Note:
For Segments 3, 4, 5, and 7, one design option would be selected from among the options within that segment.
Segments 1, 2, 6, 8.1, and 8.1A do not have design options.
Segments 1 and 3 have local circulation options.

Figure 2.2-1 Build Alternative Segments
Roadway Design Options

Fully Depressed with Overcrossing

Semi-Depressed with Overcrossing

At-Grade

Above-Grade on Fill

## Interchange Design Options

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diamond Interchange</strong></td>
<td>The simplest and perhaps most common type of interchange. This interchange has two on-ramps and two off-ramps and forms the shape of a diamond when viewed from the air.</td>
</tr>
<tr>
<td><strong>Partial Cloverleaf Interchange</strong></td>
<td>A form of interchange that uses loop ramps instead of diagonal ramps for high volume traffic movements. The loop ramp can eliminate the need for traffic control (stop sign or traffic signal) where the ramp meets the cross street.</td>
</tr>
<tr>
<td><strong>Directional Interchange</strong></td>
<td>A highway-to-highway grade separated interchange that directly connects major traffic movements.</td>
</tr>
</tbody>
</table>

Figure 2.2-2 Build Alternative Segment 1: Dayton Interchange

- Local Circulation Common to Local Circulation Options A & B
- Bypass Approved Corridor
- Urban Growth Boundary (UGB)
- City Limits
- Bridges, Overcrossings, or Undercrossings
- Willamette & Pacific Railroad

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2.2.2.1 Segment 1: Dayton Interchange

Segment 1 is the Dayton Interchange (see Figure 2.2-2). There are no design options but there are two local circulation options in this segment.

The Dayton Interchange provides connections between Oregon 99W and the Bypass (Oregon 18). This is a partial cloverleaf interchange that serves all vehicle movements to and from the Bypass (Oregon 18) and Oregon 99W. The interchange has a single loop on-ramp in the southwestern quadrant for traffic entering the Bypass eastbound. The other three ramps provide access for all other traffic movements to and from the Bypass, Oregon 18, and Oregon 99W.

Overcrossing structures and bridges associated with the Dayton Interchange include:
- Interchange structure over the Bypass and the railroad that allows eastbound and westbound Bypass traffic to access eastbound and westbound Oregon 99W.
- Possible access to Kreder Road and Dayton (see local circulation options below).
- Bypass over Miller Creek.
- Bypass and a local access road from Riverwood Road over Yamhill River Tributary F and Tributary G.

Local Circulation Options

Local circulation options in Segment 1 are designed to reconnect local roads disrupted by the Bypass.

Local Circulation Option A

Local Circulation Option A includes a connection of Kreder Road to the interchange.

Local Circulation Option B

Local Circulation Option B includes a Ferry Street extension and a new bridge across the Yamhill River, instead of a direct connection of Kreder Road.

Features Common to Both Local Circulation Options
- Close Kreder Road across Oregon 18 and build the connection of Kreder Road under Oregon 18.
- Improve the condition of existing Kreder Road.

Differences Between Local Circulation Options

The difference between the two local circulation options is whether or not Kreder Road is connected to the interchange to serve Dayton or is extended across the Yamhill River and connected to Ferry Street.
Figure 2.2-3 Build Alternative
Segment 2: Dayton Interchange to Dundee UGB

- Urban Growth Boundary (UGB)
- Segment 1 Right-of-Way
- City Limits
- Segment 2 Local Circulation
- Bypass Approved Corridor
- Segment 2 Right-of-Way
- Design Option 3.A Right-of-Way
- Bridges, Overcrossings, or Undercrossings
- Railroad

Map ID: DEIS_Base_8x11_Ch2.mxd
Print Date: March 2010
2.2.2.2 Segment 2: Dayton Interchange to Dundee Urban Growth Boundary (UGB)

Segment 2 (see Figure 2.2-3) begins east of the Dayton Interchange between Yamhill Tributaries F and G and continues to the Dundee city limits and UGB. There are no design options or local circulation options in this segment.

In this segment the Bypass is at-grade, with a landscaped (grass and shrubs) median about 42 feet wide. Overcrossing structures and bridges in Segment 2 include:

- From west to east, the Bypass crosses over Yamhill River Tributary G, Unnamed Stream 1, Hess Creek, and Hess Creek Tributary A.
- Local road crosses over the Bypass and the railroad at Riverwood Road and Fulquartz Landing Road (west).
- Fulquartz Landing Road (west) over Oregon 99W.
- Fulquartz Landing Road (east) over the Bypass.

