

MILLENNIUM BULK TERMINALS—LONGVIEW SEPA ENVIRONMENTAL IMPACT STATEMENT

SEPA AESTHETICS, LIGHT, AND GLARE TECHNICAL REPORT

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Acronyms and Abbreviations

Applicant	Millennium Bulk Terminals—Longview, LLC
BNSF	BNSF Railway Company
CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
County	Cowlitz County
NEPA	National Environmental Policy Act
Port	Port of Longview
RCW	Revised Code of Washington
Reynolds facility	Reynolds Metals Company facility
SEPA	Washington State Environmental Policy Act
UP	Union Pacific Railroad
US 30	U.S. Route 30
USC	United States Code
WAC	Washington Administrative Code

This technical report assesses the potential aesthetic, light, and glare impacts of the proposed Millennium Bulk Terminals—Longview project (Proposed Action) and No-Action Alternative. For the purposes of this assessment, aesthetics refers to the overall quality of the visual resources of the project area and the surrounding area. This report describes the regulatory setting, establishes the methods for assessing potential aesthetic impacts, presents the historical and current aesthetic characteristics of the study area, and assesses the potential for impacts on aesthetics, light, and glare.

1.1 Project Description

Millennium Bulk Terminals—Longview, LLC (Applicant) is proposing to construct and operate a coal export terminal (Proposed Action) in Cowlitz County, Washington, along the Columbia River (Figure 1). The coal export terminal would receive coal from the Powder River Basin in Montana and Wyoming and the Uinta Basin in Utah and Colorado via rail shipment. The coal export terminal would receive, stockpile, and load coal onto vessels and transport the coal via the Columbia River and Pacific Ocean to overseas markets in Asia.

1.1.1 Proposed Action

Under the Proposed Action, the Applicant would develop the coal export terminal on 190 acres (project area) primarily within an existing 540-acre site that is currently leased by the Applicant (Applicant's leased area). The project area is adjacent to the Columbia River in unincorporated Cowlitz County, Washington near Longview, Washington (Figure 2). The Applicant currently operates and would continue to operate a bulk product terminal within the Applicant's leased area.

BNSF Railway Company (BNSF) or Union Pacific Railroad (UP) trains would transport coal on BNSF main line routes in Washington State, and the BNSF Spur and Reynolds Lead in Cowlitz County to the project area. Coal would be unloaded from rail cars, stockpiled, and loaded by conveyor onto ocean-going vessels for export at two new docks (Docks 2 and 3) located in the Columbia River.

