Appendix E. Figure Descriptions

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This appendix includes written descriptions of all figures included in this Technical Report. If needed, additional figure interpretation is available from the ODOT Senior Environmental Project Manager at (503) 731-4804.

Figure Number	Figure Title	Figure Description
1	Project Area	Figure 1 shows the Project Area. The Project Area includes a 1.7-mile segment of Interstate 5 (I-5), beginning north of Interstate 405 (I-405) at milepost 303.2, extending south to the Burnside Bridge just south of Interstate 84 (I-84) at milepost 301.5. The Project Area also includes the interchange of I-5 and N Broadway and NE Weidler Street (Broadway/Weidler interchange) and the surrounding transportation network, from approximately N/NE Hancock Street to the north, N Benton Avenue to the west, N/NE Multnomah Street to the south, and NE 2nd Avenue to the east. Figure 1 also shows the Willamette River to the west of the Project Area and the following four bridges (from north to south): Fremont Bridge, Broadway Bridge, Steel Bridge, and Burnside Bridge. The Project Area includes segments of both I-5 and I-84.
2	Auxiliary Lane/ Shoulder Improvements	Figure 2 shows the locations of the proposed auxiliary lanes and shoulder improvements on I-5. One new northbound (NB) auxiliary lane would be added to connect the I-84 westbound on-ramp to the N Greeley off-ramp. A new southbound (SB) auxiliary lane would extend the existing auxiliary lane that enters I-5 SB from the N Greeley on-ramp. The extent of proposed auxiliary lanes and shoulder improvements begin near where I-5 crosses over N Russell and extends south to I-84. Figure 2 also shows the Project Area.
3	I-5 Auxiliary (Ramp-to-Ramp) Lanes – Existing Conditions and Proposed Improvements	Figure 3 shows the existing and proposed auxiliary lane configurations from the N Greely on-ramp extending south to the SB Morrison Bridge off-ramp. Existing conditions are shown on the left and proposed improvements are shown on the right. Existing SB conditions include two SB lanes and three on-ramps (listed from north to south): N Greeley, I-405/N Fremont, and N Wheeler and three off-ramps (listed from north to south): N Broadway, I-84, and Morrison Bridge. There are existing auxiliary lanes between the N Greeley on-ramp extending to just south of the N Broadway off-ramp, the I-405/N Fremont on-ramp and N Broadway off-ramp, and N Wheeler on-ramp and I-84 off-ramp. Existing NB conditions include two NB lanes and two on-ramps (listed from south to north): I-84 and N Broadway and two off-ramps (listed from south to north): N Weidler, I-405/N Fremont, and N Greeley. There are existing auxiliary lanes between the I-84 on-ramp and N Weidler off-ramp and between the N Broadway on-ramp and I-405/N Fremont off-ramp. For proposed improvements, the on-ramps and off-ramps are the same as those shown for existing conditions, and all existing auxiliary lanes remain. There is one new SB proposed auxiliary lane that results in a continuous auxiliary lane from the N Greeley on-ramp extending south to the Morrison Bridge off-ramp. There is one NB proposed auxiliary lane that results in a continuous auxiliary lane from the I-84 on-ramp north to the N Greeley off-ramp. Two additional proposed NB auxiliary lane segments also extend the existing auxiliary lane between the I-84 on-ramp and N Weidler off-ramp.