**Local Circulation**

The local circulation changes in Segment 2 (see Figure 2.2-3) realign local roads where the Bypass disrupts connections to Oregon 99W. Frontage roads provide driveways to properties where the Bypass or realignment of local roads changes existing property access.

Riverwood Road, Fulquartz Landing Road (west), and Fulquartz Landing Road (east) are reconnected on structures over the Bypass. Crawford Lane is realigned to reconnect with Fulquartz Landing Road (west). Fulquartz Landing Road (west) crosses over Oregon 99W on a structure to connect to Trunk Road. Fulquartz Landing Road (east) is realigned to cross over the Bypass outside of the Dundee city limits and UGB and connect with Parks Drive.

A frontage road along the Bypass provides driveways to two properties west of Riverwood Road. Another frontage road along the Bypass north of Fulquartz Landing Road (west) provides driveways to the Newberg Gun Club and nearby properties.

2.2.2.3 Segment 3: Dundee UGB to East Dundee Interchange

Segment 3 has four design options and three local circulation options. All design options are within the Dundee UGB (see Figure 2.2-4 through Figure 2.2-7). As illustrated below, the design options with berms screen the views of the Bypass from adjacent locations; however, people traveling on the Bypass have limited views of the surrounding area. The design options without berms do not screen the Bypass and allow people traveling on the Bypass to view the surrounding area.

Design Options

Design Options 3.A and 3.A2
In both of these design options the Bypass is depressed 8 to 12 feet below-grade. Design Option 3.A does not include berms, while Design Option 3.A2 includes 6- to 8-foot-tall berms located at the top of the cut slope (see Figure 2.2-4 and Figure 2.2-5).

In both of these design options the Bypass is at-grade. Design Option 3.B does not include berms, while Design Option 3.B2 includes 6- to 8-foot-tall berms (see Figure 2.2-6 and Figure 2.2-7).

Features Common to All Design Options
- Bypass roadway location.
- Landscaped 42-foot-wide median.
- Bridges over Unnamed Stream 2.

Differences Between Design Options
- Berms (3.A2 and 3.B2) screen the views of the Bypass from adjacent locations; however, people traveling on the Bypass have limited views of the surrounding area.
- Without berms (3.A and 3.B), the Bypass is not screened and people traveling on the Bypass can view the surrounding area.

Local Circulation
The Bypass divides properties between Dundee and the Willamette River in Segment 3. The local circulation options (see Figure 2.2-4 through Figure 2.2-7) re-establish a road connection between Dundee and properties between the Bypass and the Willamette River area by constructing a local street overcrossing near existing 6th, 8th, or 10th Streets. These changes vary slightly depending on whether the Bypass is depressed or at-grade. If the Bypass is at-grade, the overcrossing will be higher to cross the Bypass than if the Bypass were depressed.

2.2.2.4 Segment 4: East Dundee Interchange
Segment 4 has two design options for the East Dundee Interchange and no local circulation options (see Figure 2.2-6 and Figure 2.2-7). This interchange serves vehicle movements between the Bypass and Oregon 99W via the East Dundee connector road.
Figure 2.2-4 Build Alternative and Design Options
Segment 3 and 4: Dundee UGB to East Dundee Interchange
Design Options: 3.A, 3.A2, and 4.1

- Urban Growth Boundary (UGB)
- City Limits
- Bypass Approved Corridor
- Railroad
- Bridges, Overcrossings, or Undercrossings
- At-Grade Bridge Footprint
- Semi-Depressed Bridge Footprint

* Of the three overcrossing options, only one will be chosen.
Figure 2.2-5 Build Alternative and Design Options
Segment 3 and 4: Dundee UGB to East Dundee Interchange
Design Options: 3.A, 3.A2, and 4.2

* Of the three overcrossing options, only one will be chosen.
Figure 2.2-6 Build Alternative and Design Options
Segment 3 and 4: Dundee UGB to East Dundee Interchange

* Of the three overcrossing options, only one will be chosen.

At-Grade Bridge Footprint

Inset
Figure 2.2-7  Build Alternative and Design Options
Segment 3 and 4: Dundee UGB to East Dundee Interchange

- Urban Growth Boundary (UGB)
- City Limits
- Bypass Approved Corridor
- Railroad
- Bridges, Overcrossings, or Undercrossings
- At-Grade Bridge Footprint*

* Of the three overcrossing options, only one will be chosen.
Design Options

Design Option 4.1
Design Option 4.1 (see Figure 2.2-6) is a diamond interchange with ramps serving the overpass in all directions. The acceleration lane for eastbound traffic entering the Bypass extends across Chehalem Creek. This bridge is wider than the one in Design Option 4.2 because the on-ramp merge lane extends onto the bridge. The eastern portion of the interchange will be either at-grade or semi-depressed, depending upon the design option selected in Segment 3.

