

Exhibit U

Availability of Public and Private Providers to Provide Services

**Mist Resiliency Project
August 2024**

Prepared for



NW Natural

Northwest Natural Gas

Prepared by



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Acronyms and Abbreviations

AADT	annual average daily traffic
MSA	Metropolitan Statistical Area
NWN	Northwest Natural Gas
LOS	Level of Service
O&M	Operations and Maintenance
OAR	Oregon Administrative Rules
ODOT	Oregon Department of Transportation
Project	Mist Resiliency Project
RFA	Request for Amendment
RFPD	Rural Fire Protection District
RV	recreational vehicle
TSP	Transportation System Plan
v/c	volume-to-capacity

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1.0 Introduction

Northwest Natural Gas (NWN), the Certificate Holder, proposes to amend the Site Certificate for its underground natural gas storage facility at the Mist Resiliency Project (Project) in Columbia County, Oregon. Exhibit U contains information pertaining to potential adverse impacts of construction and operation of the Project on the ability of public and private utilities to provide services, as required to meet the submittal requirements in Oregon Administrative Rules (OAR) 345-021-0010(1)(u) paragraphs (A) through (E). This exhibit demonstrates that the Project can comply with the approval requirements found in OAR 345-022-0110:

- (1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that the construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impact to the ability of public and private providers within the analysis area described in the project order to provide: sewers and sewage treatment, water, storm water drainage, solid waste management, housing, traffic safety, police and fire protection, health care and schools.*
- (2) The Council may issue a site certificate for a facility that would produce power from wind, solar or geothermal energy without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.*
- (3) The Council may issue a site certificate for a special criteria facility under OAR 345-015-0310 without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.*

2.0 Analysis Area

The Analysis Area is the area where NWN must describe the impacts of the proposed Project changes in this Request for Amendment (RFA) 13. The Analysis Area is the same as the public services study area, defined in OAR 345-001-0010(35)(b) as the area within and extending 10 miles from the Site Boundary. The Site Boundary is defined in the Project Description section of this RFA 13 that reflects the information pursuant to OAR 345-021-0010(1)(a) and (b). The Public Services Analysis Area is shown on Figure U-1.

3.0 Methods

The following analysis is primarily based on secondary data compiled from federal, state, and local government agencies. State and local governments were also contacted directly for data on

potentially affected public services. The potential effects of the Project were evaluated with respect to the ability of public and private providers within the Analysis Area to provide sewers and sewage treatment, water, stormwater drainage, solid waste management, housing, traffic safety, police and fire protection, health care, and schools. Key Project-related variables used in this analysis include projected construction and operations employment, traffic volumes, and waste generation.

3.1 Assumptions Used to Evaluate Potential Impacts – OAR 345-001-0010(1)(u)(A)

OAR 345-021-0010(1)(u) Information about significant potential adverse impacts of construction and operation of the proposed facility on the ability of public and private providers in the analysis area to provide the services listed in OAR 345-022-0110, providing evidence to support a finding by the Council as required by OAR 345-022-0110. The applicant must include:

OAR 345-021-0010(1)(u)(A) The important assumptions the applicant used to evaluate potential impacts;

Potential impacts were evaluated based on assumptions for the number of employees needed to construct and operate the Project, population shifts, and use of transportation routes, as described in the following sections.

3.1.1 Construction

Construction phase staffing is shown by month in Table U-1 and Figure U-2. Overall construction is expected to start in January 2026 and continue for 30 months, ending in June 2028. Construction staffing estimates are broken into four components: the Miller Station Compressor Replacement, North Mist Compressor Station (NMCS), laterals and well pads, and project management. Construction of the Miller Station Compressor Replacement is expected to take place over a 24-month period beginning in month 1 (January 2026) and extending through month 24 (December 2027). Construction of the NMCS and laterals and well pads is expected to take place over a 16-month period beginning in month 15 (March 2027) and extending through month 30 (June 2028). Project management activities would extend the full 30 months.

Table U-1. Construction Phase Staffing by Project Component

Project Month	Calendar Month	Miller Station Compressor Replacement	North Mist Compressor Station	Laterals and Well pads	Project Management	Total
1	26-Jan	8	0	0	4	12
2	26-Feb	8	0	0	4	12
3	26-Mar	8	0	0	4	12
4	26-Apr	15	0	0	4	19
5	26-May	25	0	0	4	29
6	26-Jun	20	0	0	4	24

**Exhibit U: Availability of Public and Private
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Project Month	Calendar Month	Miller Station Compressor Replacement	North Mist Compressor Station	Laterals and Well pads	Project Management	Total
7	26-Jul	15	0	0	4	19
8	26-Aug	21	0	0	4	25
9	26-Sep	21	0	0	4	25
10	26-Oct	21	0	0	4	25
11	26-Nov	10	0	0	4	14
12	26-Dec	10	0	0	4	14
13	27-Jan	8	0	0	4	12
14	27-Feb	8	0	0	4	12
15	27-Mar	8	15	0	4	27
16	27-Apr	15	15	11	5	46
17	27-May	25	35	15	5	80
18	27-Jun	20	35	15	5	75
19	27-Jul	15	40	26	5	86
20	27-Aug	21	35	52	5	113
21	27-Sep	21	35	48	5	109
22	27-Oct	21	40	22	5	88
23	27-Nov	10	35	22	5	72
24	27-Dec	10	35	22	5	72
25	28-Jan	0	46	22	5	73
26	28-Feb	0	46	22	5	73
27	28-Mar	0	51	22	5	78
28	28-Apr	0	36	0	5	41
29	28-May	0	31	0	5	36
30	28-Jun	0	31	0	5	36

All work would be conducted at the Project location. Monthly employment would range from a low of 12 workers at the beginning of the Project in month 1 (January 2026) to a peak of 113 in month 20 (August 2027).

