains from the roadway surfaces and discharge it into Bear Creek. All detention ponds and the swale would be designed to have a treated-to-net new impervious surface ratio that would meet or exceed 140 percent.

Lazy Creek Crossing

After considering design, engineering, and regulatory requirements at Highland Drive's current crossing at Lazy Creek ODOT decided to remove the existing culvert and replace it with a new single-span bridge. The proposed bridge would be approximately 23.3 meters (76 feet) wide and 10 meters (33 feet) long. The stream channel would be restored to a more natural condition. The portion of the stream channel that runs below the new bridge would likely be lined with riprap as well as natural streambed material.

Barnett Road/Bear Creek Bridge Replacement

Under the refined Preferred Alternative, the existing Barnett Road Bear Creek Bridge, would be replaced (i.e., not widened as stated in the DEIS). Inspections conducted following the DEIS revealed cracks in the bridge that make the existing structure unstable for anticipated loads, and thus seismically unsafe. Additionally, agency comments recommended that the project explore opportunities for remediating some of the cumulative adverse impacts to Bear Creek due to city growth and development, as well as construction of I-5.

Several options were analyzed and reviewed by the Solution Team and CAC at the May 15, 2002, joint CAC/Solution Team meeting. The options considered included a three-span bridge versus a single-span bridge, and closing the crossing during construction versus constructing a detour bridge. Numerous natural resource, human environment, design/engineering, traffic circulation, and cost factors were considered, as well as potential effects to Bear Creek biology, Bear Creek Park and Greenway Trail, and businesses along Barnett Road.

A single-span bridge was recommended by the CAC and Solution Team, and ODOT and FHWA have chosen to advance that option to the FEIS. A single-span bridge, with no construction detour bridge, would have overall fewer impacts to the biological environment and human environment. The existing bridge structure would be demolished, and the existing in-stream piers would be removed. The new structure would be constructed across the stream at the same location.

Because there would be no construction detour bridge, Barnett Bridge would be temporarily closed during construction. Traffic would be detoured to the new interchange as well as adjacent arterials. ODOT would coordinate road closures and detours with emergency services, business, and commuters.

The finished height of the new bridge would be about 2.5 meters (8.2 feet) higher than the existing structure. The higher bridge would allow designers to keep piers out of the floodway, increase the capacity of the stream channel under the bridge for safely passing flood waters, and offer opportunities for future construction of the Bear Creek Greenway Trail in the area. Use of a higher replacement bridge would require raising the approaches to the bridge and widening associated fill slopes, and placing retaining walls where necessary to avoid impacts to park properties and the floodway.

Alba Drive Improvements

Raising the elevation of the new Barnett Bridge and its approaches would trigger the need to raise the street surface elevation of the southern portion of Alba Drive. Permanent access would be maintained to existing businesses. To minimize impacts on the portion of Bear Creek Park along Bear Creek, a retaining wall would be constructed on the east side of the street. The connection between the existing pedestrian/bicycle bridge crossing the creek and Alba Drive would be relocated to run along the base of the retaining wall.

Dyer Road Cul-de-Sac

The Preferred Alternative analyzed in the DEIS would have provided a cul-de-sac at the end of Dyer Road. ODOT has since dropped this cul-de-sac from further consideration as part of the South Medford Interchange Project because the landowner

has approved development plans for his property, which may not work with a cul-de-sac. During right-of-way negotiations, ODOT and the landowner will work together to determine the appropriate treatment and location for the end of Dyer Road.

Center Drive

The Preferred Alternative in the DEIS would have ended the existing Center Drive with a cul-de-sac just north of the Garfield Street connector. After considering property owner concerns regarding access, as well as the limits to what ODOT can do (legally and regarding design), this cul-de-sac has been dropped from further consideration because the facility would operate as a private access. The city would vacate this road to adjacent property owners. The proposed project would now provide a modified alignment of Credit Union Drive, providing access to properties.

Single Point Urban Interchange (SPUI) Elevation

The conceptual design used to develop the DEIS studies was based on the assumption that the SPUI would be approximately 7.6 meters (25 feet) above the existing Interstate. Design refinements have raised the bridge approximately 0.3 meters (1 foot).

Directional Signage

ODOT received several comments that expressed concern regarding traffic impacts to residential areas along and north of Highland Drive. Other comments expressed concern regarding business access issues that would result from the new interchange, particularly the Southgate area and downtown. The Preferred Alternative would provide directional signage at the interchange to guide travelers to the Garfield Street connector to access the Southgate

area, Oregon 99, and downtown. Directional signage also would direct travelers to medical services on Barnett Road via the Highland Drive connector. To minimize impacts to Bear Creek Park due to pass-by trips associated with highway travelers, directional project signage would not indicate the location of the Park.

