

APPENDIX C

**LOCATION OF THE CAPACITY REPLACEMENT
PROJECT IN RELATION TO NORTHWEST'S
EXISTING PIPELINES AND NON-STANDARD
PARALLEL OFFSETS, PULL-OUTS, AND ROUTE
VARIATIONS**

TABLE C-1

Location of the Capacity Replacement Project in Relation to Northwest's Existing Pipelines and Non-Standard Parallel Offsets, Pull-Outs, and Route Variations

Facility	Begin Milepost	End Milepost	Segment Length (miles)	Adjacent to Existing Pipeline	Relationship to Existing Pipeline/Utility/Road	Offset (feet)	Description of Non-Standard Parallel Offset, Pull-Out, or Route Variation (where applicable) ^a
Sumas Loop	1484.5	1483.1	1.4	30-inch	East	20	
	1483.1	1483.1	0.1	26-inch	West	20	Non-standard parallel offset to avoid a barn at the Saar Creek crossing.
	1483.1	1481.1	2.0	30-inch	East	20	
	1481.1	1480.9	0.2	30-inch	West	20	Non-standard parallel offset to remove the 26-inch-diameter pipeline and place the 36-inch-diameter loop in the same trench to avoid a parallel creek channel and wooded wetlands.
	1480.9	1479.0	1.9	30-inch	East	20	
	1479.0	1478.0	1.0	30-inch	West	20	Non-standard parallel offset to remove the 26-inch-diameter pipeline and place the 36-inch-diameter loop in the same trench to avoid houses and Lebrant Road.
	1478.0	1477.6	0.3	30-inch	East	20	
	1477.6	1477.6	0.1	30-inch	East	40	Pull-out for sufficient depth at Swift Creek.
	1477.6	1476.9	0.7	30-inch	East	20	
	1476.9	1476.7	0.2	30-inch	West	20	Non-standard parallel offset to remove the 26-inch-diameter pipeline and place the 36-inch-diameter loop in the same trench to avoid a pond on the east side of the 30-inch-diameter pipeline and a bridge on the west side of the 26-inch-diameter pipeline.
	1476.7	1475.9	0.8	30-inch	East	20	
	1475.9	1475.5	0.4	30-inch	West	20	Non-standard parallel offset to remove the 26-inch-diameter pipeline and place the 36-inch-diameter loop in the same trench to avoid houses and landscaped yards.
	1475.5	1472.2	3.3	30-inch	East	20	
	1472.2	1472.0	0.2	30-inch	East	10	Non-standard parallel offset to avoid a winery driveway and house.
	1472.0	1470.8	1.2	30-inch	East	20	
	1470.8	1470.7	0.1	None, new right-of-way	NA	NA	Route variation to avoid crossing Mitchell Creek at a poor location.
	1470.7	1470.5	0.2	30-inch	West	20	Non-standard parallel offset to avoid the Mitchell Creek encroachment.
	1470.5	1470.4	0.2	30-inch	East	20	
	1470.4	1470.3	0.1	26-inch & 30-inch	West	10	Non-standard parallel offset and pull-in where the 30-inch-diameter pipeline crosses the 26-inch-diameter pipeline.

TABLE C-1 (cont'd)

**Location of the Capacity Replacement Project in Relation to Northwest's Existing Pipelines and
Non-Standard Parallel Offsets, Pull-Outs, and Route Variations**

Facility	Begin Milepost	End Milepost	Segment Length (miles)	Adjacent to Existing Pipeline	Relationship to Existing Pipeline/Utility/Road	Offset (feet)	Description of Non-Standard Parallel Offset, Pull-Out, or Route Variation (where applicable) ^a
	1470.3	1470.0	0.3	26-inch & 30-inch	West	20	Pull-out to avoid a wetland and steep hillside.
	1470.0	1469.5	0.6	30-inch	East	20	
	1469.5	1469.3	0.2	26-inch	West	20	Non-standard parallel offset to avoid Mount Hope Cemetery.
	1469.3	1468.9	0.3	30-inch	East	20	
	1468.9	1468.9	0.0	30-inch	East	30	Non-standard parallel offset to accommodate the Mount Baker Highway (Highway 542) bore pit.
	1468.9	1468.8	0.2	30-inch	East	20	
	1468.8	1468.0	0.8	26-inch & 30-inch	East & west	40 to 60	Non-standard parallel offset for the North Fork Nooksack River horizontal directional drill (HDD) crossing.
	1468.0	1465.3	2.8	30-inch	East	20	
	1465.3	1464.7	0.6	26-inch	West	20	Pull-out to avoid a drainage ditch.
	1464.7	1461.8	2.9	30-inch	East	20	
	Subtotal		22.7				
Mount Vernon Loop	1431.3	1429.0	2.3	30-inch	East	20	
	1429.0	1428.6	0.4	30-inch	East & west	20	Non-standard parallel offset to remove the 26-inch-diameter pipeline and place the 36-inch-diameter loop in the same trench to avoid a steep, unstable side slope and to open cut Pilchuck Creek.
	1428.6	1428.2	0.3	30-inch	East	20	
	1428.2	1427.9	0.3	30-inch	East	20	b
	1427.9	1426.5	1.4	30-inch	East	20	
	1426.5	1426.4	0.1	30-inch	East	20	b
	1426.4	1425.7	0.7	30-inch	East	20	
	1425.7	1425.6	0.1	30-inch	West	20	Non-standard parallel offset to remove the 26-inch-diameter pipeline and place the 36-inch-diameter loop in the same trench to avoid the Armstrong Creek channel encroachment.
	1425.6	1424.6	1.0	30-inch	East	20	
	1424.6	1424.3	0.3	30-inch	East	40	Pull out to accommodate the HDDs of the North and South Fork Stillaguamish Rivers.
	1424.3	1423.4	0.9	None, new right-of-way	NA	NA	Route variation to accommodate the HDDs of the North and South Fork Stillaguamish Rivers.
	1423.4	1422.6	0.8	26-inch	West	20	Pull-out to avoid South Fork Stillaguamish River channel encroachment.
	1422.6	1421.4	1.2	30-inch	East	20	