The proposed construction workforce would be provided by five main contractors each associated with one of the components identified in Table U-1:

- Civil and Foundations; A civil construction contractor would perform the earthwork and concrete foundation installation. Local contractors would be considered for this work with local labor to be utilized as much as possible to limit relocation to the Analysis Area for this Project.
- Mechanical, Structural Steel and Piping: A mechanical construction contractor would perform the fabrication and installation of all mechanical equipment, steel structures, and

process piping. Local contractors will be considered for this work with local labor to be utilized as much as possible to limit relocation to the Analysis Area for this Project.

- **Electrical and Instrumentation:** an electrical construction contractor would perform the electrical and instrument installation. Local contractors will be considered for this work with local labor to be utilized as much as possible to limit relocation to the Analysis Area for this Project.
- **Wellpads and Laterals:** A mechanical pipeline contractor would perform the lateral pipeline and wellpad installation. Local contractors will be considered for this work with local labor to be utilized as much as possible to limit relocation to the Analysis Area for this Project.
- **Project Management:** An engineering, procurement, construction firm would provide project management services. All project management field staff would be considered non-local; none are expected to relocate their families to the Analysis Area.

Based on these assumptions, the potential non-local construction workforce would peak in month 20 (August 2027), with 113 workers temporarily relocating to the Analysis Area.

Very few, if any, of the non-local workers employed during the construction phase of the Project would be expected to permanently relocate to the area. Employment associated with the Project will be temporary and the availability of similar employment opportunities in the area in the future is uncertain. NWN's policy will be to hire locally to the extent practicable. Local hiring may be greater than estimated and will depend on the availability of workers with the appropriate skill sets.

Construction workers temporarily relocating to work on the Project are generally expected to seek temporary accommodation within the Analysis Area, with some workers staying in Clatskanie and others staying in the larger city of Longview (just outside the Analysis Area), across the Columbia River in Washington State. This analysis assumes that these two communities will likely host most of the temporary workers, due to their proximity to the Project site.

3.1.2 Operations and Maintenance

The new Project will be monitored via the Supervisory Control and Data Acquisition (SCADA) system by existing Operations and Maintenance (O&M) staff from NWN's Miller Station. In addition, NWN plans to supplement the existing O&M staff, equating to a total of twelve operations staff. It is assumed that these workers will live locally.

Other assumptions used to evaluate potential impacts are identified in the following sections, as appropriate.

3.2 Affected Public and Private Service Providers – OAR 345-001-0010(1)(u)(B)

OAR 345-021-0010(1)(u)(B) Identification of the public and private providers in the analysis area that would likely be affected;

3.2.1 Population

The proposed Project is located entirely within Columbia County, Oregon. The Analysis Area for the Project, which extends 10 miles from the Project boundaries, also encompasses parts of Clatsop County, Oregon to the west, and Cowlitz and Wahkiakum counties, Washington across the Columbia River to the north (Figure U-1).

All areas within the Analysis Area had a positive average annual growth rate from 2010 to 2022 (Table U-2). Columbia County had a total estimated population of 53,588 in 2022. Almost half of the population in Columbia County (46 percent) is located in unincorporated areas (Portland State University 2019). The City of Clatskanie, one of two incorporated communities in Columbia County within 10 miles of the Project, had a total estimated population of 1,751 in 2022, approximately 3.2 percent of the county total (Table U-2). Vernonia had a total estimated population of 2,417 in 2022, approximately 4.5 percent of the county total (Table U-2). The largest community in Columbia County and the county seat, St. Helens, which is located southeast of the Analysis Area, had a total estimated population of 14,369 in 2022, slightly more than one-quarter of the total county population (Portland State University 2019).

Cowlitz County, the most populated of the four counties in the Analysis Area, had a total estimated population of 111,956 in 2022. The city of Longview, the largest city just outside the Analysis Area, had a total estimated population of 37,872 in 2022, accounting for more than one-third (34 percent) of the total population in Cowlitz County (Table U-2).

Table U-2. Population, 2000, 2010, and 2022

Geographic Area	2000	2010	2022	Average Annual Growth Rate (percent)	
				2000-2010	2010-2022
OREGON	3,421,399	3,831,074	4,240,137	12.0	10.7
Columbia County, OR	43,560	49,351	53,588	13.3	8.6
Clatskanie	1,525	1,737	1,751	13.9	0.8
Vernonia	2,259	2,151	2,417	-4.8	12.4
Clatsop County, OR	35,630	37,039	41,695	4.0	12.6
WASHINGTON	5,894,121	6,724,540	7,785,786	14.1	15.8
Cowlitz County, WA	92,948	102,410	111,956	10.2	9.3
Longview ¹	34,660	36,648	37,872	5.7	3.3
Wahkiakum County, WA	3,824	3,978	4,688	4.0	17.8

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Geographic Area	2000	2010	2022	Average Annual Growth Rate (percent)	
				2000-2010	2010-2022
Cathlamet	565	532	578	-5.8	8.6
Sources: U.S. Census Bureau 2022a, U.S. Census Bureau 2022b, U.S. Census Bureau 2022c, Washington Office of Financial Management 2011.					
1. Longview, Washington is just outside of the 10-mile Analysis Area, but is included in the analysis due to close proximity and likelihood of commuters coming from the city.					

Clatsop County had a total estimated population of 41,695 in 2022. None of the incorporated communities in Clatsop County are within 10 miles of the Project. Wahkiakum County had a total estimated population of 4,688 in 2022. An estimated 578 people lived in Cathlamet, which is located almost 10 miles from the Project (Table U-2).

Columbia County is part of the seven county Portland-Vancouver-Hillsboro Oregon-Washington, Metropolitan Statistical Area (MSA). According to the Office of Management and Budget (OMB 2020), MSAs have at least one urbanized area of 50,000 or more population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties. The other six counties that are part of this MSA are: Clackamas, Multnomah (Portland), Washington (Hillsboro), and Yamhill counties in Oregon, and Clark (Vancouver) and Skamania counties in Washington. None of these counties are within the Analysis Area for the Project. However, other parts of the MSA are within commuting distance of the Analysis Area and could provide services, including temporary accommodation, if required.