Aesthetic Treatment

Concern has been raised about the appearance of the proposed improvements. ODOT plans to coordinate with the North Medford Interchange Project and other interested parties when it finalizes plans for incorporating aesthetic elements into the construction of retaining walls and bridges in the South Medford Interchange Project. The most likely treatment would be to impress images on the finished surface of the concrete.

Section 6(f) Replacement Property

ODOT has identified a replacement site for mitigating impacts to properties subject to the requirements of Section 6(f) of the Land and Water Conservation Fund Act of 1965. The site is located along Bear Creek just south of the McAndrews Avenue stream Crossing (see Chapter 6 and Figure 6-5). Other than transfer of the property ownership to the local jurisdiction, ODOT proposes no action on this property.

Validity of the Preferred Alternative

When ODOT and others considered and developed refinements for the Preferred Alternative, they considered the effect of similar refinements to the Ellendale Alternative. They also considered whether or not such refinements would be likely to question or invalidate the decision to designate the Highland Alternative as the Preferred Alternative.

Some of the refinements that have been introduced would have to be implemented for either Build Alternative. For example, given the condition of the Barnett Road bridge crossing Bear Creek, bridge replacement would have been included in order to build the Ellendale Alternative. Similarly, the Ellendale Alternative would have to include improvements along Barnett Road to match its alignments with that of the original proposal. This would have substantially increased the overall adverse impacts of the Ellendale Alternative. Also, work bridges would have been needed to construct the Ellendale Alternative. Given the higher degree of environmental sensitivity in the vicinity of the Ellendale Alternative (compared to the Highland Alternative), the addition of work bridges would have raised environmental concerns that would have been likely to exceed the concerns associated with the Highland Alternative.

Overall, except for those areas mentioned where refinements to the Ellendale Alternative would result in greater adverse impacts, refinements to the Ellendale Alternative would likely have resulted in similar levels of reduced or increased environmental impacts to those seen under the Highland Alternative. Consequently, the CAC, the Solution Team, and other ODOT and FHWA representatives have agreed that the Highland Alternative should be forwarded into the FEIS as the Preferred Alternative.

Changes in Reasonably Foreseeable Future and Related Actions

Bear Creek Greenway Trail

During preparation of the DEIS, ODOT assumed that a County-planned Bear Creek Trail segment that would run from south of Barnett Road and through the project area

would be constructed prior to construction of the new interchange. The DEIS addressed the unfeasibility of building a multipurpose bridge crossing Bear Creek on the west side of the Interstate and connecting the Bear Creek Greenway Trail with a path that would connect to the South Gateway Center.

Subsequent analysis of the overall Bear Creek Trail program revealed that the designs for other sections of the trail between Barnett Road and the new interchange could result in adverse impacts to the floodway and stream. However, the South Medford Interchange Project improvements might allow the trail to be constructed with fewer impacts. After considering these issues, the Jackson County Parks and Recreation Department withdrew plans for the alignment that was addressed in the DEIS. The Department has decided to shift its efforts and construct a segment of the trail that is south of the proposed interchange project. The trail segment between Barnett Road and the new segment south of the proposed interchange will be redesigned by the County to minimize impacts to the natural environment.

Jackson County Parks and Recreation Department could take advantage of opportunities presented by aspects of the proposed interchange project (e.g., lengthening and raising the height of the Barnett Bridge span over Bear Creek). Although this trail segment would be designed and constructed as an independent project, the South Medford Interchange Project and trail project would be closely coordinated in order to minimize overall impacts to the environment and to make best use of limited funds.

Interim Multipurpose Path

To enhance the overall transportation system for bicyclists, pedestrians, and motorists,

Jackson County could construct an interim multipurpose path to link Barnett Road bicycle lanes and sidewalks with the portion of the Bear Creek Greenway Trail planned for construction south of the South Medford Interchange Project. The interim path would provide the connection until the County constructs the comparable connection along its Bear Creek Trail. ODOT and the County are coordinating to find a location for this interim path. They are considering placing it within the ODOT utility/maintenance right-of-way along the west side of the Highland Drive connector (described above under “Utility and Maintenance Right-of-Way and Temporary Construction Easement Areas”). Under this scenario, ODOT, FHWA, and the County would develop an Intergovernmental Agreement that would document the intent of ODOT and FHWA to provide access for an interim path through the highway property. ODOT could grant a temporary easement or permit to the County that would recognize that the primary transportation use of the land would be for maintenance access, and that the temporary path's use of the land also would be a benefit to connectivity in the area.

