

CHAPTER 2 – PROJECT DESCRIPTION

Introduction

The South Medford Interchange is located on Interstate 5 (I-5) in the City of Medford, Oregon. I-5 is one of four major highways in Oregon providing north-south connections between California and Washington states. The interchange serves as one of two points of access between the city and the interstate. The facility also serves as the south gateway to the city, and is a key link to future expansion of the city’s economic base. Its strategic location has led to increased use and unacceptable levels of congestion. This document addresses potential environmental effects of a No-Build Alternative and two Build Alternatives (the Highland Alternative, and the Ellendale Alternative).

The South Medford Interchange is located at milepost 27 on I-5, approximately 43 kilometers (27 miles) north of the border between Oregon and California (Figure 1 in DEIS summary). The interchange provides access to the southeast section of the City of Medford (Figure 2 in DEIS summary). At the interchange, I-5 is a four-lane, divided freeway, accessed from Barnett Road by a partial cloverleaf interchange design. Barnett Road crosses over the freeway. All ramps in this interchange are single-lane roadways, with the I-5 off-ramps increasing in width to accommodate turn lanes at their intersections with Barnett Road. I-5 divides Medford into major east and west areas. Many roads in the vicinity have striped bike lanes, including Barnett Road and Siskiyou Boulevard; however, there are substantial gaps in the bikeway system. Bear Creek Greenway, which includes a paved multi-use path north of Barnett Road, runs north/south through the project area.

Within the City of Medford, I-5 carries a substantial amount of local traffic due to the low number of local cross-town (east-west) connector routes. Barnett Road serves as one of two east-west connections providing access to I-5. It also carries a substantial amount of east-west intra-city trips, being one of eight streets that cross I-5. Barnett Road includes a sidewalk on the north side of the road.

The South Medford Interchange Project includes alternatives that would improve the movement of traffic between I-5 and the City of Medford’s local roadway system. This improvement would require closing the existing interchange and building a new, single-point urban interchange (SPUI) south of the existing interchange. Access to the new interchange would use an extension (a “connector”) of either Highland Drive or Ellendale Drive. Also, a Highway 99 Connector street would provide access between the interchange and the highway. Portions of the local roadway system would also be altered to ensure public safety and facilitate access to the new interchange. Figures 3 and 4 (in the DEIS summary) illustrate the proposed alignments and structures for the Highland and Ellendale Alternatives.

No-Build Alternative (Baseline Conditions)

The No-Build Alternative maintains the existing interchange in its current configuration (Figure 2 in DEIS summary).

Access Control, Transportation System Management, Transportation Demand Management

In the No-Build Alternative, access control along the local roadways would not change.

Transportation System Management (TSM) investments would continue under the No-

Build Alternative, resulting in levels of service for travel that would be slightly above current levels. These investments would focus on managing the existing transportation system to maximize its efficiency. The No-Build Alternative would not include any substantial new investments, such as developing high occupancy vehicle (HOV) lanes, installing medians, or changing traffic signals to favor public transit vehicles (buses) in the project area. However, minor system improvements would be accomplished as part of Medford's routine maintenance and development review processes.

The No-Build Alternative would not expand Transportation Demand Management (TDM) programs. The Rogue Valley Transit District (RVTD) would continue to operate its rideshare program. Voluntary employer-based programs, such as flexible scheduling and carpooling, could continue or increase as roadway congestion increases.

Under the No-Build Alternative, transit service would continue at the reduced level that the Rogue Valley Transit District is now implementing, in accordance with the District's existing funding scenario and with the *Regional Transportation Plan (RTP)*. Transit vehicles would not receive preferential street treatments in the vicinity of the project.

Other Related Projects

Under the No-Build Alternative, it is assumed that several other projects or actions have been developed, are being constructed, or are anticipated regardless of the outcome of the South Medford Interchange Project. The combination of these projects or actions and the No-Build Alternative forms an important basis for the comparative assessment of South Medford Interchange Project Build Alternatives,

particularly the assessment of cumulative impacts.

- Only those roadway projects currently developed, committed or in the Tier 1 project list in the *RTP* would be included in the No-Build Alternative.
- Other existing or planned projects, such as residential and commercial development, bridges, bike and pedestrian paths, etc., are included as part of the baseline or No-Build Alternative.

Build Alternatives

Two Build Alternatives have been identified for the project. They are the Highland Alternative and the Ellendale Alternative.

In early March 2001, the project Solution Team met to consider whether or not to choose a "Preferred Alternative." The team reviewed preliminary data and information related to applicable evaluation criteria that were developed by the team early in the project's development. Preliminary data and information were provided on 37 evaluation criteria that covered a wide range of socioeconomic, transportation, and environmental items.

In summary, the data and information documented the similarity between the two Build Alternatives with respect to their ability to solve the traffic problems at the South Medford Interchange. The evaluation criteria that differentiated the Build Alternatives were related mostly to socioeconomic and natural environmental items. Data showed that the Ellendale Alternative resulted in greater potential for adverse impacts than did the Highland Alternative. When compared to the Highland Alternative, distinguishing items of the Ellendale Alternative included:

- Displacement of a senior, affordable housing development (thus triggering potential environmental justice issues);
- Displacement of 70 more residential units;
- Displacement of about three times the number of potential businesses;
- Greater project cost primarily due to the need to span more floodway; and
- More impacts to higher quality natural environmental features.

After reviewing the information, all but one of the Solution Team members present voted to identify the Highland Alternative as the “Preferred Alternative” in the DEIS. One member abstained because he felt additional information would facilitate the decision process. Members were informed that identification of a “Preferred Alternative” simply provided public disclosure of the preliminary assessment of the alternatives, and that the DEIS would continue to evaluate both Build Alternatives.

The following sections describe characteristics of the two Build Alternatives. (See Figures 3 and 4 in the DEIS summary.)