The Analysis Area also encompasses part of the Longview, Washington MSA, which consists of Cowlitz County and includes the cities of Longview and Kelso (OMB 2020).

3.2.2 Sewer and Water Services

The proposed Project is not served by sewers and sewage treatment or water service providers. The water to the site will be trucked and onsite wastewater system will be installed.

3.2.3 Stormwater Drainage

The proposed Project does not presently receive stormwater drainage services.

3.2.4 Solid Waste Management

The solid waste system in Columbia County includes waste reduction, collection of refuse and recycling, and transfer of waste to a landfill. Waste is delivered to two transfer stations and hauled to a disposal site outside the county. There are no landfills located in Columbia County. Recycling and garbage collection services are provided by private companies that are regulated by the County and cities (Columbia County 2023).

Waste generated in Columbia County is typically disposed of via the county in accordance with the Columbia County Solid Waste Management Ordinance (Benton County 2021, Columbia County 2010, Dugdale 2015). Exceptions are occasionally made for large construction projects. Solid waste collected in the county is presently disposed of at the Coffin Butte Landfill in Corvallis, Oregon (Benton County 2021, Dugdale 2015). The Coffin Butte Landfill is a regional facility operated by Republic Services, Inc. under a franchise agreement with Benton County (2021).

3.2.5 Housing

Housing resources are summarized by county and incorporated community in Table U-3. This data, compiled as part of the 2021 American Community Survey (U.S. Census Bureau 2021) indicate that there were adequate housing resources available for rent in Cowlitz, Clatsop, and Columbia counties in 2021. An estimated 126 and 1,697 housing units were available for rent in Columbia and Clatsop counties, respectively. About a third (29 percent) of the available rental units in Cowlitz County are located in the city of Longview, the closest larger community to the Project, just outside the Analysis Area. An estimated 38 housing units were available for rent in Longview in 2021 (Table U-3).

Table U-3. Housing Resources

Geographic Area	Total Housing Units	Vacant Housing Units	Estimated Vacancy Rate	Estimated Units Available
Columbia County, OR	21,586	1,653	7.7%	126
Clatskanie	1,034	96	9.3%	8
Vernonia	979	149	15.2%	22
Clatsop County, OR	22,882	6,233	27.2%	1,697
Cowlitz County, WA	45,210	2,434	5.4%	131
Longview ¹	16,719	806	4.8%	38
Wahkiakum County, WA	2,161	270	12.5%	33
Cathlamet	305	33	10.8%	3

Sources: U.S. Census Bureau 2021.

1. Longview, Washington is just outside of the 10-mile Analysis Area, but is included in the analysis due to close proximity and likelihood of commuters coming from the city.

Hotel and motel accommodation is also available within the Analysis Area. There is one hotel in Clatskanie--the Clatskanie River Inn--with a total of 40 rooms, and two recreational vehicle parks, a 10-space RV park located directly adjacent to the hotel and one a short distance away on the south side of Highway 30, Rivers Edge RV Resort (Travel Oregon 2023, Rivers Edge 2024). There is also one hotel in Vernonia – the Caden Hotel (Google Earth 2021). Hotel occupancy rates in this area have been low in recent years due to tourism developments on the coast and the economic downturn (namely due to COVID-19 pandemic). The hotel occupancy rate in Clatskanie and the

surrounding area is approximately 40 percent during the summer and much lower in the winter (Keyser 2015). Online research indicates that there are at least 10 hotels in and around the city of Longview, Washington, and one hotel in the city of Cathlamet, Washington, with additional hotel and motel accommodations available within commuting distance of the Project elsewhere in the Portland-Vancouver-Hillsboro MSA (Google Earth 2021).

Temporary accommodations in the form of campsites and RV parking areas are available in the Project vicinity. There are at least 170 RV parks and campgrounds located within commuting distance of the Project in Clatsop and Columbia counties, Oregon (found at nine locations in Clatskanie, Vernonia, and Cathlamet; RV Life Campgrounds 2023)

3.2.6 Traffic Safety and Operations

Vehicle-based transportation services in the Analysis Area are provided by the governmental entities that operate and maintain the public roadways in the area. These include the Oregon Department of Transportation (ODOT) and the Washington State Department of Transportation; Columbia and Clatsop counties in Oregon; Cowlitz and Wahkiakum counties in Washington; and the municipalities of Clatskanie, Oregon and Longview, Washington (just outside the Analysis Area), and Cathlamet, Washington. Responsibilities for traffic safety are shared among ODOT and Washington State Department of Transportation, the Oregon State Police and the Washington State Patrol, and the respective county and municipal law enforcement agencies.

Access to the Project from I-5 would be via US 30, OR 47, and OR 202 (Figure U-1). US 30 runs parallel to the Columbia River, connecting Columbia County to Astoria and the Portland metropolitan area. US 30 also provides access to Longview, Washington via the Lewis & Clark Bridge. OR 47 runs north-to-south through the county, connecting US 30 with US 26 in Washington County to the south. OR 202 runs east-to-west through the county and connects OR 47 to Astoria. These three highways are the main travel routes through Columbia County serving the highest volume of motor vehicle traffic in the county. All three are under the jurisdiction of ODOT. US 30 is classified as a Statewide Highway. OR 47 and OR 202 are classified as District Highways.

Traffic safety conditions relate to a variety of factors, including traffic volumes and speeds, roadway design, and the physical conditions of the roadways. Annual average daily traffic (AADT) volumes compiled by ODOT for 2021 are presented for the potentially affected sections of each road in Table U-4. Traffic volumes vary throughout the year, increasing by as much as 20 percent on major highways during the summer. This seasonal fluctuation is due to residents and visitors travelling more frequently to locations within the county, as well as drivers traveling to and from the coast. According to ODOT's Automatic Traffic Recorder (05-006) located west of the Lewis & Clark Bridge Interchange on US 30, heavy vehicle traffic accounts for 12 percent of daily traffic, ranging from about 1,000 to 1,500 heavy vehicles (DKS Associates 2017a, DKS Associates 2017b).