Both ODOT and the County recognize that the interim path, if built, would be closed during South Medford Interchange construction for amounts of time that can be determined only during final design. Staging would be determined after the FEIS Record of Decision. If the planned permanent Bear Creek Greenway Trail link between Barnett Road and the section south of the South Medford Interchange Project were to be constructed, the need for the interim multipurpose path would be reduced. However, ODOT and the County could agree to maintain the interim path to further enhance long-term multimodal options in the area, and ODOT may consider granting

longer-term agreements for such use. This possibility would require separate action.

I-5 Bridges across Bear Creek

After the DEIS was issued, ODOT conducted detailed inspections of both of the existing northbound and southbound I-5 bridges at Mile Point 27.1 crossing Bear Creek in the vicinity of the proposed South Medford Interchange Project. The inspections found several serious structural problems with the bridges that, if not corrected, would result in weight restrictions being placed on them, resulting in serious disruptions to I-5's ability to serve its purpose as an interstate facility. Their replacement is needed quickly and has been added to the State Transportation Improvement Program (STIP) list of stand-alone projects. Replacement bridges would be constructed to allow greater peak volumes of water in Bear Creek to pass under the bridges during flood events. Traffic volume capacity would not be enhanced by the bridge replacement project and would not result in changes to traffic modeling for the South Medford Interchange Project. The bridge replacement project has a purpose and need that is specifically related to traffic safety and flow at these Interstate bridges. Consequently, the bridge replacement project is considered to be a separate action from the South Medford Interchange Project.

Another ODOT I-5 Preservation Project listed on the STIP also would be constructed in the vicinity of the South Medford Interchange Project. The pavement of I-5 needs to be resurfaced between Mile Points 18.7 and 28.3. This includes the section of I-5 to which the South Medford Interchange Project would connect.

Both the Bear Creek Bridge Replacement and I-5 Preservation projects would likely be

constructed in combination with the South Medford Interchange Project. Such coordination would reduce overall project costs and duration of construction impacts, as well as minimize cumulative impacts to natural resources.

Other Related Projects

City of Medford Improvements along Highland Drive and in Bear Creek Park

The northern end of the proposed South Medford Interchange Project would end just south of the Highland Drive/Greenwood Street intersection. Recognizing that pedestrian and bicycle access problems already exist along Highland Drive, and based on the recommendations of the South Medford CAC Sub-team for Pedestrian and Bicycle Safety, the City of Medford plans the following improvements north of Greenwood Street. The City would improve the northbound and southbound travel lanes of Highland Avenue and would provide 1.5-meter (5-foot) bicycle lanes on both sides of the roadway. A southbound left turn lane would be added at the Highland Drive/Greenwood Street intersection. All roadway improvements north of Greenwood on Highland Drive would be constructed within the existing City street right-of-way by restriping the existing roadway.

The City of Medford plans to construct pedestrian and bicycle facility improvements within Bear Creek Park (Figure 2-3). The improvements are required now as a solution to existing problems regarding pedestrian and bicycle park access. They are not part of the South Medford Interchange Project, but will be constructed in a manner that will meet current needs and complement improvements that would occur along Barnett Drive and Highland Drive as a result of the South Medford Interchange Project. Along the Barnett Road frontage, the City

plans to construct a 3-meter (10-foot) wide landscape strip and 1.5-meter (5-foot) wide sidewalk. At the Barnett Road/Highland Drive intersection, the sidewalk will connect to the signalized intersection and will continue north along Highland Drive, with a 3-meter (10-foot) wide landscape strip. Continuing north, the sidewalk will transition to 2.1 meters (7 feet) in width where it shifts closer to the street in order to cross Lazy Creek (on the same stream crossing structure used for the street).

North of Lazy Creek, the sidewalk will transition in width back to 1.5 meters (5 feet) up to Siskiyou Boulevard. A 3.0-meter (10-foot) wide landscape strip will separate the sidewalk from Highland Drive up to the Siskiyou Boulevard Fire Station. At the Fire Station the sidewalk will transition to a curbside walkway to accommodate the wide driveway that is needed for emergency vehicle access. At Greenwood Street, the sidewalk will connect to a crosswalk that will cross Highland Drive on its south leg of the intersection.