Project Footprints

Because the design is still preliminary, each of the Build Alternatives includes a primary footprint and a larger, buffered footprint. The primary footprint includes the area highly likely to be needed to accommodate proposed roadway-related facilities, such as travel lanes, bike lanes/bike paths, curbs, sidewalks, landscape medians/strips, fill or cut slopes, and retaining walls. The buffered footprint extends 3 meters (approximately 10 feet) beyond the primary footprint of each Build Alternative. This larger footprint covers an area that might be directly impacted by the project as a result of design modifications. The buffered footprint is used

as a “worst-case” approach to the environmental analyses. It is unlikely that *all* of the environmental consequences identified in the buffered footprint would be realized. For example, while a portion of the buffered footprint might need to be used to accommodate a roadway alignment refinement that would require additional land on one side of a street, the potential impact might be offset by an equivalent reduction in land area requirements on the other side of the street.

Common Design Features

The two Build Alternatives include several very similar design features that differ primarily in their location and size. Rather than reiterate these design features under each alternative, they are listed below for both alternatives.

- The Barnett Road Bridge over I-5 would be retained, but the existing interchange would be decommissioned, and its ramps removed.
- The new interchange would involve a SPUI bridging I-5. This type of interchange concentrates all of the turning movements associated with the facility on the structure, rather than distributing them at separate intersections associated with off-ramps and on-ramps or at merging lanes. The only other single-point urban interchange in Oregon is located at the I-5/Market Street interchange in Salem, Oregon. At this facility, the traffic movements occur under the bridge structure rather than on top of it, as is proposed for the Highland and Ellendale alternatives.
- Center Drive would be relocated to provide safe and functional spacing between intersections along the new route. Portions of Center Drive would be

modified to provide access to existing development. Credit Union Drive would be extended northeasterly to connect at a stop sign to the relocated Center Drive. A road stub out (for an extension of Center Drive) would provide access to properties lying south of the Highway 99 Connector.

- A new southbound left turn lane is required on Highway 99 within the northern leg of the current Highway 99/ Belknap Road intersection. A new northbound left turn lane would be required on Highway 99 within the southern leg of the Highway 99/Stewart Avenue intersection. The turn lane improvements would widen the highway on its west side.
- Bridges crossing Bear Creek would span the stream. Roadway fill is not proposed in the floodway as designated by the Federal Emergency Management Administration (FEMA). Bridges throughout the project would require piers within the floodway, but would not include piers within the channel of the stream. Retaining walls would be constructed along interchange ramps to minimize the amount of fill in the Bear Creek floodplain. Construction of both Build Alternatives would also include construction or reconstruction of the bicycle/pedestrian bridge that is planned to connect development on the west side of Bear Creek with the Bear Creek Greenway multipurpose path on the stream's west side.
- Raised medians located along roadways, as well as other earthen areas within the rights-of-way, would be planted with drought-resistant, non-invasive vegetation. This would include some combination of slow-growing grasses and low-growing shrubs that preferably are native to the locality. Landscaping

within parking strips would also include this combination of vegetation types. Street trees would be included when traffic safety, utility and street maintenance concerns permit.

- One and one-half meter (5-foot) wide sidewalks and 1.8 meter (6-foot) wide bike lanes are proposed for both sides of each new/relocated street, except for turn lane improvements along Highway 99. No bike lanes are proposed for the Highway 99 turn lanes due to substantial rights-of-way constraints and lack of interconnecting bike lanes along the highway. On the single-point urban interchange itself, the bike lanes would run parallel to the through lanes.
- It is anticipated that, prior to project implementation, ODOT would reconstruct the Bear Creek Greenway multipurpose path (and the connecting path extending west to development between I-5 and Highway 99). Previous designs included a Bear Creek crossing on the west side of the highway. Recent analysis has concluded, however, that this design would require the construction of a ramp too steep to comply with the American's with Disabilities Act (ADA) and FEMA requirements. The revised design would likely cross the creek via the southbound I-5 ramp that would be accessed from a loop east of the interchange. The path would then proceed along the south side of the Highway 99 Connector to the South Gateway Center intersection.
- The proposed Build Alternatives include stormwater runoff, water quality and detention facilities (storm water swales) in certain segments of the buffered footprints. The precise locations of these facilities are not yet known.

- Vegetation selected for planting in riparian or wetland areas would be native plant species selected in coordination with the Oregon Department of Fish and Wildlife (ODFW), the U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS). More detailed Mitigation Planting Plans would be developed once a preferred alternative is selected.
- Access to project construction is anticipated to occur within the project footprint. No construction access roads would enter into the Bear Creek channel.
- Any fill material imported for the project would be supplied by the contractor from a source outside of the project area. Excavated materials become the property of the contractor upon excavation and would be disposed of at the contractor's expense outside of the project area. If construction staging, highway operation concerns, and fill material properties allowed, and if the appropriate permits were obtained, the material would be used for construction purposes.

Access Control, Transportation System Management and Transportation Demand Management

The Oregon Administrative Rules and the Oregon Highway Plan guide the extent to which ODOT should maintain access control to enhance traffic safety. ODOT and/or the City will ultimately establish access control through property deed restrictions following rights-of-way negotiations with affected property owners. As needed for safe and efficient traffic operations, ODOT would require controlled access to the new facility. ODOT would prohibit access to or from properties along the first 402 meters (1,320 linear feet) of

roadways extending from the interchange. ODOT may limit access on other portions of roadway improvements to maintain traffic safety and to facilitate the efficient flow of traffic through roadway intersections that, in turn, influence traffic flow at the interchange. In addition, access would be controlled using several means, including:

- Limiting traffic movements to and from properties to “right-in/right-out” turns (e.g., not allowing motorists to turn left and cross traffic lanes as they leave a property). Under both Build Alternatives the access to and from the Pacific Power and Light substation via the proposed Highway 99 Connector would be limited to a right-in/right-out movement.
- Constructing raised medians in the roadways to limit left turns that cross traffic, except where breaks in the medians are provided to allow left turns. Raised medians would be provided along the Connectors and Barnett Road, except at roadway intersections, and at other locations specifically addressed below for each of the alternatives.
- Consolidating access points where there are multiple driveways near each other that can be combined to share access points. Under both Build Alternatives the Les Schwab business at the southeast corner of the existing Highway 99/Belknap Road intersection would need to consolidate access points on Highway 99 and eliminate the current access to Belknap Road, which would be converted to the future Connector.
- Signals at existing intersections would be modified to accommodate changes to lane configurations and traffic volumes resulting from the Build Alternatives.
- A final design would include measures to maintain reasonable access to and from the interstate with detours and

temporary paved surfaces until construction is complete. The construction traffic access plan would comply with uniform work zone traffic control standards and guidelines as set forth in Part VI of the *Manual on Uniform Traffic Control Devices*.