Figure Number	Figure Title	Figure Description
4	I-5 Cross Section (N/NE Weidler Overcrossing) – Existing Conditions and Proposed Improvements	Figure 4 shows a cross section comparison of existing and proposed conditions of I-5 south of the N/NE Weidler overcrossing within the Broadway/Weidler interchange area. Existing conditions are shown on the top and are the same for NB and SB traffic and include an inside and outside shoulder of varying width and two 12-foot lanes. Proposed lane configuration is shown below the existing conditions and is the same for NB and SB traffic and include an inside and outside shoulder, two through lanes, and one auxiliary lane. All shoulders and lanes are 12 feet wide.
5	Broadway/ Weidler/ Williams and Vancouver/ Hancock Highway Covers	Figure 5 shows a rendering of the Broadway/Weidler/Williams and Vancouver/Hancock highway covers. The Broadway/Weidler/Williams cover appears as a green space that spans east-west across I-5, extending from immediately south of N/NE Weidler to immediately north of N/NE Broadway. The entire block between N/NE Weidler, NE Victoria, N/NE Broadway, and N Williams is all shown as a green space covering I-5. The Vancouver/Hancock cover is located farther to the north and appears as a smaller green space extending northwest and southeast from N Vancouver at its intersection with N/NE Hancock. Proposed bike lanes are also shown along N/NE Weidler, N Williams, N Vancouver, N/NE Broadway, and N/NE Hancock.
6	Broadway/ Weidler Interchange Area Improvements	Figure 6 shows locations of improvements to the Broadway/Weidler interchange between I-5, the interchange, and the local street network. Improvements are labeled with letters A through H. The Broadway/Weidler/Williams cover spans east-west across I-5, extending from immediately south of N/NE Weidler to immediately north of N/NE Broadway. The Vancouver/Hancock cover is located farther to the north and appears as a smaller green space extending northwest and southeast from N Vancouver at its intersection with N/NE Hancock. Both covers are indicated by the letter "A." Letter "B" is located near the bottom of the figure and shows how the I-5 SB on-ramp would be relocated by having it begin one block farther north at N/NE Weidler instead of N Ramsay Way, where the existing ramp begins. Letter "C" located near the middle of the figure shows the segment of N Williams between N Ramsay and N Weidler that would be closed to private motor vehicles. Letter "D" located near the middle of the figure shows the location of where traffic flow on N Williams between N/NE Weidler and N/NE Broadway would be converted to a reverse traffic flow two-way street with a 36-foot-wide median. Letter "E" shows the location of the proposed Hancock-Dixon crossing that extends from the intersection of N Dixon and N Wheeler east to N Williams and N/NE Hancock. Letter "G" indicates the location where N Flint would be removed beginning at N Tillamook and extending south to N Broadway. Letter "H" shows the location of the proposed Clackamas bicycle and pedestrian bridge, located south of N/NE Weidler to connect NE Clackamas with N Williams. The Project Area boundary and proposed auxiliary lanes and shoulders are also shown on the figure.
7	Conceptual Illustration of Proposed N Williams Multi-Use Path and Revised Traffic Flow	Figure 7 shows a rendering of the proposed N Williams multi-use path and reverse traffic flow. The foreground in the bottom half of the rendering shows the multi-use path as an extension of the sidewalk to the west (left) of N Williams. The top half of the rendering shows two SB traffic lanes to the east (right) of the multi-use path/median and two NB traffic lanes to the west (left) of the multi-use path/median. The Broadway/Weidler/Williams cover is shown as green space to the east (right) of N Williams SB traffic lanes.
8	Clackamas Bicycle and Pedestrian Crossing	Figure 8 shows a rendering of the Clackamas bicycle and pedestrian crossing. The crossing is shown as a curved elevated path crossing I-5, connecting NE Clackamas on the east side of I-5 to N Williams on the west side of I-5. Green bicycle lanes are also shown on either side of N Williams, located just west of I-5.

Figure Number	Figure Title	Figure Description
9	Utilities Area of Potential Impact	Figure 9 shows the Utilities Area of Potential Impact, which covers the same extent as the Project Area boundary shown in Figure 1. As indicated in the Figure 1 description, the Project Area includes a 1.7-mile segment of I-5 beginning north of I-405 at milepost 303.2, extending south to the Burnside Bridge just south of I-84 at milepost 301.5. The Project Area also includes the interchange of I-5 and N Broadway and NE Weidler Street (Broadway/Weidler interchange) and the surrounding transportation network, from approximately N/NE Hancock Street to the north, N Benton Avenue to the west, N/NE Multnomah Street to the south, and NE 2nd Avenue to the east. Figure 1 also shows the Willamette River to the west of the Project Area and the following four bridges (from north to south): Fremont Bridge, Broadway Bridge, Steel Bridge, and Burnside Bridge. The Project Area includes segments of both I-5 and I-84.
10	Pump Station Piping, 72-Inch Horseshoe Sanitary Gravity Main (Source: Portland 1961)	Figure 10 shows a cross section of the 72-inch horseshoe sanitary gravity main inflow located south of the pump station at the I-5/I-84 interchange. The tunnel contains a pipe that is rounded on top and both sides, forming a "horseshoe" shape. The bottom edge of the tunnel is flattened out, connecting the two sides of the horseshoe. The interior space of the main is shown to be 6 feet in diameter, while the full diameter including the side walls is 7 feet 10 inches at a roughly 30-degree angle from horizontal. The top side of the horseshoe is shown to be 8 inches thick, while the bottom edge of the horseshoe is shown to be 9 inches thick. The total height of the tunnel is 7 feet 9 inches, making the tunnel slightly wider than it is tall. The image has two engineering notes. The first note indicates that "steel shown in standard sections may be varied or omitted entirely by the engineer as may be determined by actual field conditions." The second note indicates that "location and type of construction joints to be approved by the engineer."
11	Pump Station Piping, 68-inch by 70-inch Bypass Rectangular Pipe (Source: Portland 1993)	Figure 11 shows a cross section of a pipe located to the west of the pump station at the I-5/I-84 interchange. This pipe is a 68-inch by 70-inch gravity bypass rectangular pipe with a 62-inch by 39 1/2 inch abandoned semicircular pressure pipe directly above it. The image shows an excerpt from an engineering drawing, with the title "Typical Section: existing force main (over), gravity sewer by-pass (under)." The cross section shows one pipe that is flat on the bottom and curved on the top, with a rectangular pipe cavity in the bottom of the pipe and a semi-circular pipe cavity in the top of the pipe. The bottom rectangular cavity has a label that reads "existing gravity sewer by-pass to remain in service." The upper semi-circular cavity has a label that reads "existing force main to be abandoned – fill with light weight concrete grout - see specs."
12	BES Gravity Sanitary, 38-inch by 66-inch Semi-Circular Pipe (Source: Portland 1954)	Figure 12 shows a cross section of a Portland Bureau of Environmental Services (BES) gravity sanitary main that runs from NE 1st to NE Martin Luther King Jr. Boulevard, which is a 38-inch by 66-inch semi-circular pipe. The image shows an excerpt from an engineering drawing, with the title "3 foot 2 inch by 5 foot 6 inch monolithic tunnel." The image shows a semi-circular pipe cavity that is rounded on top and flat on the bottom, with straight side walls that flare slightly out from being vertical. The cavity is taller than it is wide, at 5 feet 6 inches tall and 3 feet 2 inches wide. The bottom wall of the pipe is 6 inches thick and underlain by a 3-inch sill, while the top wall of the pipe is 9 inches thick and overlain by a 4-inch cap.