The City also plans to improve the safety of interaction among vehicles, pedestrians, and bicyclists by moving the Highland Drive entrance to Bear Creek Park into alignment with Greenwood Street. This realignment is expected to improve overall safety by putting the turning locations in one place and by clearly defining pedestrian areas. Although the City's improvements are not part of the South Medford Interchange Project, they are being coordinated with the proposed Project improvements along Barnett Drive and Highland Drive, and they are being planned to address community needs, regardless of the South Medford Interchange Project's completion.

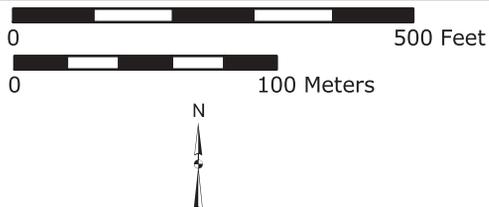
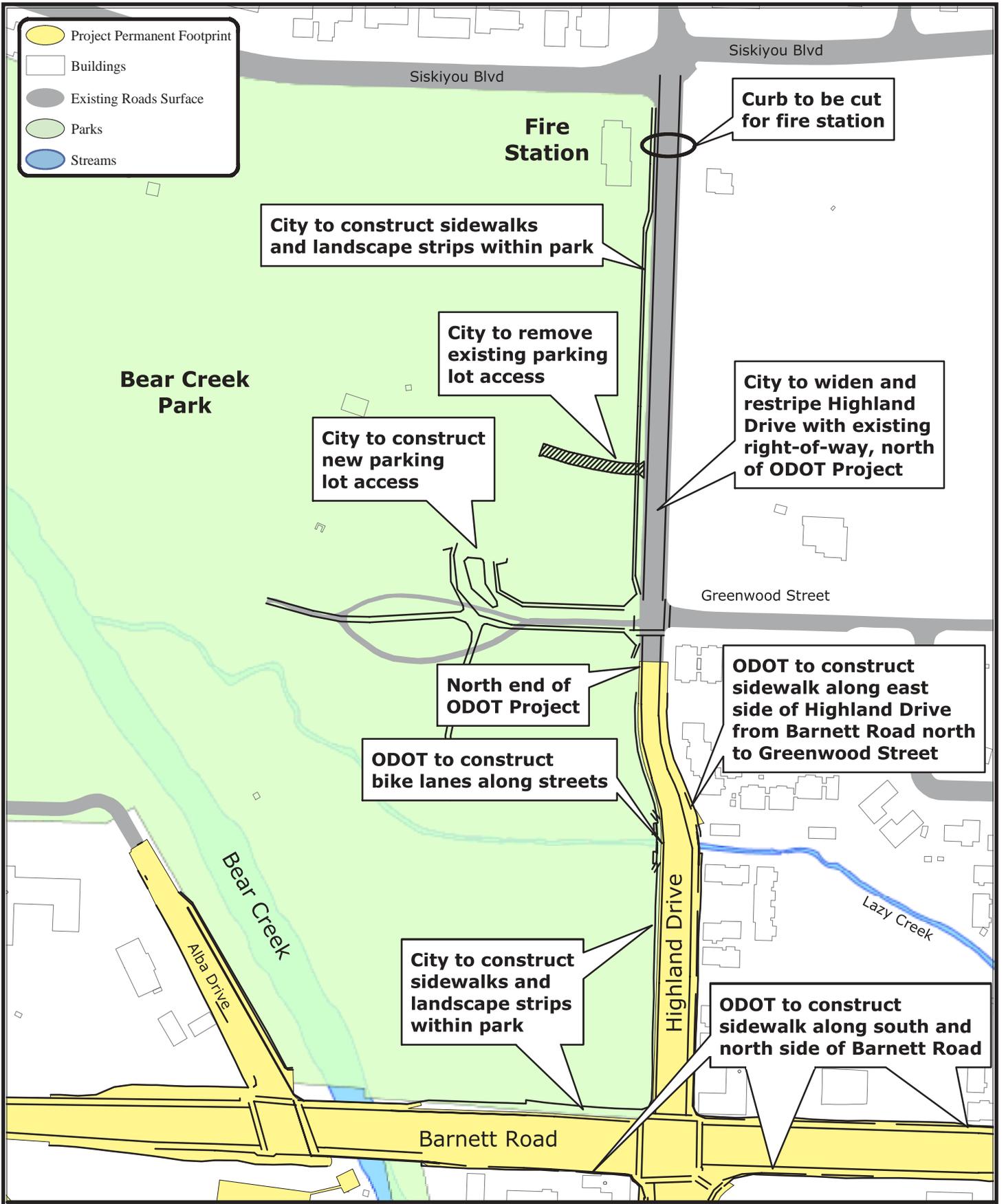


Figure 2-3
Related City Improvements