Highland Alternative (Preferred)

The Highland Alternative is the preferred Build Alternative.

Design Features

- The Highland Alternative would move the South Medford Interchange approximately 580 meters (1,903 feet) south of the existing facility.
- Figures 2-1 and 2-2 illustrate typical cross-sections of travel and turn lanes, medians, landscaping strips, and sidewalks for the Highland Alternative. The alternative would provide four through lanes connecting Highway 99 (from its existing intersection with Belknap Road) and Highland Drive at Barnett Road.
- Barnett Road would be widened in the area of its intersection with Highland Drive to a total of seven lanes, including both through and turn lanes.
- A new bridge would be constructed over Larson Creek along the Highland connector. The existing culvert in Lazy Creek would be improved.
- The existing Barnett Road Bridge across Bear Creek would be widened to accommodate additional lane requirements and sidewalks.

Access Control, Transportation System Management, and Transportation Demand Management

- Properties to the west and east of the Highland Connector would be linked under its bridge over Bear Creek.
- Dyer Road would terminate in a cul-de-sac.
- The Highland Alternative would include consolidating the two driveway accesses to the motel and diner located at the southwest corner of Barnett Road and Highland Drive.

Ellendale Alternative

Design Features

- The Ellendale Alternative would move the South Medford Interchange approximately 950 meters (3,117 feet) to the south of the existing facility.
- The Ellendale Alternative would provide four through lanes connecting Highway 99 (from its intersection with existing Belknap Road) and Ellendale Drive at Barnett Road. Figure 2-3 illustrates typical cross-sections of travel and turn lanes, medians, landscaping strips, and sidewalks for the Ellendale Alternative.
- The Ellendale Alternative would replace the existing culvert with a bridge over Larson Creek. To the west of I-5, stormwater swales would generally be located within the buffered footprint extending along the southern side of the Ellendale connector. To the east of I-5, stormwater swales would be located on the west side of the Ellendale Connector generally south of Larson Creek and extending to the edge of the Bear Creek floodway boundary. Discharge would be to Larson Creek.

Access Control, Transportation System Management and Transportation Demand Management

- The intersection of Dyer Road and Ellendale Drive would be relocated to the south of its current location. The two current Ellendale Drive accesses to Crest Imperial Estates Mobile Home Park would be closed, and a new access drive would extend north from the Park to intersect Dyer Road.
- The current access street to the Rogue Valley Manor's retirement community and to the Quail Point Golf Course from the southern end of Ellendale Drive would be terminated, as would the roadway accesses to the residential development immediately northeast of the southern end of Ellendale Drive (Figure 4). A replacement access street would be provided via a new road extending east from the relocated intersection of Ellendale Drive/Dyer Road. The (relocated) Ellendale Drive/Rogue Valley Drive intersection would be a right-in, right-out connection. From this intersection, the street would extend east to the first green of the Quail Point Golf Course, where the relocated roadway would turn and extend south along the western boundary of the course and connect to the existing Rogue Manor Valley Drive. This would provide access to Rogue Valley Manor, Quail Point Golf Course, and to the residential development between the relocated street and Ellendale Drive. Another street would provide access between Rogue Valley Manor Drive and Rogue Valley Manor's maintenance buildings by crossing the Ellendale Connector via an undercrossing just northeast of the new interchange.
- The Ellendale Alternative would include consolidating the two driveway accesses

to the motel and diner located at the southwest corner of Barnett Road and Highland Drive.

System Linkage and Other Projects/Actions in the Area

Interstate 5 (Photo 1) is an important transportation facility, enabling the safe and efficient movement of goods, services and people between California, Oregon, and Washington. Other improvements to I-5 are planned in the Medford – Ashland vicinity. Improvements to the Fern Valley interchange are proposed approximately 5.1 kilometers (3.2 miles) south of the South Medford Interchange, as are improvements at the I-5/Highway 62 interchange approximately 4.4 kilometers (2.75 miles) north of the proposed project area. Each of these projects is independently proposed as part of the state's overall plans to improve the safety, efficiency, and capacity of the interstate.

The proposed South Medford Interchange Project has independent utility when considered with respect to these other projects along I-5 in the Medford–Ashland vicinity. Although complementary, none of the projects depend on the design or effects of the other projects for their justification and each could logically proceed without any of the others.

The termini of the proposed South Medford Interchange Project are logical, do not depend on, and are not interconnected with, the aforementioned projects. The termini of the off-facility roadway segments proposed under the Build Alternatives provide logical connections with major arterials of the City street system (Barnett Road) and Highway 99 which generally parallels I-5 and provides access into downtown Medford.



Photo 1. Interstate 5, north of South Medford Interchange.

Urban development constitutes the most extensive ongoing land-altering activity in the project vicinity. Generally, recent development in the project area includes predominately commercial and industrial development on the west side of I-5, and a mixture of commercial and residential development on the east side of the facility. The Rogue Valley Manor plans a relatively large mixed use development on generally vacant or redevelopable land located just east of I-5, west of Ellendale Drive, south of Larson Creek, and north of the organization's golf course.