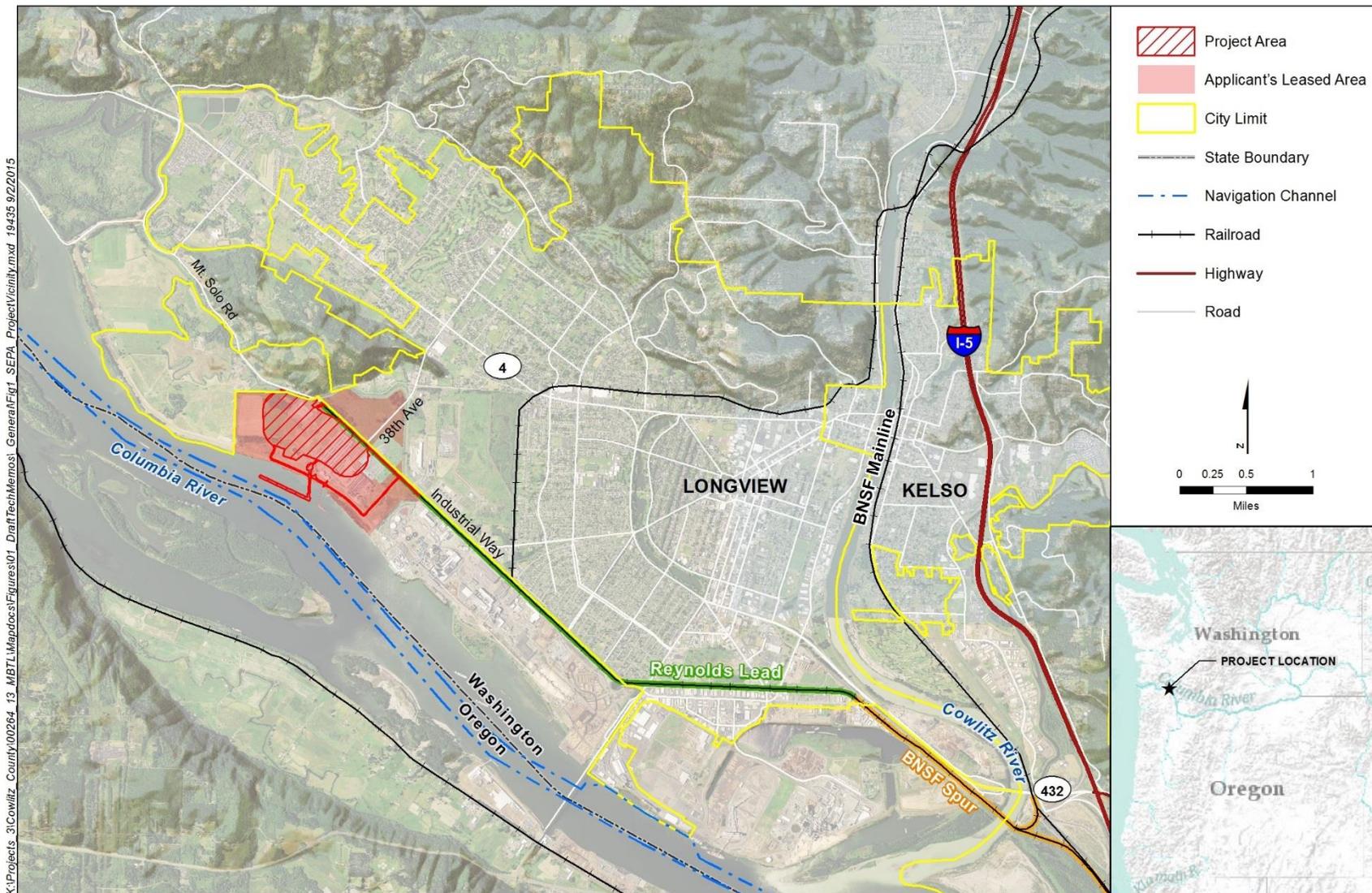
Once construction is complete, the Proposed Action could have a maximum annual throughput capacity of up to 44 million metric tons of coal per year. The coal export terminal would consist of one operating rail track, eight rail tracks for storing up to eight unit trains, rail car unloading facilities, a stockpile area for coal storage, conveyor and reclaiming facilities, two new docks in the Columbia River (Docks 2 and 3), and shiploading facilities on the two docks. Dredging of the Columbia River would be required to provide access to and from the Columbia River navigation channel and for berthing at the two new docks.

Vehicles would access the project area from Industrial Way (State Route 432), and vessels would access the project area via the Columbia River. The Reynolds Lead and BNSF Spur track—both jointly owned by BNSF and UP, and operated by Longview Switching Company (LVSW)—provide rail access to the project area from a point on the BNSF main line (Longview Junction) located to the

east in Kelso, Washington. Coal export terminal operations would occur 24 hours per day, 7 days per week. The coal export terminal would be designed for a minimum 30-year period of operation.