Figure Number	Figure Title	Figure Description
13	BES Sanitary CSO, 72-inch Semi-Circular (Source: Portland 1911)	Figure 13 shows a cross section of a semi-circular 72-inch BES sanitary combined sewer overflow (CSO) pipe. The image is an excerpt from an engineering drawing and is composed of two sketches, one on the left and one on the right. The left sketch has the title "concrete tunnel section: where called for on Plan from river to E. 15th St." The sketch shows a semi-circular pipe, rounded on top and nearly flat on the bottom, with concrete walls and a single layer of stone blocks along the bottom interior edge of the pipe cavity. A layer of mortar is indicated between the stone blocks and the bottom pipe wall. The cavity is 6 feet wide and 5 feet 11 inches tall. The layer of stone blocks on the bottom is 5 inches thick. The concrete pipe wall is 10 inches thick on top, 12 inches thick on each side, and 8 inches thick on the bottom side. The notes on the left sketch indicate "quantities per linear foot: 0.781 cubic yards concrete, 0.694 square yards stone blocks." The right sketch has the title "pile foundation" and shows an outline of the tunnel cross section depicted in the left sketch on top of a horizontal wooden platform supported by three vertical wooden bents. The wooden platform is 8 feet wide along the bottom of the tunnel, and the vertical bents are spaced evenly along the bottom of the platform, with 3 feet between the left bent to the center bent and 3 feet from the center bent to the right bent. The platform is bolted to the bents, and a note indicates that the bents are positioned every 5 feet along the length of the tunnel.
14	Combined Gravity Main, 56-inch Crossing I-5 at Hancock (Source: State of Oregon Highway Department 1960)	Figure 14 shows a cross section of the combined gravity main, which is 56 inches in width and crosses I-5 at Hancock. The image is an excerpt from an engineering drawing. The pipe cavity is circular with an interior diameter of 4 feet 8 inches. The pipe walls are the same thickness of 8 inches on the top, left side, and right side; the side walls straighten out as they approach the bottom of the pipe cross section, forming a rectangular support beneath the pipe. As a result, the outer surface is semi-circular in shape (rounded on the top and sides and flat on the bottom). Notes on the figure indicate the placement of bars that would be incorporated along the length of the pipe, lettered A, B, C, and D. An engineering note on the image indicates "hook bars 'D & E' into all manholes." Two notes on the bottom left and bottom right indicate construction joints, presumably attaching the lower rectangular pipe wall and support to the upper circular pipe wall. A 4-inch-wide 20-gauge copper water stop is embedded along the construction joints on both sides of the pipe.
15	Combined Gravity Main, 56-inch Brick Pipe (Source: Portland 1905)	Figure 15 shows a cross section of the combined gravity main, which is a 56-inch brick pipe. The image is an excerpt from an engineering drawing, showing a circular pipe cavity with an interior diameter of 4 feet 8 inches. The bottom side of the pipe wall is shown as one layer, while the top and side walls of the pipe are shown as two layers. Despite the difference in layers, the total thickness of the pipe wall is the same on all sides. The thickness of the pipe wall is not indicated on the drawing.