Construction Schedule

Construction of the proposed South Medford Interchange Improvement Project could begin as early as 2005. Because design of the facility is at a conceptual stage, precise

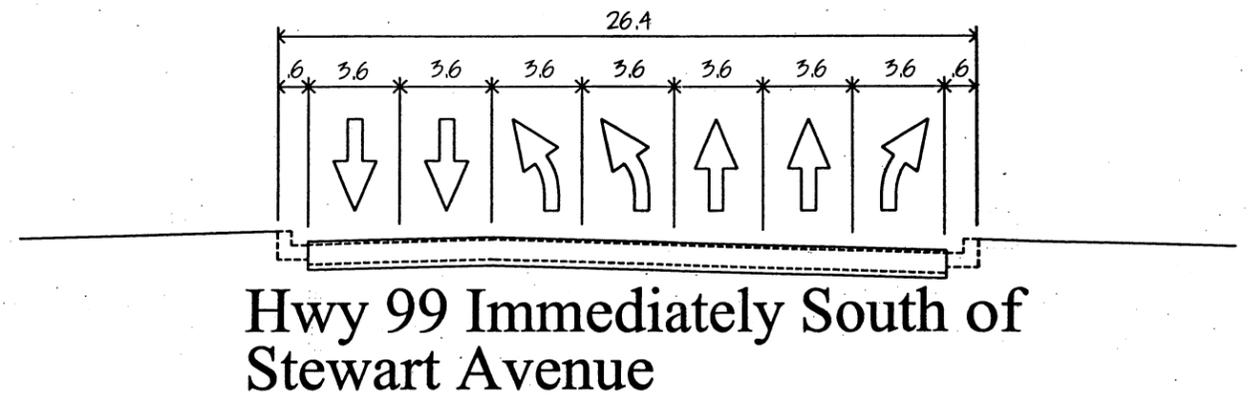
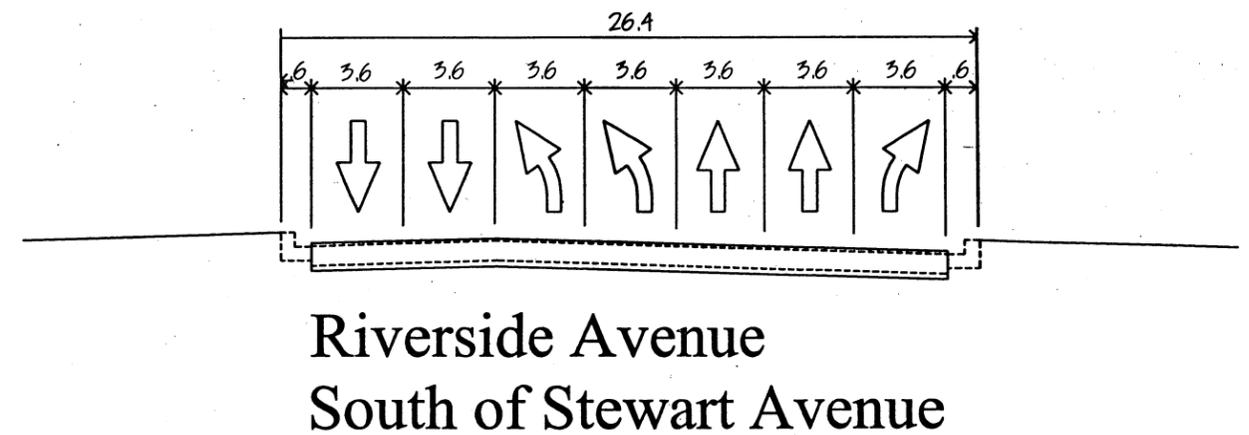
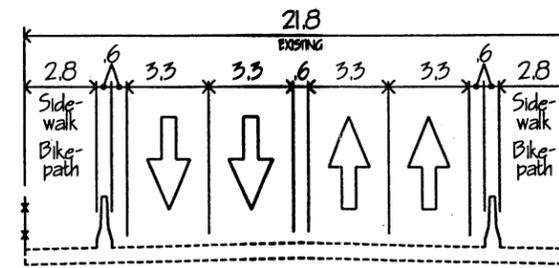
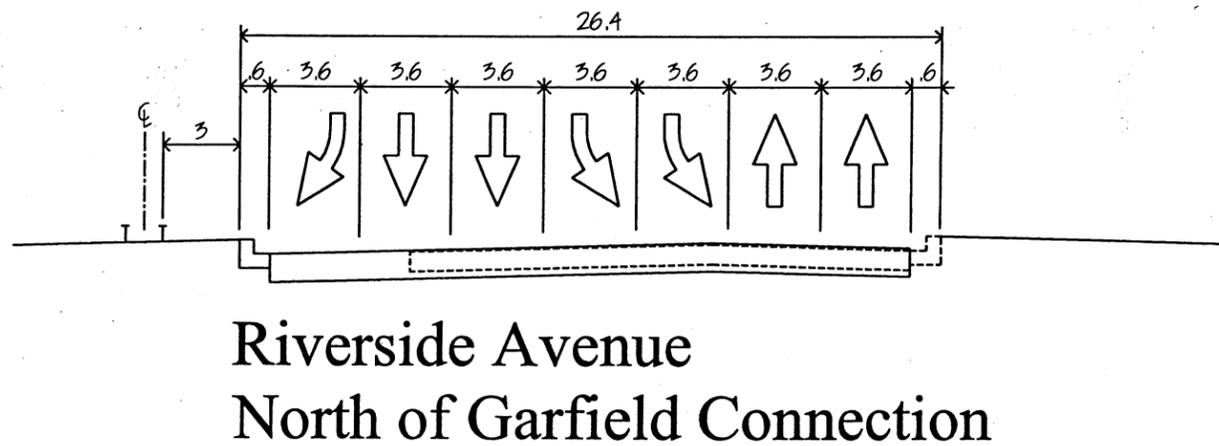
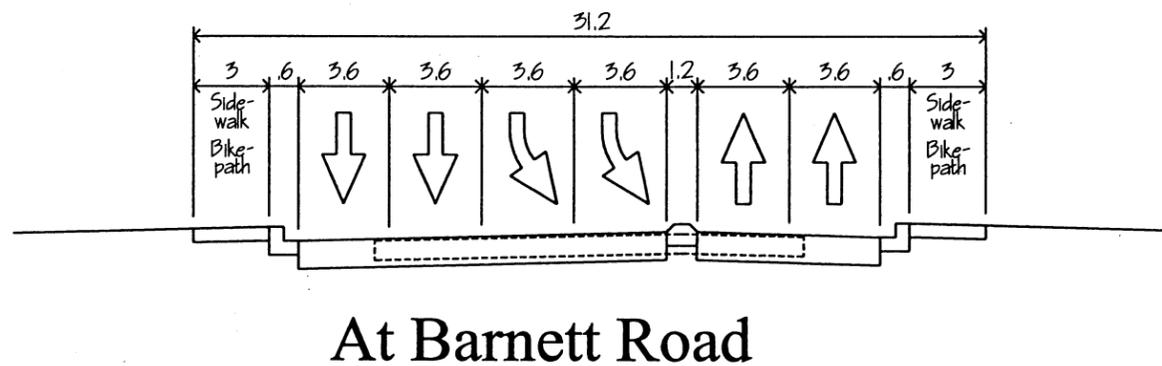
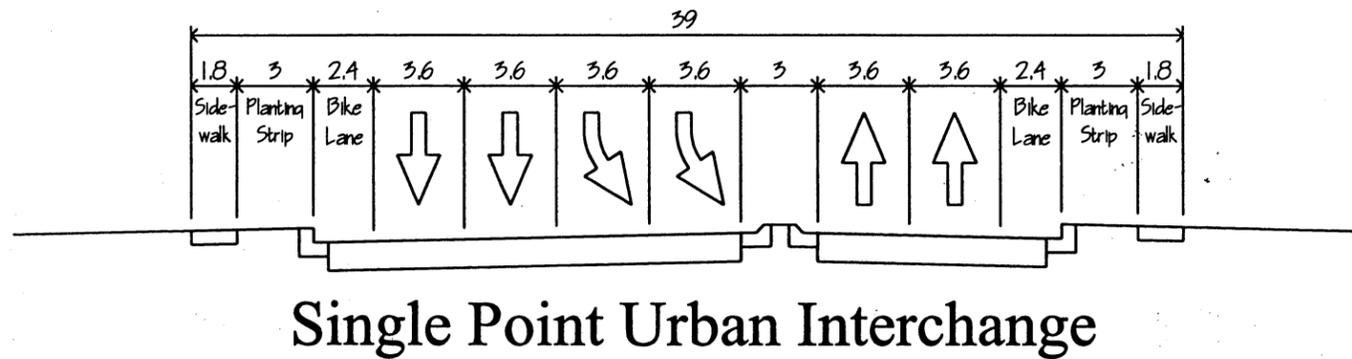
staging of the project is not yet defined. Nonetheless, it can be reasonably presumed that construction would occur primarily during relatively dry periods. The project's first year of operation is expected to be between 2007 and 2010.