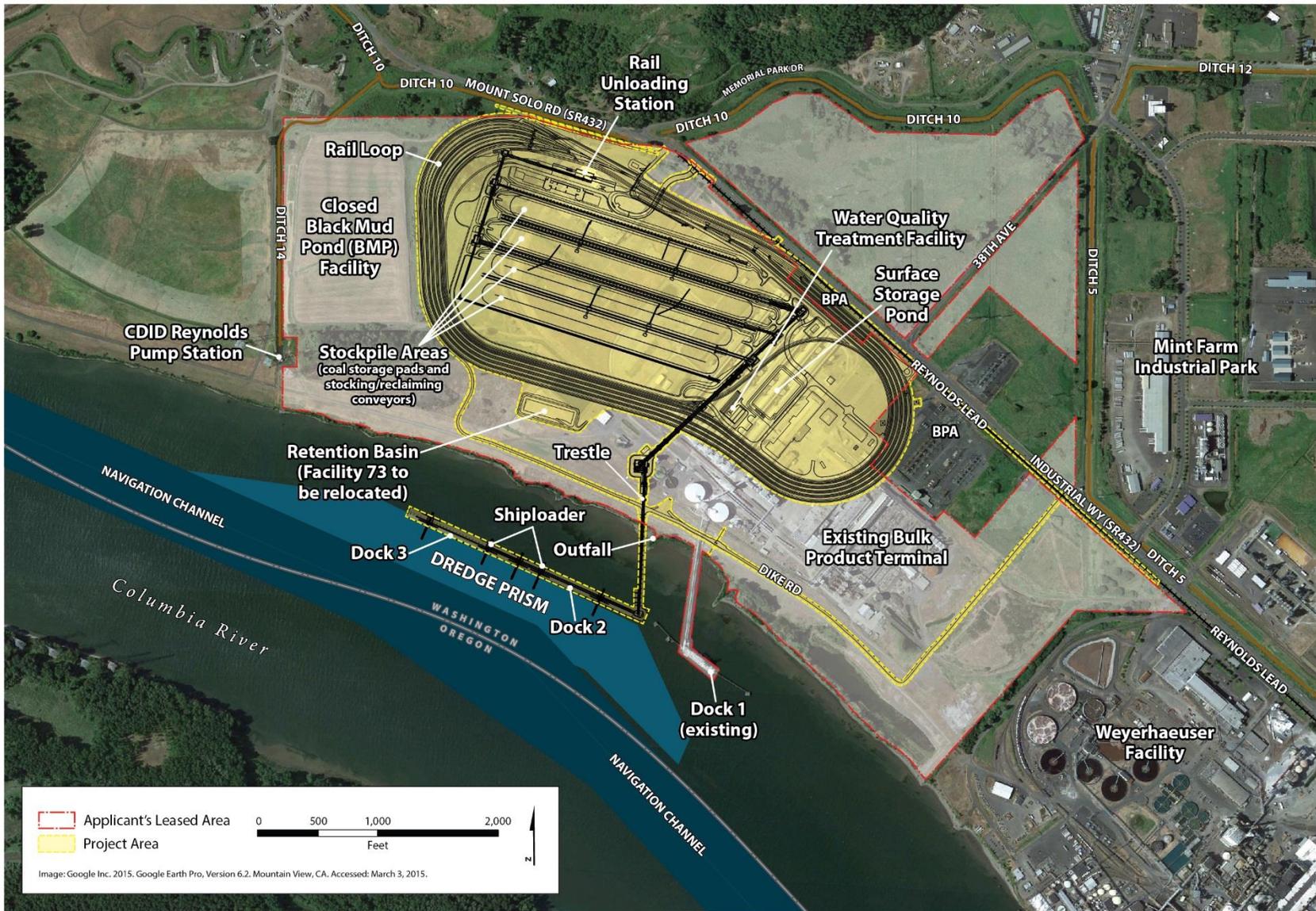
At full terminal operations, approximately 8 loaded unit trains each day would carry coal to the export terminal, 8 empty unit trains each day would leave the export terminal, and an average of 70 vessels per month or 840 vessels per year would be loaded, which would equate to 1,680 vessel transits in the Columbia River annually.