Design Option 4.2
Design Option 4.2 (see Figure 2.2-7) is a partial cloverleaf interchange with a single loop on-ramp in the southwestern portion of the interchange. The ramp serves traffic entering the Bypass eastbound. The other three ramps provide access for all other traffic movements to and from the Bypass. The eastbound on-ramp traffic merges onto the Bypass before the bridge over Chehalem Creek; as a result, this bridge is narrower than the one in Design Option 4.1. Design Option 4.2 also has fewer conflicting turn movements onto the East Dundee connector road than Design Option 4.1.

Features Common to Both Design Options

- East Dundee connector road location.
- Structures and bridges:
  - A crossing over the Bypass for a private farm road owned by Columbia Empire Farms.
  - The East Dundee connector road over Dayton Avenue, the railroad, and Oregon 99W.
  - Bypass westbound off- and on-ramps over Chehalem Creek Tributary A.
  - East Dundee connector road over the Bypass and Chehalem Creek Tributary A and B.
  - Bypass and eastbound on-ramp over a ravine.
  - Bypass over Chehalem Creek.

Differences Between Design Options

- Diamond vs. partial cloverleaf interchange design.
- Width of bridge over Chehalem Creek.
- Conflicting turn movements onto the East Dundee connector road with Design Option 4.1, but not with Design Option 4.2.

Local Circulation
In Segment 4, the East Dundee connector road requires the relocation of Fox Farm Road, Dayton Avenue, and Hagey Road (see Figure 2.2-6). Dayton Avenue connects to Oregon 99W at the new Fox Farm Road intersection. The Dayton Avenue railroad crossing is relocated and a signalized intersection is installed. In addition, a private overcrossing (over the Bypass) on an existing internal roadway is designed to provide farm equipment access to the portion of the Columbia Empire Farms separated by the Bypass.
2.2.2.5 Segment 5: West Newberg to Oregon 219 Interchange

Segment 5 (see Figure 2.2-8a and Figure 2.2-8b) has three design options and no local circulation options. This segment is located in southwestern Newberg, east of Chehalem Creek, and extends to the Oregon 219 Interchange.

Design Options

Design Options 5.1C.2 and 5.1D.2 have different Bypass roadway heights between Columbia and Waterfront Streets.

Design Option 5.1C.2

Design Option 5.1C.2 (see Figure 2.2-8a) is fully depressed between College and River Streets; both streets and the railroad connection to SP Newsprint cross over the Bypass. The Bypass closes 11th Street between Columbia Street and Wynooski Road. The Bypass crosses the Hess Creek North ravine depressed beneath the Sportsman Airpark approach paths and continues semi-depressed to the Oregon 219 Interchange.

Overcrossing structures and bridges in Design Option 5.1C.2 are:

The Bypass crosses over Hess Creek North and Hess Creek Tributary C.

The SP Newsprint railroad spur, College and River Streets, and Wynooski Road cross over the Bypass.

Design Option 5.1D.2

Design Option 5.1D.2 (see Figure 2.2-8a) is above-grade on fill. The Bypass crosses over College and River Streets and the railroad connection to the SP Newsprint facility. Both streets and the railroad remain at their existing grades and locations. The Bypass closes 11th Street between Columbia Street and Wynooski Road. The Bypass crosses the Hess Creek North ravine depressed beneath the Sportsman Airpark approach paths and continues semi-depressed to the Oregon 219 Interchange.

Overcrossing structures and bridges in Design Option 5.1D.2 are:

- The Bypass crosses over Hess Creek North, a Hess Creek Tributary C, the railroad, and College and River Streets.
- Wynooski Road crosses over the Bypass.

Design Option 5.2D

Design Option 5.2D (see Figure 2.2-8b) is above-grade on fill. In this design option, the section of the Bypass roadway between River Street and the relocated Wynooski Road is closer to SP Newsprint than in Design Option 5.1D.2, allowing 11th Street to remain open. The overcrossing structures and bridges in Design Option 5.2D are the same as those in Design Option 5.1D.2.