Potential Changes to Build Alternatives

This DEIS advances the South Medford Interchange Project to a major milestone. Public and agency involvement have substantially contributed to development of the Build Alternatives. Most modifications to the project are expected to occur within a buffered footprint, which has been used in the impact analyses.

The project would likely be modified to reflect a different location for the planned multipurpose path bridge that crosses Bear Creek just west of I-5. The purpose of this

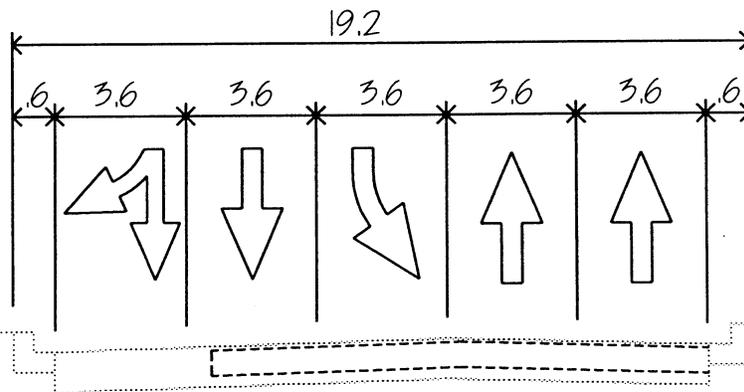
CROSS SECTIONS COMMON TO BOTH ALTERNATIVES



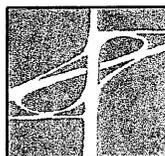
SOUTH MEDFORD INTERCHANGE PROJECT
ALTERNATIVES & SOLUTIONS
 Oregon Department of Transportation

MEASUREMENTS ARE IN METERS

HIGHLAND ALTERNATIVE



Highland Drive North of Barnett Road



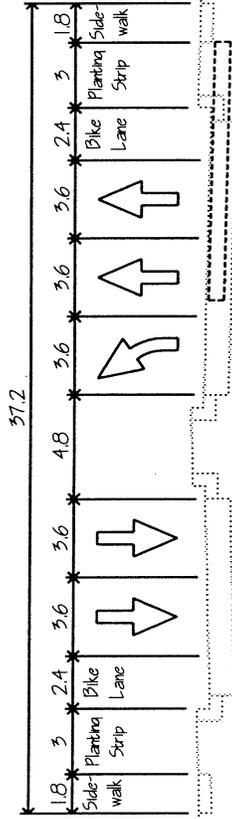
SOUTH MEDFORD INTERCHANGE PROJECT

Oregon Department of Transportation

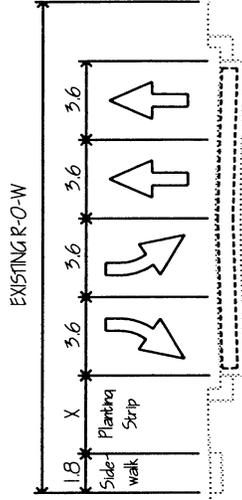
CROSS SECTIONS FIGURE 2-2

MEASUREMENTS ARE IN METERS

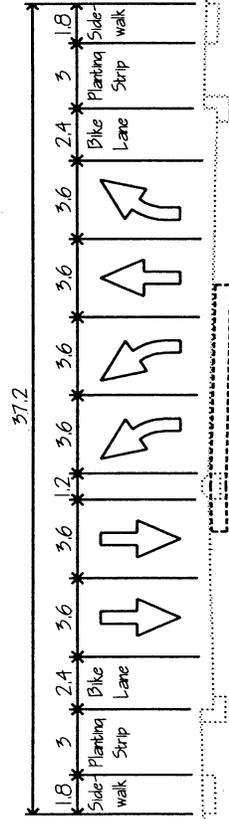
ELLENDALE ALTERNATIVE



Ellendale Drive South of Dyer Road



Highland Drive North of Barnett Road



Ellendale Drive South of Barnett Road

MEASUREMENTS ARE IN METERS



SOUTH MEDFORD INTERCHANGE PROJECT

Oregon Department of Transportation

CROSS SECTIONS FIGURE : 2-3

bridge is to provide pedestrian and bicycle connectivity between the Bear Creek Greenway multipurpose path and land uses on the west side of the creek. Recent design assessment of the bridge location indicates that either the bridge will need to be moved to allow better ramping for the bridge or a different scheme will need to be developed that would still provide the needed connectivity.