Figure 1. Project Vicinity



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Figure 2. Proposed Action



1.1.2 No-Action Alternative

The Applicant plans to continue operating its existing bulk product terminal located adjacent to the project area. Ongoing operations would include storing and transporting alumina and small quantities of coal and continued use of Dock 1. Maintenance of the existing bulk product terminal would continue, including maintenance dredging at the existing dock every 2 to 3 years. The Applicant plans to expand operations at the existing bulk product terminal, which could include increased storage and upland transfer of bulk products utilizing new and existing buildings. The Applicant would likely need to undertake demolition, construction, and other related activities to develop expanded bulk product terminal facilities.

If the coal export terminal is not constructed, the Applicant would likely propose expansion of the bulk product terminal onto areas that would have been subject to construction and operation of the proposed coal export terminal. Additional bulk product transfer activities could involve products such as a calcined pet coke, coal tar pitch, cement, fly ash, and sand or gravel. Any new operations would be evaluated under applicable regulations. Upland areas of the project area are zoned Heavy Industrial and it is assumed future proposed industrial uses in these upland areas could be permitted. Any new construction would be limited to uses allowed under existing Cowlitz County development regulations.

1.2 Regulatory Setting

The jurisdictional authorities and corresponding regulations, statutes, and guidance for determining potential aesthetic impacts are summarized in Table 1.

Table 1. Regulations, Statutes, and Guidance for Aesthetics

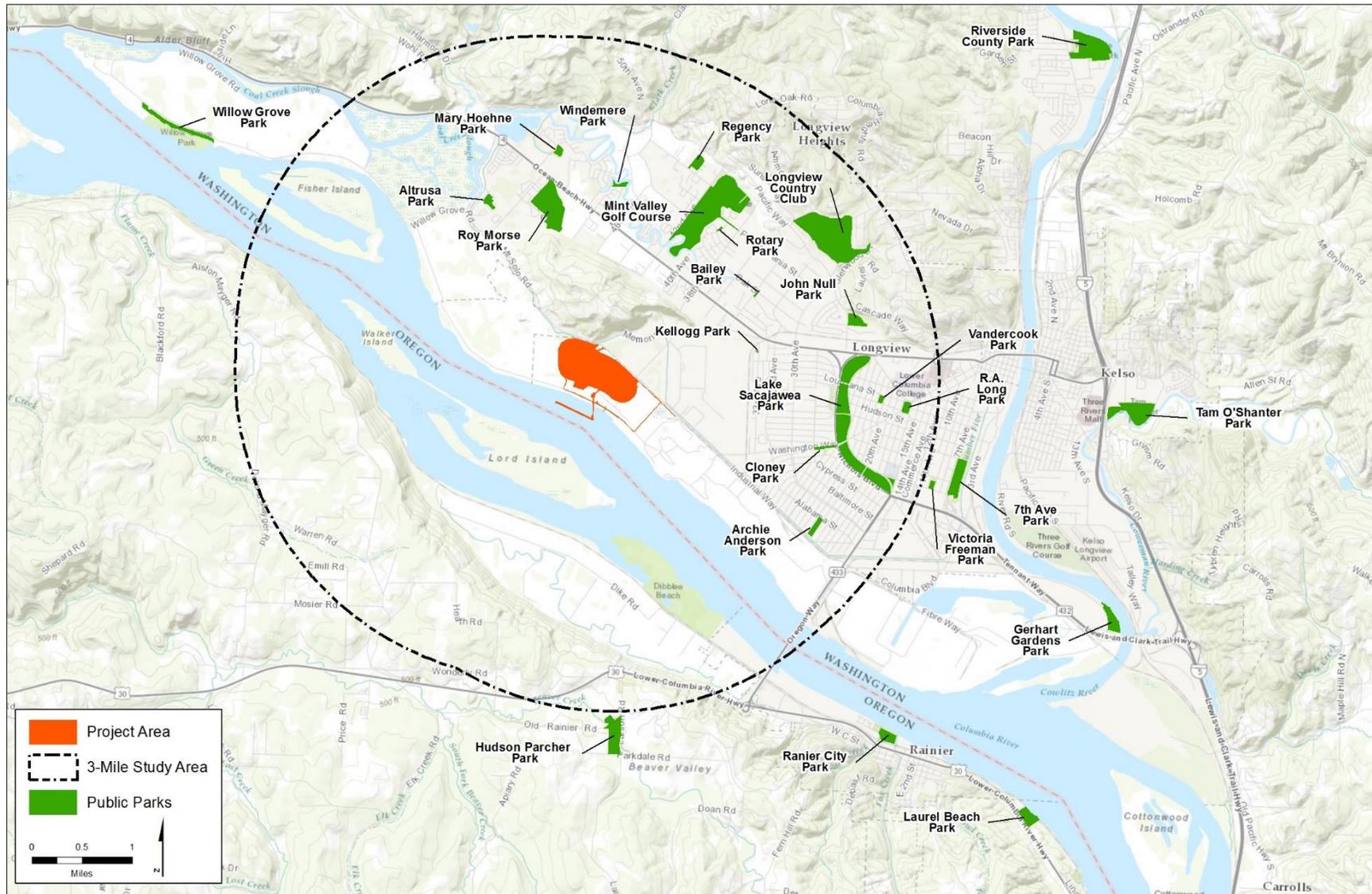
Regulation, Statute, Guideline	Description
Federal	
National Environmental Policy Act (42 USC 4321 <i>et seq.</i>)	Requires the consideration of potential environmental impacts. NEPA implementation procedures are set forth in the President's Council on Environmental Quality's Regulations for Implementing NEPA (49 CFR 1105).
State	
Washington State Environmental Policy Act (RCW 43.21c)	SEPA directs state and local agencies to consider environmental impacts (cumulative, short-term, long-term, direct, and indirect), alternatives, and mitigation before committing to an action. SEPA gives agencies the authority to condition or deny a proposal based on the agency's adopted SEPA policies and environmental impacts identified in a SEPA document (RCW 43.21C.060, WAC 197-11-660).
Local	
Cowlitz County SEPA Regulations (Cowlitz County Code 19.11)	The County has adopted and incorporated rules pertaining to the integration of policies and procedures as required under SEPA (RCW 43.21C.120).