Table U-4. Annual Average Daily Traffic (AADT) Volumes by Affected Roadway

Mile Post	AADT All Vehicles	Location
US 30 (Lower Columbia River Highway No. 92)¹		
48.97	14,448	0.3 miles west of Lewis & Clark Bridge interchange
51.42	11,825	0.1 miles west of Heath Road
53.33	11,620	1.03 miles west of Rainier Road
60.62	9,675	0.2 miles east of Swedetown Road overcrossing
60.96	9,850	0.22 miles west of Swedetown Road overcrossing
61.65	8,743	0.05 miles south of OR 47
65.94	7,429	0.05 miles east of Marshland District Road (Clatskanie)
OR 47 (Mist-Clatskanie Highway No. 110)²		
0.05	1,354	0.05 miles west of US 30
0.39	653	0.02 miles northwest of Norman Street
0.65	647	West city limits of Clatskanie
1.48	588	0.02 miles south of Palm Hill Road
6.61	489	0.1 miles south of Clatskanie Mountain Road
11.79	559	0.1 miles north of OR 202
OR 202 (Nehalem Highway No. 102)³		
39.13	283	Clatsop-Columbia County Line
40.79	329	0.02 miles east of Neverstill Road at Birkenfeld
46.08	817	0.08 miles west of OR 47
46.19	757	0.05 miles east of OR 47
Source: ODOT 2021. 1. MP indicates distance west from I-405 at the West Fremont Bridge Interchange in Portland. 2. MP indicates distance west from US 30 in Clatskanie. 3. MP indicates distance east from US 101 in Astoria.		

Columbia County updated its Transportation System Plan (TSP) in 2021 which was informed by their 2015 transportation system plan analysis that provided a summary of existing transportation conditions (DKS Associates 2017a, DKS Associates 2017b; see Attachment U-1). This analysis compares existing peak roadway volumes to the maximum throughput along major roadways using two measures: the volume-to-capacity (v/c) ratio, and Level of Service (LOS).

The v/c ratio is a decimal representation (between 0.00 and 1.00) of the proportion of existing capacity that is being used. This ratio is determined by dividing the peak hour traffic volume by the hourly capacity of a given roadway. A lower ratio indicates better performance. Congestion increases and performance is reduced as the ratio approaches 1.0.

LOS ratings (A through F) are based on the average delay experienced by motorists. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel

demand. LOS D and E represent progressively worse conditions, and LOS F represents conditions where average vehicle delay is excessive and traffic is highly congested (DKS Associates 2017a, DKS Associates 2017b).

The TSP update evaluated motor vehicle conditions at 19 study intersections during both summer and average weekday conditions. All intersections under state jurisdiction in Columbia County must comply with v/c ratio targets in the Oregon Highway Plan, which are based on highway classification, area type, and posted speed. The 19 identified study locations included six locations that would be potentially used by Project-related traffic: five intersections along US 30 between the Lewis and Clark Bridge and Clatskanie; and the intersection of OR 47 and OR 202. The TSP analysis concluded that all of the studied intersections operate well within Oregon Highway Plan mobility targets for both summer (peak season) and average weekday p.m. peak hour conditions (DKS Associates 2017a, DKS Associates 2017b).

Highway capacity analysis was also performed for 20 rural road segments in the county, including portions of US 30, OR 47, and OR 202. All segments currently operate well under capacity, with v/c ratios less than 0.60. Highway capacity analysis was also evaluated using LOS as the performance measure. This analysis found that the eastbound direction of US 30 from Clatskanie to Rainier, and the westbound direction of US 30 between Rainier and the Heath Road intersection experiences moderate congestion, operating with a LOS D during summer p.m. peak-hour conditions. This section of road would be used by Project-related traffic. All other segments were found to operate with a LOS C or better (DKS Associates 2017a, DKS Associates 2017b).

Finally, existing peak hour motor vehicle speeds were compared to posted speed limits during both summer and average weekday conditions. This analysis found that drivers typically experienced unimpeded travel speeds along US 30 and OR 47 during summer and average weekday evening peak hours (DKS Associates 2017a, DKS Associates 2017b).

The Columbia County TSP update includes information on roadway safety conditions. Analysis of collision rates for the 19 study intersections in Columbia County indicated that collision rates for two intersections were high compared to similar intersections in the county; both of these relatively high-collision intersections are located on US 30 between St. Helens and Rainier, outside the Analysis Area (DKS Associates 2017a, DKS Associates 2017b). Three roadway segments were identified as having collision rates that were higher than average for similar roads in the county; this category included the segment of US 30 from Beaver Falls Road to the east edge of Clatskanie. The crash rate for this segment of US 30—0.63 collisions per million vehicle miles traveled—exceeded the countywide average, but was below the statewide average rate of 0.81 per million vehicle miles traveled. The most common cause of collisions along this highway segment involved motorists driving too fast for roadway conditions (DKS Associates 2017a, DKS Associates 2017b).

ODOT maintains periodic ratings of pavement conditions on the highways under ODOT jurisdiction (ODOT 2022). Conditions reported in 2022 for the key routes in the Analysis Area may be summarized as follows:

- US 30 – rated as Very Poor to Poor for segments from Rainier to Beaver Falls Road, Good for the segment from Beaver Falls Road to Swedetown Road (near the east edge of Clatskanie), and Fair from Swedetown road through Clatskanie to the Clatsop County line.
- OR 47 – rated as Good on segments from Mist to Clatskanie, Mist to the junction with Apiary Road, and from Apiary Road to Vernonia, and Fair or Good on multiple segments from Vernonia to US 26 in northwestern Washington County.
- OR 202 – rated as Good for the segment from Vesper to OR 47 at Mist.

3.2.7 Police and Fire Protection

The total number of police and fire departments found in the counties within the Analysis Area are identified in Table U-5. One police department and two fire departments have jurisdiction over the area crossed by the Project: the Columbia County Sheriff's Department, the Clatskanie Rural Fire Protection District (RFPD), and the Mist-Birkenfeld Joint RFPD. In addition, the Clatskanie Police Department has jurisdiction over the City of Clatskanie, and patrols the region immediately east of the Project, and the Longview Police Department serves the city of Longview (just outside of the Analysis Area).