Although stormwater swales have been conceptually located, their actual location and sizing, as well as potential locations of stormwater detention facilities, would be identified in later design stages.

Because the project is in a conceptual design stage, construction staging areas have yet to be identified. They would be identified following selection of a Build Alternative, and may include areas lying outside the buffered footprint. Whenever feasible, staging areas outside the buffered footprint would be located in previously disturbed areas, such as vacant lots or parking areas. Equipment staging areas would be located away from riparian forests and wetlands, at a minimum, and outside all vegetated areas, where possible.

Under the Highland Alternative, the northbound on-ramp from the proposed interchange to I-5 may require relocation of a currently proposed retaining wall near Bear Creek or construction of an additional bridge to span a small portion of the Bear Creek floodway. These potential modifications would be coordinated with appropriate governmental agencies and addressed in the FEIS.

Other modifications to the design could also be triggered by public and agency comments on the DEIS. Design modifications could also occur as a result of agency coordination and permit activities, as described below. Several issues would require additional

coordination for resolution prior to project construction, including railroad encroachment agreements, wetland mitigation measures, a biological assessment for threatened fish species, other issues under the jurisdiction of federal and state natural resource agencies, hazardous substances investigations, local land use reviews, and development of plans for erosion control. These modifications would also be discussed in the FEIS, as appropriate.

Additional Agency Coordination/Permit Activities

Additional coordination would be required to resolve several issues through the NEPA and permitting processes:

- **Railroad Encroachment – Coordination with the Central Oregon Pacific Railroad** regarding the encroachment onto the rail-line's rights-of-way along Highway 99 to accommodate turn lanes.
- **Wetland Impacts – Measures to minimize wetland impacts and location of mitigation site(s) for unavoidable impacts to jurisdictional wetlands** would need to be coordinated with federal and state resource/permitting agencies having jurisdiction over the resources. Any activities relating to filling of wetlands would be permitted by the U.S. Army Corps of Engineers/Oregon Division of State Lands.
- **Impacts to Threatened Fish Species – Coordination with federal and state agencies, particularly the National Marine Fisheries Service and Oregon Department of Fish and Wildlife,** would be required in preparing a Biological Assessment and receiving a Biological Opinion regarding project impacts to

listed salmon species pursuant to the Endangered Species Act.

- Development of construction and operation plans including an Erosion Control Plan, Wetland Mitigation Plan, and plans for other roadside development, including contour grading and revegetation.
- Hazardous Substances – More intensive investigation of properties recorded as, or suspected of, containing hazardous materials would be required.
- Floodway Impacts – Additional coordination among the engineering, design, biological resource protection, and hydraulic elements of the project would be required to ensure that the project complies with Federal Emergency Management Agency requirements for development in the floodways of Bear Creek and its tributaries.
- Stormwater Controls – Location, type and size of stormwater control facilities (e.g., bio-filtration swales, detention facilities) would need to be identified and permitted.
- Local Land Use Reviews – A City of Medford *Comprehensive Plan* Roadway Classification Map amendment could be required, as would an annexation of specific properties to allow needed partitioning. A conditional use permit would be required from the City of Medford for project improvements in the Larson and Bear Creek corridors.
- Erosion and Sediment Controls – Requirements of National Pollutant Discharge Elimination system (NPDES) 1200-CA permit for the discharge of stormwater from construction sites, including the development and

implementation of an erosion and sediment control plan, must be met.

Local Agreements

Agreements between ODOT and the City of Medford would be required regarding:

- Amendments to the *Comprehensive Plan* Roadway Classification Map;
- Annexation of property;
- Roadway jurisdiction changes for the highway and/or city streets;
- Access management;
- Interchange management.

No additional local jurisdiction permits have been found to be required at this time.

Value Engineering Study

A “Value Engineering Study” (VE Study) was conducted on the Build Alternatives. The purpose of the VE Study was to consider modifications related to the alternative conceptual designs and provide recommendations. The VE Study also included cost estimates for the recommended modifications, including cost savings or increases.

Alternatives Considered but Not Advanced

The project team designed a collaborative process whereby the Citizens Advisory Committee, the Solution Team, and the general public could participate in creating and then sorting alternative solutions for the South Medford Interchange. Stakeholders, agencies, and the public were brought into the process to generate alternative solutions. As discussed below, numerous ideas were created in this collaborative atmosphere.

The Citizens Advisory Committee and Solution Team developed evaluation criteria

that reflected project goals and community values, intending to reduce the number of alternatives to two or three to move into the Draft Environmental Impact Statement. The Citizens Advisory Committee's and Solution Team's efforts in developing the evaluation criteria were supported by information sheets that outlined regulatory requirements and agency guidelines regarding environmental issues.

The Solution Team initially planned to screen the alternative concepts through several criteria. The first criterion was that the alternatives needed to solve the project's transportation problem. The Solution Team expected that, once they had identified five to seven alternatives that met the basic project need, the alternatives would be scored against a broad range of evaluation criteria.

However, only two alternatives survived the test of solving the transportation problem without causing substantial traffic and safety problems elsewhere. The Solution Team decided to move these two alternatives into the DEIS. The evaluation criteria, while developed for the alternatives analysis phase, would still provide guidance in the final selection of one alternative, following public review of the DEIS.

Alternative Design Workshop

Citizens Advisory Committee and Solution Team members attended an all-day bus tour and design workshop held May 6, 1999 (Photo 2). The May 6th workshop was conducted to draw out a full range of potential solutions for the transportation problem at the interchange.