TABLE C-1 (cont'd)

**Location of the Capacity Replacement Project in Relation to Northwest's Existing Pipelines and
Non-Standard Parallel Offsets, Pull-Outs, and Route Variations**

Facility	Begin Milepost	End Milepost	Segment Length (miles)	Adjacent to Existing Pipeline	Relationship to Existing Pipeline/Utility/Road	Offset (feet)	Description of Non-Standard Parallel Offset, Pull-Out, or Route Variation (where applicable) ^a
	1421.4	1421.3	0.2	30-inch	West	20	Non-standard parallel offset to remove the 26-inch-diameter pipeline and place the 36-inch-diameter loop in the same trench to avoid a slide area.
	1421.3	1421.2	0.1	30-inch	East	20	^b
	1421.2	1419.7	1.5	30-inch	East	20	
	1419.7	1419.3	0.3	26-inch	West	30	Pull-out to avoid Olson Lake and beaver ponds.
	1419.3	1416.6	2.7	30-inch	East	20	
	1416.6	1416.4	0.2	30-inch	East	30	Non-standard parallel offset for safety reasons to cross a wetland and beaver pond area.
	1416.4	1415.3	1.1	30-inch	East	20	
	1415.3	1415.1	0.2	30-inch	East	20	^b
	1415.1	1412.2	2.9	30-inch	East	20	
	1412.2	1411.7	0.5	30-inch	West	20	Non-standard parallel offset to minimize wooded wetland disturbance and to avoid pipeline crossings.
	1411.7	1411.4	0.3	26-inch	West	20	Pull-out to avoid a house and side hill slope.
	1411.4	1411.3	0.1	30-inch	East	30	Non-standard parallel offset to accommodate the Highway 92 bore crossing.
	1411.3	1411.1	0.2	30-inch	East	20	
	1411.1	1410.6	0.5	26-inch & 30-inch	West	20	Pull-out to accommodate the Little Pilchuck Creek flume crossing and to avoid culverts and a house.
	1410.6	1410.6	0.0	26-inch	East	7	Non-standard parallel offset to avoid a house.
	1410.6	1410.5	0.1	26-inch	East	20	Pull-out where the 30-inch-diameter pipeline crosses the 26-inch-diameter pipeline.
	1410.5	1410.0	0.5	30-inch	East	20	
	1410.0	1409.9	0.0	30-inch	East	30	Non-standard parallel offset to accommodate the Hartford-Machias Road and Centennial Trail bore crossings.
	1409.9	1409.7	0.3	30-inch	East	20	
	1409.7	1409.2	0.5	26-inch & 30-inch	West	20	Non-standard parallel offset to avoid the 2003 Machias Replacement 26-inch-diameter pipeline.
	1409.2	1408.8	0.4	30-inch	East	20	
	Subtotal		22.5				
Snohomish Loop	1393.9	1389.0	4.9	30-inch	West	20	Non-standard parallel offset to remove the 26-inch-diameter pipeline and place the 36-inch-diameter loop in the same trench.