Table U-5. Fire and Police Departments in the Counties within the Analysis Area

State	County	Number of Fire Departments	Number of Police Departments
OR	Columbia	6	7
OR	Clatsop	10	6
WA	Cowlitz	10	7
WA	Wahkiakum	3	3
Source: Capitol Impact 2023.			

3.2.7.1 Police

The Columbia County Sheriff's Office is the primary law enforcement response agency for unincorporated areas in the county, including the proposed Project. The Sheriff's Office Patrol Unit currently consists of fifteen deputies, one detective, and one canine (Columbia County Oregon Sheriff 2023). The City of Clatskanie contracts its Police services with the Columbia County Sheriff's Office (City of Clatskanie 2023).

The Longview Police Department has jurisdiction over the city of Longview, Washington (just outside of the Analysis Area). The Police Department includes 74 full-time and part-time budgeted positions, 61 commissioned police officer positions, and 13 civilian positions (Longview Washington 2023a).

3.2.7.2 Fire

The Clatskanie RFPD would have jurisdiction over the northern part of the Project (specifically the laydown yards west of Clatskanie). There is one main station and two substations within this district, employing a chief, assistant chief, three division officers, and nine firefighter/paramedics (Clatskanie Fire District 2023). All stations are supported by volunteer firefighters and/or emergency medical technicians who respond to the closest station when a call is received. The district currently has four structural engines, a telesquirt, two wildland engines, one rescue, three ambulances, and a water tender in service (Clatskanie Fire District 2023). Response times to Project locations would likely range from 5 to 30 minutes (Sharek 2015).

The Mist-Birkenfeld RFPD would have jurisdiction over the remainder of the Project, including the proposed Project. There are five stations within this district, each manned by the administrative chief, assistant fire chief, emergency manager, emergency management division chief, rescue division chief, and 43 volunteer fire fighters (Mist-Birkenfeld Rural Fire Protection District 2023a). The district currently has four Class “A” Fire Engines, one Type 3 Interface Engine, three Type 6 Interface Engines, four water tenders (tankers), one light rescue vehicle, two ambulances, three utility vehicles and one trailer mounted diesel-powered pump. Response times to Project locations would likely range from 5 to 30 minutes (Kaczenski 2015).

Ambulances operated by the Clatskanie RFPD and Mist-Birkenfeld RFPD typically transport injured patients to the PeaceHealth St. John Medical Center in Longview, Washington (Kaczenski 2015, Mist-Birkenfeld Rural Fire Protection District 2023b, Sharek 2015). Helicopter airlifts to the hospital (operated by LifeFlight) are also available.

Fire protection in the city of Longview is provided by the Longview Fire Department (just outside of the Analysis Area). The department consists of 43 career emergency medical technicians /firefighters and four paramedic/firefighters; each of the three 24-hour shift platoons is led by one battalion chief (Longview Washington 2023b).

3.2.8 Health Care

The PeaceHealth St. John Medical Center in Longview, Washington is the closest hospital to the Project (just outside of the Analysis Area). This hospital is a level 3 trauma center licensed for 346 beds, with 191 beds typically active. The hospital employs approximately 1,619 care givers, including administrative staff and nurses, and 133 active medical staff (e.g., physicians) have staffing privileges (Peace Health 2022). The PeaceHealth St. John Medical Center is equipped to treat some cardiac emergencies, and can perform advanced imaging, inpatient surgeries, as well as outpatient surgeries. Patients suffering from major injuries, such as severe head or spine injuries, are transported to a level 1 or 2 trauma center. The PeaceHealth St. John Medical Center typically sends these patients (once stabilized) to the PeaceHealth SW Medical Center in Vancouver, Washington (level 2) or the Oregon Health & Science University in Portland (level 1; Portor 2015).

3.2.9 Schools

Table U-6 lists the school districts located within the four Analysis Area counties. The City of Clatskanie is served by the Clatskanie School District, which operates 2 schools with a total of 658 students in the 2021-2022 school year. The city of Longview and adjacent city of Kelso are served by the Longview and Kelso School districts, which operated a combined total of 29 schools with 11,087 students in 2021-2022 (Table U-6).

Table U-6. School Districts in the Analysis Area

State	County	School District	Number of Schools in the District	Total Students	Student Teacher Ratio
OR	Columbia	Clatskanie	2	658	16.33
OR	Columbia	Rainier	2	850	17.68
OR	Columbia	Scappoose	8	2,174	17.06
OR	Columbia	St. Helens	8	2,800	18.03
OR	Columbia	Vernonia	4	577	16.82
OR	Clatsop	Astoria	4	1,747	15.17
OR	Clatsop	Jewell	1	133	7.82
OR	Clatsop	Knappa	2	469	14.48
OR	Clatsop	Seaside	4	1,497	14.78
OR	Clatsop	Warrenton-Hammond	3	978	16.35
WA	Cowlitz	Kelso	13	4,793	18.49
WA	Cowlitz	Longview	18	6,294	18.32
WA	Wahkiakum	Wahkiakum	2	457	16.80

Source: National Center for Education Statistics 2022. Data is for the 2021-2022 school year.

3.3 Potential Impacts on Public and Private Providers – OAR 345-001-0010(1)(u)(C)(D)

OAR 345-021-0010(1)(u)(C) A description of any likely adverse impact to the ability of the providers identified in (B) to provide the services listed in OAR 345-022-0110;

OAR 345-021-0010(1)(u)(D) Evidence that adverse impacts described in (C) are not likely to be significant, taking into account any measures the applicant proposes to avoid, reduce or otherwise mitigate the impacts; and

3.3.1 Sewer and Water Services

Sewer and water services are not provided in the unincorporated areas where the proposed Project is located. Portable toilets would be provided to workers during construction of the Project. The portable toilets would be serviced by the supplying agent on a weekly basis on site, and all waste

would be taken off-site for proper disposal. Water would be provided to workers at the Project via a 25,000-gallon water tank, or from a local municipality with an existing water right. As a result, construction of the Project would not directly involve or connect to water or sewer lines, and no impacts to sewer and water service providers are expected.