To orient workshop participants and explain the proposed solutions, the consultant team led a 3-hour bus tour of the project area. It included discussions about roadway

connections, growth management and development policies, and environmental resources in the area.

The workshop was designed to be interactive, with resource maps displayed on the walls, and planning and engineering specialists available to answer questions.

Then, participants prepared numerous designs for consideration. To initiate discussion and development of alternatives at the workshop, the consultant team offered numerous concepts. These concepts drew from many local and technical sources, including previously advanced ideas.

Workshop participants split up into six tables, which held base maps, aerial photographic references, and information on all of the proposed alternatives. Each table focused on a primary theme, such as north-south connectivity, east-west connectivity, interchange reconstruction, or land use. Any table could use ideas being generated at other tables. Each table discussed their theme, using markers to combine road options and address transit, land use, and parkland considerations. An expert "coach" worked with each table to encourage discussion, analysis, and creativity. Each table contributed one or more alternative concepts. Most of the groups had combined several roadway concepts into one alternative to solve the transportation problem.

Following the hands-on workshop, attendees convened to report their findings and recommend which alternatives should be carried forward for further analysis. Eighteen concepts were considered. Thirteen concepts were forwarded, and five were rejected by Solution Team vote on May 6th. Table 2-1 summarizes the rejected alternative concepts.



Photo 2. Citizens Advisory Committee and Solution Team tour project area.

Solution Team Reduces Alternatives to Seven

The Solution Team reviewed the remaining 13 concepts on June 2, 1999, and, after considering a transportation analysis prepared by the consultant team, voted to keep six for further consideration. They then added a seventh alternative developed subsequent to the workshop. Table 2-2 summarizes the alternative concepts rejected on June 2, 1999. Many options not actually carried forward as separate alternatives were already parts of the seven alternatives being moved forward.

For the evaluation of alternatives, a matrix evaluation was prepared to rate the performance of the alternatives according to the following transportation measures:

- Increases interchange capacity

- Maintains/enhances safety and integrity of transportation system
- Reduces traffic volumes at interchange
- Better N-S connections, west side
- Better N-S connections, east side
- Better E-W connections
- Reduces signal delay
- Minimizes out-of-direction travel
- Compatibility with other modes

The seven alternatives (see Appendix I, part A) that were forwarded included:

Alternative 1 – A single-point interchange north of the existing interchange that also included two new crossings of I-5 and Bear Creek, at Garfield Street/Ellendale Drive, and South Stage Road.

Table 2-1
CONCEPTS REJECTED MAY 6, 1999

Concept Description	Reasons for Rejecting
Retain existing interchange with Garfield St. Flyover ramps to/from south	<ul style="list-style-type: none"> ▪ Does not address capacity problem at the interchange ▪ Movement to/from south will not generate enough volume to justify separate ramping ▪ Will not pull traffic off of Stewart Ave./Barnett Rd. ▪ Non-standard Design ▪ Entrance/exit ramps separated
Split diamond with Barnett Rd./Garfield St. flyover	<ul style="list-style-type: none"> ▪ Design requires more signalization ▪ Queuing and vehicle storage problems ▪ Access to businesses is problematic
One-way couplet w/ Stewart Ave./Barnett Rd. Split diamond	<ul style="list-style-type: none"> ▪ Design requires more signalization ▪ Queuing and vehicle storage problems ▪ Access to businesses is problematic
Half interchange Extend Highland Dr. to Center Dr.	<ul style="list-style-type: none"> ▪ Consecutive loop ramps with unacceptable weaving. ▪ East-West (Barnett Rd./Stewart Ave.) problem not addressed. ▪ Non-standard design
Utilize portions of existing interchange. Constructs a second interchange	<ul style="list-style-type: none"> ▪ Transfers Barnett Rd./Stewart Ave. capacity problems to Barnett Rd./Center Dr./Stewart Ave. ▪ Non-standard Design

Table 2-2
CONCEPTS REJECTED JUNE 2, 1999

Concept Identification	Concept Name	Concept Description	Reasons for Rejecting
Workshop Alternative #3	South Stage Rd. Connections	Extend South Stage Rd. across I-5 to North Phoenix Rd. Garfield St. connection to Ellendale Dr.	<ul style="list-style-type: none"> • Does not solve capacity problems on Barnett Road. • Elements of this are included in other Alternatives.
Workshop Alternative #4	One Way Pair/Split Diamond	Connect Stewart Ave. over I-5 to Barnett Rd.; northbound off-ramp connects to Highland Dr.; Barnett Rd. and Stewart Ave. are one-way couplet around Fred Meyer.	<ul style="list-style-type: none"> • Impacts property access. • Confusing highway access (Highland ramp). • Traffic storage of the couplet is inadequate due to closely spaced intersections.
Workshop Alternative #6	Land Use	Transit-oriented development nodes; Biddle Rd. extension; Junipero Way connection.	<ul style="list-style-type: none"> • Does not directly address interchange problems. • Would create more traffic problems • Is not a stand-alone option, but land use should be addressed in other alternatives.
Workshop Alternative #9	SPUI with Garfield St./Highland Dr. Connection	Keep existing interchange; SPUI at Highland Dr./Barnett Rd.; partial interchange at Garfield St./Center Dr.	<ul style="list-style-type: none"> • Might be excessive. • Is not a stand-alone solution.
Workshop Alternative #10	Minimal Interchange Improvements	Upgrade existing interchange by widening bridge and ramps, adding sidewalks.	<ul style="list-style-type: none"> • Is not a stand-alone concept, but elements should be included in other alternatives.
Workshop Alternative #12	Biddle Rd. Extension	Extend Biddle Rd. south to Center Dr.	<ul style="list-style-type: none"> • Is not a stand-alone option. • Can be included in many other alternatives.
Workshop Alternative #13	Crater Lake Hwy/Portland Ave. extension	Connect Crater Lake Hwy south to Siskiyou Blvd. via Portland Ave.	<ul style="list-style-type: none"> • Is not a stand-alone option. • Can be included in many other alternatives.