TABLE C-1 (cont'd)

**Location of the Capacity Replacement Project in Relation to Northwest's Existing Pipelines and
Non-Standard Parallel Offsets, Pull-Outs, and Route Variations**

Facility	Begin Milepost	End Milepost	Segment Length (miles)	Adjacent to Existing Pipeline	Relationship to Existing Pipeline/Utility/Road	Offset (feet)	Description of Non-Standard Parallel Offset, Pull-Out, or Route Variation (where applicable) ^a
	1389.0	1389.0	0.1	30-inch	West	10	Non-standard parallel offset to remove the 26-inch-diameter pipeline and place the 36-inch-diameter loop in the same trench.
	1389.0	1387.4	1.6	30-inch	West	20	Non-standard parallel offset to remove the 26-inch-diameter pipeline and place the 36-inch-diameter loop in the same trench.
	1387.4	1387.3	0.0	26-inch & 30-inch	West	30	Non-standard parallel offset to accommodate the NE Novelty Hill Road bore crossing.
	1387.3	1386.8	0.6	30-inch	West	20	Non-standard parallel offset to remove the 26-inch-diameter pipeline and place the 36-inch-diameter loop in the same trench.
	1386.8	1386.7	0.0	26-inch & 30-inch	West	30	Non-standard parallel offset to accommodate the Bridle Crossing Way bore crossing.
	1386.7	1386.0	0.7	30-inch	West	20	Non-standard parallel offset to remove the 26-inch-diameter pipeline and place the 36-inch-diameter loop in the same trench.
	1386.0	1385.8	0.3	30-inch	West	10	Non-standard parallel offset to remove the 26-inch-diameter pipeline and place the 36-inch-diameter loop in the same trench.
	1385.8	1382.0	3.8	30-inch	West	20	Non-standard parallel offset to remove the 26-inch-diameter pipeline and place the 36-inch-diameter loop in the same trench.
	Subtotal		11.9				
Fort Lewis Loop	1338.1	1336.4	1.7	30-inch	East	20	
	1336.4	1336.3	0.1	30-inch	East	10	Non-standard parallel offset to accommodate the 38th Avenue E bore crossing and to avoid a house.
	1336.3	1335.3	1.0	30-inch	East	20	
	1335.3	1335.2	0.1	30-inch	West	20	Non-standard parallel offset to remove the 26-inch-diameter pipeline and place the 36-inch-diameter loop in the same trench to avoid a steep slope, sediment pond, and U.S. Department of Transportation work yard.
	1335.2	1335.2	0.0	30-inch	West	30	Non-standard parallel offset to accommodate the State Highway 7 bore crossing.

TABLE C-1 (cont'd)

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Facility	Begin Milepost	End Milepost	Segment Length (miles)	Adjacent to Existing Pipeline	Relationship to Existing Pipeline/Utility/Road	Offset (feet)	Description of Non-Standard Parallel Offset, Pull-Out, or Route Variation (where applicable) ^a
	1335.2	1335.1	0.1	26-inch & 30-inch	West	20	Non-standard parallel offset to remove the 26-inch-diameter pipeline and place the 36-inch-diameter loop in the same trench to avoid purchasing additional right-of-way and abandoning the 26-inch-diameter pipeline between two hotlines.
	1335.1	1330.6	4.5	30-inch	West	20	Non-standard parallel offset to avoid conflict with a fiber optic line. ^c
	1330.6	1325.5	5.1	30-inch	East	20	
	1325.5	1325.3	0.2	30-inch	East	20	^b
	1325.3	1325.1	0.1	None, new right-of-way	NA	NA	Route variation to accommodate the State Highway 702 bore crossing.
	1325.1	1324.3	0.8	30-inch	East	20	
	1324.3	1324.2	0.1	30-inch	East	50	Pull-out to accommodate extra depth of cover at the Nisqually River crossing.
	1324.2	1323.0	1.2	30-inch	East	20	
	1323.0	1322.6	0.5	26-inch	West	20	Non-standard parallel offset to avoid houses.
	1322.6	1319.8	2.8	30-inch	East	20	
	1319.8	1319.7	0.1	30-inch	East	10	Non-standard parallel offset to accommodate a road crossing.
	1319.7	1319.6	0.1	30-inch	East	20	
	1319.6	1319.6	0.0	30-inch	East	10	Non-standard parallel offset to avoid a well house.
	1319.6	1315.6	4.0	30-inch	East	20	
	Subtotal		22.4				
	Project Total		79.5				

^a The standard offset for the 36-inch-diameter loops associated with the Capacity Replacement Project is 20 feet east of the existing 30-inch-diameter pipeline. A non-standard parallel offset deviates from the standard offset and stays within Northwest's existing permanent right-of-way. A pull-out is a non-standard parallel offset that leaves or is located at the edge of Northwest's existing permanent right-of-way and requires additional permanent right-of-way but is 50 feet or less from either the existing 26-inch- or 30-inch-diameter pipeline. A route variation is an area that deviates more than 50 feet from either the existing 26-inch- or 30-inch-diameter pipeline and creates new right-of-way.

^b Although this is a standard offset, the loop would be located on the outer edge of Northwest's existing right-of-way because the existing permanent right-of-way is less than 75 feet wide through this area.

^c The proposed 36-inch-diameter loop would be installed using a non-standard parallel offset within Northwest's existing permanent right-of-way across the Fort Lewis Military Reservation but Northwest is requesting an additional 5 feet of permanent right-of-way through this area to bring its easement up to 75 feet.

NA = Not applicable.