The permanent operational facilities would be manned and, therefore, toilets, sinks, and bathrooms would be provided. However, operation of the Project is not expected to affect local sewer and water service providers due to the low staffing requirements. Information about anticipated water use and wastewater is provided in Exhibits O and W, respectively.

3.3.2 Stormwater Drainage

Construction and operation of the Project would not require expansion or modification of any existing public stormwater drainage facilities. Any damage to private properties during the construction activities would be repaired by the contractor during completion and restoration of the construction area.

Following construction, affected areas would be graded and restored to pre-construction conditions to the extent practical. Grading would attempt to mimic the existing terrain in order to minimize potential effects to existing drainage patterns. Most of the proposed Facility site footprint would be graded with gravel, existing logging roads will be utilized for access during both construction and operations. The existing roads are graveled and will be improved for construction and maintained during operations, resulting in minimal stormwater runoff containing sediments. The project will be constructed under a National Pollutant Discharge Elimination System 1200-C Construction General Stormwater permit issued by the Oregon Department of Environment Quality (ODEQ). The NMCS site will be graveled and graded to prevent sediment transport by stormwater. Stormwater management is described in Exhibits I and W.

3.3.3 Solid Waste Management

Construction of the Project would result in approximately 406 cubic yards of recyclable waste and 4,281 cubic yards of non-recyclable waste, including excavated soil Exhibit W provides an estimate of solid waste quantities for the Project. Construction debris that could be recycled includes building materials such as insulation, nails, electrical wiring, and rebar, as well as waste originating from site preparation such as dredging materials, tree stumps, and rubble. Waste that cannot be recycled would be disposed of at local landfills. Solid waste will be collected for disposal by a licensed solid waste collector. There are no landfills located in Columbia County, but waste generated in Columbia County is typically disposed of via the county in accordance with the Columbia County Solid Waste Management Ordinance (Benton County 2021, Columbia County 2010, Dugdale 2015).

NWN will coordinate solid waste disposal activities with Columbia County and identify suitable disposal locations. Solid waste from the Project will be disposed of at the Coffin Butte Landfill in Corvallis, Oregon, as is currently the case for solid waste collected in Columbia County (see Section

3.2.4). The most recent annual operating report for the Coffin Butte Landfill indicates the facility had an estimated 18.40 years of landfill space available as of the end of 2021 (Benton County 2021). The 4,281 cubic yards of non-recyclable waste from the Project is equivalent to approximately 0.4 percent of the 1,067,415 cubic yards of landfill space used at Coffin Butte during the 2021 operating year and represents a negligible share of the 17.2 million cubic yards of remaining capacity within the permitted landfill footprint. County staff have additionally confirmed that Coffin Butte Landfill will be able to accept waste generated by the Project (Attachment U-2).

3.3.4 Housing

3.3.4.1 Construction

The non-local construction workforce is expected to peak in month 20 (August 2027) with 113 workers temporarily relocating to the Analysis Area. Assuming 20 of these workers would be accompanied by their families and an average family size of three (two adults and one child), a total of 153 people would temporarily relocate to the Analysis Area in month 20. As indicated in Section 3.2.5, there is sufficient rental housing in the Analysis Area communities to accommodate this projected demand. Hotels and motels are also available in the Analysis Area, as are RV and other camping sites, with additional housing resources available in the Portland Metropolitan Area east of the Analysis Area.

3.3.4.2 Operations and Maintenance

Twelve full-time equivalent dedicated O&M staff members would be employed to operate the new Project. Adequate housing for rent or purchase exists in the Analysis Area communities to accommodate these new staff and their families (Table U-3).

3.3.5 Traffic Safety and Operations

3.3.5.1 Construction

Traffic Volumes

Access to the Project from I-5 will be via US 30, OR 47, and OR 202. Construction at the proposed Project would extend over 30 months, with employment peaking with 113 workers onsite in month 20. The contractors responsible for building the proposed Project would implement the following measures to minimize potential impacts to roadways and traffic:

- To increase travel efficiency and reduce impacts on local road infrastructure, all construction personnel would meet at a previously designated location and would be bused to the Project site. A former log landing site (Bark-N-Haul) located along OR 202 just west of Mist has been tentatively identified as a bus pick-up location.
- Contractors will be responsible for sourcing their own materials. No concrete batching would occur at the Project, or other property controlled by NWN.

- The Project team also proposes to pre-fabricate and pre-assemble components at the selected Contractors location to the extent possible, further reducing the number of truck trips to the site.

The majority of the construction workforce is expected to travel by personal vehicle from Longview, Washington to the bus pick-up location via US 30 and OR 47. Assuming an average vehicle occupancy of 1.3 persons per vehicle, peak construction for the Project would add approximately 88 passenger vehicle roundtrips daily to US 30 and OR 47.¹ The addition of 88 roundtrips would be equivalent to 0.1 percent of the 2021 AADT traveling this section of US 30, depending on the MP location, and 2 percent of the AADT for OR 47 (see Table U-4).

Assuming standard bus sizes that typically range from ten to 60 seats per vehicle, depending on the selected model, peak construction could add approximately two to 12 buses (four to 24 roundtrips) per day to a short segment of OR 202 west of Mist. The 2021 AADT for this segment of OR 202 is approximately 2,186 vehicles (see Table U-4).

With measures identified above in place, truck traffic to the Project is expected to consist of four to 8 trucks to and from the site per day through completion of site and civil activity for the first three months. For the remainder of the Project, truck traffic would be limited to 6 to 12 trucks per week (1 or 2 deliveries per day) delivering engineered equipment, piping, and electrical components.