Alternative 2 – A single-point interchange on Garfield Street and the Ellendale connector that also included the South Stage Road connector described in Alternative 1.

Alternative 5 – One-way pair/split interchange using Barnett Road and Stewart Avenue; this also included a Garfield Street/Ellendale Drive connector and a South Stage Road overcrossing.

Alternative 7 – Stewart Avenue/Barnett Road and Garfield Street/Highland Drive connections.

Alternative 8 – A single-point interchange south of existing interchange.

Alternative 11 – Interchanges at Garfield Street/Highland Drive and South Stage Road.

Alternative 14 – One-way pair/split interchange using Barnett Road and Alba Drive.

Alternatives Submitted During Public Involvement

The Solution Team reviewed numerous sketches submitted by the public to the Citizens Advisory Committee and the Solution Team. Some had been previously considered and were not moved forward. Others did not meet required safety and design standards. However, four concepts offered during public comment were tested against the same matrix used to select the seven alternatives mentioned above. While the four concepts scored low as separate alternatives, local connectivity elements of one of the proposals submitted by a member of the public offered a new approach and moved forward to be tested by traffic modeling.

Transportation Analysis

The project team subjected the remaining alternatives to traffic computer modeling and other transportation analysis to

determine if the alternatives would solve the transportation problem, and also to optimize the design of the alternatives to remove elements that provided little or no benefit. The computer modeling tested the projected traffic of Year 2030 and assumed a population based upon regional and local plans. The project team anticipated that, of the remaining alternatives tested, one or two might drop out, and that the next step in alternative analysis would be to consider resource, neighborhood, and economic impacts. Results proved surprising: only three alternatives survived the traffic modeling and transportation analysis.

The traffic modeling actually considered more scenarios than the seven alternatives forwarded by the Solution Team. Modelers also tested a variety of local street improvements (both with and without interchange improvements) that had been introduced during the public comment, east-side connectors (bypass routes), and the South Stage Road concepts. The Citizens Advisory Committee and Solution Team considered results of the transportation analysis and both groups supported the forwarding of the same three alternatives (Alternatives 2, 11, and 14). Table 2-3 identifies alternative concepts that were modeled and rejected by the Solution Team on February 2, 2000.

The Solution Team approved removal of many design features of the remaining three alternatives because modeling showed that these features were not necessary for solving the transportation problem. Alternative 11 changed most radically, with the South Stage Road Interchange being removed, as well as many local connectors. Designers reconfigured Alternative 14 to not use Alba Drive by moving the westbound couplet further to the west, closer to I-5, so that less land would be required. However, Alba

Table 2-3

ALTERNATIVES REJECTED FOLLOWING TRAFFIC MODELING

Concept Name	Concept Description	Reasons for Rejecting
Alternative 1 Single-point interchange north of the existing interchange	Includes Garfield St./Ellendale Dr. and South Stage connectors	<ul style="list-style-type: none"> Shifts congestion problem to nearby intersections rather than solving problem.
Alternative 5 One-way pair/split interchange using Barnett Rd. and Stewart Ave.	Includes Garfield St./Ellendale Dr. and South Stage connectors	<ul style="list-style-type: none"> Moves unacceptable volumes to Barnett Rd./Riverside Ave. intersection. Safety issues at Barnett Rd./Riverside Ave. due to proximity of railroad and school.
Alternative 7 Stewart Ave./Barnett Rd.–Garfield St./Highland Dr. Connections	Included Biddle Rd. extension	<ul style="list-style-type: none"> Shifts congestion problem to nearby intersections rather than solving problem.
Alternative 8 Single-point interchange south of the existing interchange	Included Portland Ave. extension	<ul style="list-style-type: none"> Shifts congestion problem to nearby intersections rather than solving problem.
Local Street Connections	Modeled several combinations	<ul style="list-style-type: none"> Minimal effect on Barnett Road Overpass volumes.
South Stage Rd. Overpass	Overpass from South Stage Rd. to North Phoenix Rd.	<ul style="list-style-type: none"> Provided 10.3% reduction in volumes at interchange overpass (not enough to solve problem).
South Stage Rd. Interchange	Interchange and Overpass from South Stage Rd. to North Phoenix Rd.	<ul style="list-style-type: none"> Provided 14.7% reduction in volumes at interchange overpass (not enough to solve problem).
Eastside Connector	Limited-access major arterial along east side of Medford to North Phoenix Rd.	<ul style="list-style-type: none"> Reduced interchange overpass volumes by 4%, and 14.8% with South Stage Rd. Interchange (not enough to solve problem).
<i>Regional Transportation System Plan (RTP)</i>	“Tier 1 RTP” improvements	<ul style="list-style-type: none"> Reduced interchange overpass volumes by 15%, no benefits for Barnett Rd./Riverside Ave. and Stewart Ave./Riverside Ave.

Drive was completely closed at Barnett Road due to access control standards, and the consultant team designed a new driveway to the park's ball fields with access coming from Spencer Street to the north.

In October 4, 2000, the Solution Team voted unanimously to drop Alternative 14, the "couplet alternative," because traffic modeling showed it would produce unacceptable levels of congestion where it connects to Riverside Avenue at Boyd Street, (now a small access street to the former Kmart shopping center), and at the Stewart Avenue/Barnett Road intersection. It would require a triple left turn, with too little space to provide adequate lane-change distance for vehicles wanting to turn at Barnett Road. It would require additional right-of-way on Riverside Avenue. It also would require triple right turn lanes at

Stewart Avenue and Barnett Road, which would create a weaving problem for people trying to get on the freeway. Attempts to mitigate these operational problems ended up overloading the Highway 99/Barnett Road and Highway 99/Stewart Avenue intersections. Another issue with the couplet included concerns that it failed to meet FHWA regulations regarding infringement on parkland.

The Solution Team forwarded the remaining two Build Alternatives and the No-Build Alternative into the Draft Environmental Impact Statement. The Solution Team simplified the names of the alternatives so that Alternative 2 became the "Ellendale Alternative," and Alternative 11 became the "Highland Alternative." See Appendix I part B for maps of the 22 rejected alternatives.