Features Common to All Design Options

- Bypass roadway location between River Street and relocated Wynooski Road.
Figure 2.2-8a  Build Alternative and Design Options
Segments 5 and 6: West Newberg to Oregon 219 Interchange
Design Options 5.1C.2, 5.1D.2

- Urban Growth Boundary (UGB)
- Design Option 4.2 Right-of-Way
- Segment 5 Local Circulation
- Design Options 5.1C.2, 5.1D.2 & 5.2D Right-of-Way
- SP Newsprint Circulation
- Segment 6 Local Circulation
- Segment 6 Right-of-Way
- Design Option 7.4C Right-of-Way

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Figure 2.2-8b  Build Alternative and Design Options
Segments 5 and 6: West Newberg to Oregon 219 Interchange
Design Option 5.2D

- Urban Growth Boundary (UGB)
- City Limits
- Bypass Approved Corridor
- Bridges, Overcrossings, or Undercrossings
- Railroad

Locators:
- Newberg
- Dundee
- Dayton
- Newberg-Dundee Bypass Project

Map ID: DEIS_Base_8x11_Ch2_2_2.8b.mxd
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Differences Between Design Options

- Different Bypass roadway heights.
- Whether the Bypass crosses over local streets and railroad spur or local streets and railroad spur are on structures over the Bypass.
- Whether or not the Bypass shifts south onto SP Newsprint property to avoid closing 11th Street.

Local Circulation

Local circulation changes in Segment 5 (see Figure 2.2-8a and Figure 2.2-8b) keep connections across the Bypass for River and College Streets, the railroad spur, and Wynooski Road. The railroad spur is owned by SP Newsprint. Local roads and the railroad spur would remain open with limited disruptions during construction of the Bypass. On the north side of the Bypass, west of College Street, a new frontage road would provide driveways to three properties. For Design Options 5.1C.2 and 5.1D.2, 9th Street is extended between Pacific Street and Wynooski Road, and Miller Place is extended to connect to the new part of 9th Street. On the south side of the Bypass, Waterfront and 14th Streets are relocated and reconnected to College Street. The north road entrance to SP Newsprint is reconfigured.

2.2.2.6 Segment 6: Oregon 219 Interchange

Segment 6 (see Figure 2.2-8a and Figure 2.2-8b) has no design options or local circulation options. This is a partial cloverleaf interchange that serves all vehicle movements to and from the Bypass and Oregon 219. Loop ramps are located in the northwest and southeast quadrants of the interchange. Signalized ramp connections provide access to and from the Bypass and Oregon 219. The Bypass is semi-depressed under Oregon 219. Oregon 99W remains in the same location but is elevated on a structure.

Local Circulation

The Oregon 219 Interchange requires changes to several local roadways (see Figure 2.2-8a and Figure 2.2-8b). Wynooski and Wilsonville Roads are realigned to the south to connect with Oregon 219 at a new signalized intersection, providing a safer distance for the roads from the interchange. Oregon 219 is widened north and south of the interchange to five lanes: two travel lanes in each direction and a turn lane. Cul-de-sacs are constructed on Sandoz Road and Industrial Parkway, and Adolf Road is closed.

2.2.2.7 Segment 7: East Newberg to East Newberg Interchange

Segment 7 (see Figure 2.2-9 and Figure 2.2-10) has two design options and no local circulation options. The segment begins east of the Oregon 219 Interchange and continues to the East Newberg Interchange. The Bypass roadway is semi-depressed east of Oregon 219, crossing Spring Brook Tributary A, under Fernwood Road, crossing Spring Brook and then connecting to the East Newberg Interchange. Fernwood Road remains in the same location but is elevated on a structure over the Bypass. Both design options have the same Bypass roadway locations and heights, except in the vicinity of Newberg Providence Hospital and Chehalem Glenn Golf Course. Between Oregon 219 and Fernwood Road, the Bypass is in the same location for both design options, but the alignment differs slightly by option north of Fernwood Road.
Figure 2.2-9 Build Alternative and Design Options
Segment 7: East Newberg to East Newberg Interchange
Segment 8.1: East Newberg Interchange
Segment 8.1A: Rex Hill
Design Option 7.4C

Urban Growth Boundary (UGB)  
City Limits  
Bypass Approved Corridor  
Railroad  
Bridges, Overcrossings, or Undercrossings  

Segment 6 Right-of-Way  
Design Option 7.4C Right-of-Way  
Segment 8.1 Local Circulation  
Segment 8.1 Right-of-Way  
Segment 8.1A Local Circulation  
Segment 8.1A Right-of-Way  

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Design Options

Design Option 7.4C
Between Fernwood Road and the East Newberg Interchange, the Bypass crosses an undeveloped field east of Oak Meadows Loop, and is located closer to Newberg Providence Hospital than Design Option 7.5C (see Figure 2.2-9).

Design Option 7.5C
Between Fernwood Road and the East Newberg Interchange, the Bypass shifts east to minimize impacts to property owned by Newberg Providence Hospital. Design Option 7.5C crosses Chehalem Glenn Golf Course, which is owned by the Chehalem Park and Recreation District (CPRD) (see Figure 2.2-10).