Construction of the Miller Station would extend over a 24-month period (months 1 to 24, January 2026 to December 2027) with the on-site workforce ranging from 8 to 25 workers (months 1 through 3 and thirteen through fifteen, and five/seventeen, respectively; Table U-1). Operators (assumed to comprise 20 percent of the workforce) would drive their own vehicles to and from the right-of-way (5 vehicles during peak construction). Other craft workers would meet and be bussed to the job sites from a contractor yard location on US 30 west of Clatskanie. During peak construction, approximately 20 craft workers would be transported to the job site, adding up to 1 to 2 bus roundtrips per day to OR 47 and OR 202, depending on the size of the selected buses.

Construction of the NMCS and laterals/wellpads would extend over a 16-month period (months 15 to 30, March 2027 to June 2028) with the on-site workforce ranging from 11 to 51 workers (months 16 and 27, respectively; Table U-1). Similar to the Miller Station staff, operators (assumed to comprise 20 percent of the workforce) would drive their own vehicles (6 vehicles during peak construction), otherwise, craft workers would meet to be bussed to the job sites. During peak construction, approximately 41 craft workers would be transported to the job site, adding up to one to five bus roundtrips per day to OR 47 and OR 202, depending on the size of the selected buses.

It is assumed for the purposes of analysis that the majority of the Project construction workers would travel the stretch of US 30 from the Lewis and Clark Bridge to the Project on a daily basis by personal vehicle. In reality, some portion of Project-related traffic would likely approach the Project from the southeast, using OR 47, and a relatively small volume could approach Clatskanie from the west via US 30. With an average vehicle occupancy rate of 1.3 persons per vehicle, this construction

¹ This occupancy rate represents the average of all land uses from *Trip Generation, Seventh Edition*, published by the Institute of Transportation Engineers.

work force component would add approximately 151 passenger vehicle roundtrips to US 30 during peak construction. Combined with 49 operator vehicles, this would result in a total of 200 daily roundtrips. The addition of 200 roundtrips would be equivalent to 0.2 percent of the 2021 AADT traveling this section of highway, depending on the MP location (see Table U-4).

Existing condition data compiled for US 30 as part of the Columbia County TSP, concluded that five study intersections between the Lewis and Clark Bridge and Clatskanie operate well within Oregon Highway Plan mobility targets for both summer and average weekday p.m. peak hour conditions (DKS Associates 2017a, DKS Associates 2017b). However, the analysis did indicate the average delay for vehicles on the minor approaches to those U.S. 30 intersections was sufficient to reduce the LOS for those approaches, typically to LOS C.

Highway capacity analysis was performed for five segments of US 30 between the Lewis and Clark Bridge and Clatskanie, with all segments found to be currently operating below capacity (DKS Associates 2017a, DKS Associates 2017b). This analysis did, however, find that the eastbound direction of US 30 from Clatskanie to Rainier experienced moderate congestion, operating with a LOS D during summer p.m. peak-hour conditions. The Project could result in the addition of up to 88 passenger vehicles to US 30 during the month of peak construction for all Project components combined (month 20; August 2027). To the extent that the additional Project-related traffic occurred during peak-hour conditions on US 30, it would increase the proportion of existing roadway capacity that is being used and increase the potential for congestion in some locations. Travelers using the minor approaches to US 30 would likely notice longer delays in accessing the highway during times of peak construction activity.

Potential impacts during this period would be reduced if Project workers were to travel at off-peak hours. If the construction activity on site ended at 4 p.m., for example, most of the Project-related trips would not be accessing US 30 until slightly after the 4-5 p.m. peak hour for existing traffic on the highway. Conversely, it is possible that the construction days would be cut short during the summer fire season (the construction employment peak is expected to occur in August). Further, the potential for Project-related traffic to result in impacts to traffic operations in the Analysis Area would be limited to a relatively short portion of the construction period, as shown in Table U-1 and Figure U-2. Based on the projected staffing levels, the traffic volume increase associated with the Project would be concentrated during a 2-month period and would be much less noticeable during the remainder of the construction process.

Traffic Safety and Related Conditions

Traffic associated with Project construction is not expected to significantly affect traffic safety or related conditions. Although the segment of US 30 from Beaver Falls Road to the east edge of Clatskanie is identified as a high-collision segment in the Columbia County TSP, the crash rate for this segment was below the statewide average rate and the most common cause of collisions involved motorists driving too fast for roadway conditions (DKS Associates 2017a, DKS Associates 2017b). An incremental, short-term increase in traffic congestion during the period of peak construction activity is unlikely to have a measurable effect on collision rates on this highway segment or on other routes used by Project-related construction traffic. The frequency, weight, and

duration of deliveries of Project construction equipment and materials are unlikely to be sufficient to cause a change in the pavement conditions reported for the key highways in the Analysis Area.

3.3.5.2 *Operations and Maintenance*

Operation of the Project could result in twelve employees and their families permanently relocating to the Analysis Area. The addition of these new employees would not be expected to affect local traffic volumes and roadways.

3.3.6 *Police and Fire Protection*

3.3.6.1 *Police*

The Project is not expected to have significant adverse impacts on police service. The temporary peak increase in population during construction, estimated to be approximately 153 residents, is equivalent to 0.1 percent of the population in the four counties that are part of the Analysis Area, and 0.3 percent of the total combined populations of the cities of Longview and Clatskanie, where workers temporarily relocating to the area would likely stay (Table U-2).

Operation of the Project could result in twelve employees and their families permanently relocating to the Analysis Area. The addition of these new employees would not be expected to require additional law enforcement resources or facilities.

The Columbia County Sheriff's Office, the primary law enforcement agency for the Project area, has reviewed the project description and concluded that construction and operation of the Project would have no significant impact on the ability of the Sheriff's Office to provide law enforcement services (Attachment U-2).