Features Common to Both Design Options
Bypass roadway locations and heights, except in the vicinity of Newberg Providence Hospital and Chehalem Glenn Golf Course.

- Structures and bridges:
  - The Bypass over Spring Brook.
  - Bypass and truck lane over Spring Brook Tributaries A and B.
  - Fernwood Road over the Bypass.

Differences Between Design Options
- Impacts to Newberg Providence Hospital and Chehalem Glenn Golf Course property.

Local Circulation
The intersection of Fernwood Road and Brutscher Street is raised to accommodate the Fernwood structure over the Bypass (see Figure 2.2-9 and Figure 2.2-10).

2.2.2.8 Segment 8.1: East Newberg Interchange
Segment 8.1 (see Figure 2.2-9) includes the East Newberg Interchange, improvements to existing Oregon 99W, and local circulation improvements. This section of the Bypass is fully access controlled with a raised median barrier. There are no design options or local circulation options.

The interchange is a directional system interchange that provides free-flow movements between the Bypass and Oregon 99W. Westbound traffic heading toward Newberg on Oregon 99W (north of the Bypass) stays in the left lanes and continues onto the Bypass or exits in the right lanes via a new ramp to Oregon 99W. The ramp connects to existing Oregon 99W west of Benjamin Road.

Eastbound traffic on Oregon 99W leaving Newberg is rerouted south of existing Oregon 99W to an entrance ramp that crosses under the Bypass and reconnects to Oregon 99W near Corral Creek Road. Traffic traveling on the Bypass continues through the interchange and enters Oregon 99W in the left lanes. A separate eastbound truck lane is provided going up Rex Hill for slow-moving trucks. The truck lane merges with eastbound Oregon 99W traffic entering Oregon 99W and continues up Rex Hill. The truck lane provides sufficient distance for eastbound truck traffic to merge with the Bypass traffic on Oregon 99W.

Overcrossing structures and bridges in Segment 8.1 are:
- An overpass for the Bypass to cross over the eastbound Oregon 99W ramp onto the Bypass.
- A ramp from eastbound Oregon 99W to the Bypass over Spring Brook Tributary B.
- A ramp from the Bypass to westbound Oregon 99W over Spring Brook Tributary B.
- The Bypass and truck lane to cross over Corral Creek underpass.

Local Circulation

Several driveways and local road connections are disrupted by the Bypass in this segment. Local circulation changes (see Figure 2.2-9) extend Providence Drive north of Oregon 99W to connect with a new frontage road. The frontage road will connect to Rex Hill Winery and other properties that currently have approach roads or driveways onto Oregon 99W. Existing road connections from Corral Creek and Veritas Lane to Oregon 99W would be routed through an underpass under the Oregon 99W ramps and the Bypass to connect with the frontage road. Harmony and Klimek Lanes are realigned to connect to Providence Drive rather than Oregon 99W.

2.2.2.9 Segment 8.1A: Rex Hill

In Segment 8.1A (see Figure 2.2-10), there are no design options and no local circulation options. The Bypass reconnects with Oregon 99W on Rex Hill. Lanes are added to Oregon 99W in both directions to provide safe merging and separation of traffic movements at the interchange. The two lanes on Oregon 99W westbound widen to three lanes after Quarry Road. Continuing down Rex Hill on Oregon 99W, three lanes increase to four prior to the East Newberg Interchange. The two right lanes exit onto Oregon 99W; the others continue onto the Bypass.

Eastbound, the truck lane merges into the second of the two lanes from eastbound Oregon 99W. These two lanes reconnect to the Bypass, forming four lanes. Continuing eastbound, the two right lanes merge, creating a three-lane section that continues over Rex Hill. Then the resulting two right lanes merge again into a two-lane section just west of the new location of Old Parrett Mountain and Haugen Roads.

Local Circulation

Local circulation changes (see Figure 2.2-10) include connecting Old Parrett Mountain and Quarry Roads together on a bridge over Oregon 99W. A frontage road south and parallel to Oregon 99W connects Old Parrett Mountain and Haugen Roads. The frontage road connects to Oregon 99W east of the existing Haugen Road intersection. This new intersection provides safer access for the increased traffic volume on Oregon 99W and is limited to right-in/right-out movements for eastbound traffic on Oregon 99W. The Quarry Road intersection would also be limited to right-in/right-out movements for westbound traffic on Oregon 99W. These two intersections, Quarry Road and the new frontage road, along with the bridge over Oregon 99W would provide a new local road system for properties on both sides of Oregon 99W on Rex Hill.