3.3.6.2 *Fire*

Project construction has the potential to result in adverse effects to fire protection services if onsite activities were to result in fires or other incidents requiring emergency response. The Clatskanie RFPD has jurisdiction over the north part of the Project, the laydown areas west of Clatskanie; the Mist-Birkenfeld RFPD has jurisdiction over the remainder of the Project. These local fire protection districts were contacted in order to solicit their input regarding the potential effect that construction and operation of the Project could have on their ability to serve the community. The Fire Chief for the Clatskanie RFPD indicated that the Project's potential impact to his district would depend on the number of emergencies that occurred during the course of the Project's construction and operation. The Clatskanie RFPD is a small district with limited resources and staff, and they could be adversely impacted if emergencies were frequent (Sharek 2015). The Fire Chiefs for the Mist-Birkenfeld and Clatskanie RFPDs have reviewed the project description and concluded that construction and operation of the Project would have no significant impact on the ability of the RFPD to provide fire protection and EMS services (Attachment U-2).

The Mist Underground Natural Gas Storage Facility has been operating at the Mist Site, near Mist, Oregon since 1981. Fire protection equipment, training, and related activities at the facility include the following:

- Dedicated fire suppression truck with water and foam fire pumper/fire extinguishers, wildland fire tools;
- Required fire suppression training for all Miller Station employees;
- Internal fire suppression plan with varied types of media, including dry chemical, carbon dioxide, and high expansion foam generators;
- Wildland fire training; and
- Unified command fire training with the Mist-Birkenfeld RFPD.

The Mist facility has a long history of working with and providing support for the Mist-Birkenfeld RFPD, including the provision of audio visual equipment and appliances for the Fire Station. Further, NWN built the local community a four million gallon water reservoir with pump station (Fleming Pond) in 2013. This is enough water to respond to any Mist facility fire up to a well fire, as well as meet the needs of the local community.

NWN will work with the Fire Marshal to ensure that the proposed construction of the Project complies with all applicable requirements. Construction activities would generally peak during the summer (see Table U-1) when the risk of fire would be highest. Construction activities could potentially increase the risks of fire in the area. To reduce the risk of fires, the Project team will develop safety plans for the proposed Project. The plan for the Project will include site and regulatory training for all Project personnel. Permitting procedures will be established for all hot work and all employees will be trained in the process. All work will be conducted in compliance with local and state safety requirements. The measures detailed in these plans are intended to reduce the potential for fires and other emergencies and avoid the need for responses from local fire protection agencies.

The relatively small number of workers expected to temporarily relocate to the Analysis Area during Project construction and the small number of new permanent employees are not expected to place significant new demands on the fire protection districts that serve the area.

3.3.7 Health Care

Construction and operation of the Project is not expected to have an adverse effect on health care providers or hospitals. Workers suffering minor injuries would be treated at local medical facilities or emergency rooms. Workers suffering more serious injuries, were they to occur, would be taken to one of the major hospitals in the Project vicinity.

3.3.8 Schools

Non-local construction workers are expected to temporarily relocate to the Analysis Area from January 2026 to June 2028, with non-local employment peaking in September 2027 (month 20; Figure U-2). The number of non-local workers expected to be accompanied by family members would range from 5 to 20 per month over this period. Assuming an average family size of 2 adults and 1 child, the number of school-age children temporarily relocating to the Analysis Area would be 5 to 20. This potential increase in students is not expected to significantly affect local schools.

Operation of the Project could result in 12 employees and their families permanently relocating to the Analysis Area. The addition of approximately 12 children is not expected to significantly affect local schools.

4.0 Proposed Monitoring Programs – OAR 345-001-0010(1)(u)(E)

OAR 345-001-0010(1)(u)(E) The applicant's proposed monitoring program, if any, for impacts to the ability of the providers identified in (B) to provide the services listed in OAR 345-022-0110.

NWN is not proposing a monitoring program related to the potential impacts described above because the impacts are not expected to be significant.

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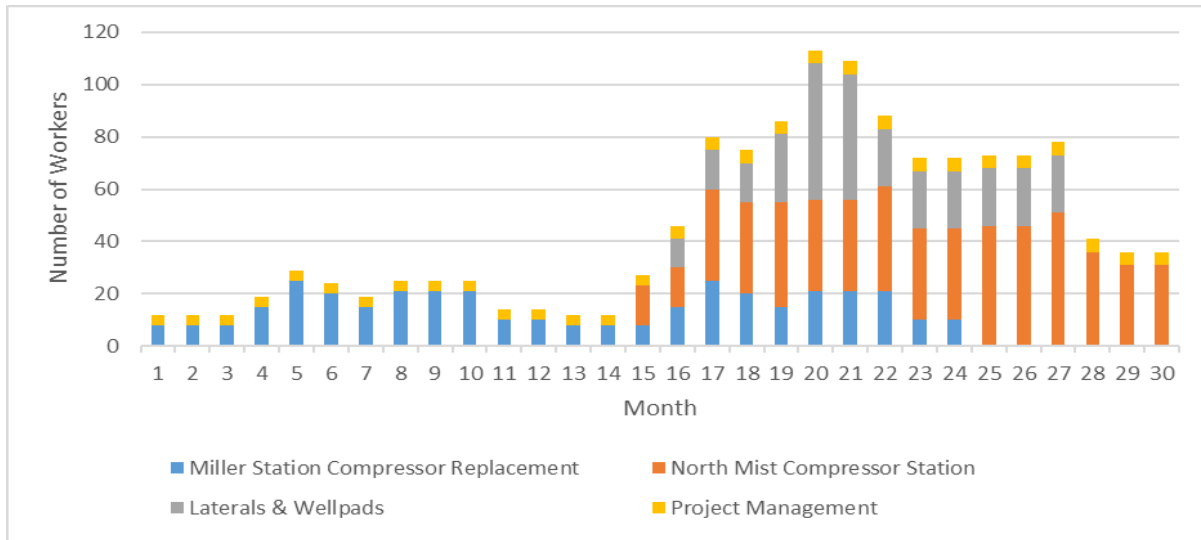


Figure U-2. Construction Phase Staffing by Project Component

Attachment U-1. Columbia County Transportation System Plan Update

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Attachment U-2. Letters from Public and Private Providers

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