Regulation, Statute, Guideline	Description
NEPA = National Environmental Policy Act; CFR = Code of Federal Regulations; USC = United States Code; CFR = Code of Federal Regulations; RCW = Revised Code of Washington; SEPA = Washington State Environmental Policy Act; County = Cowlitz County; WAC = Washington Administrative Code	

1.3 Study Area

The study area for the assessment of potential aesthetics, light, and glare impacts is generally defined as the area within visual range of the project areas for the Proposed Action. This area encompasses ground-based locations from which the activities and structures on the project areas could be observed in detail (Bureau of Land Management 1986). Given the regional physiography, vegetation, and built environment surrounding the project areas, it was determined that the Proposed Action would be observable for viewers at ground-based locations within approximately 3 miles of the respective project area. Beyond 3 miles, the Proposed Action would blend into the visual background and be obscured because of the area's topography, vegetation, and built environment. The study area is defined as the area within a 3-mile radius of the project area (Figure 3).

Figure 3. Study Area



This chapter explains the methods for assessing the existing conditions and determining impacts and describes the existing conditions in the study area as they pertain to aesthetics, visual quality, light, and glare.

2.1 Methods

This section describes the methods used to characterize the existing conditions and assess the potential impacts of the Proposed Action and No-Action Alternative on aesthetics, light, and glare.

The methods used in this assessment were informed by guidance provided by various federal agencies in *Landscape Aesthetics, A Handbook for Scenery Management* (U.S. Forest Service 1995), *Visual Impact Assessment for Highway Projects* (Federal Highway Administration 1988), and *The Visual Resource Management System* (Bureau of Land Management 1986). These agency guides are tailored to fit the general types of projects falling within each agency's jurisdiction and are not directly applicable to the Proposed Action. However, the guides provide visual impact assessment methods that have informed the methods used this report. In particular, they address impacts based on a step-wise process that can be applied to other situations, as follows.

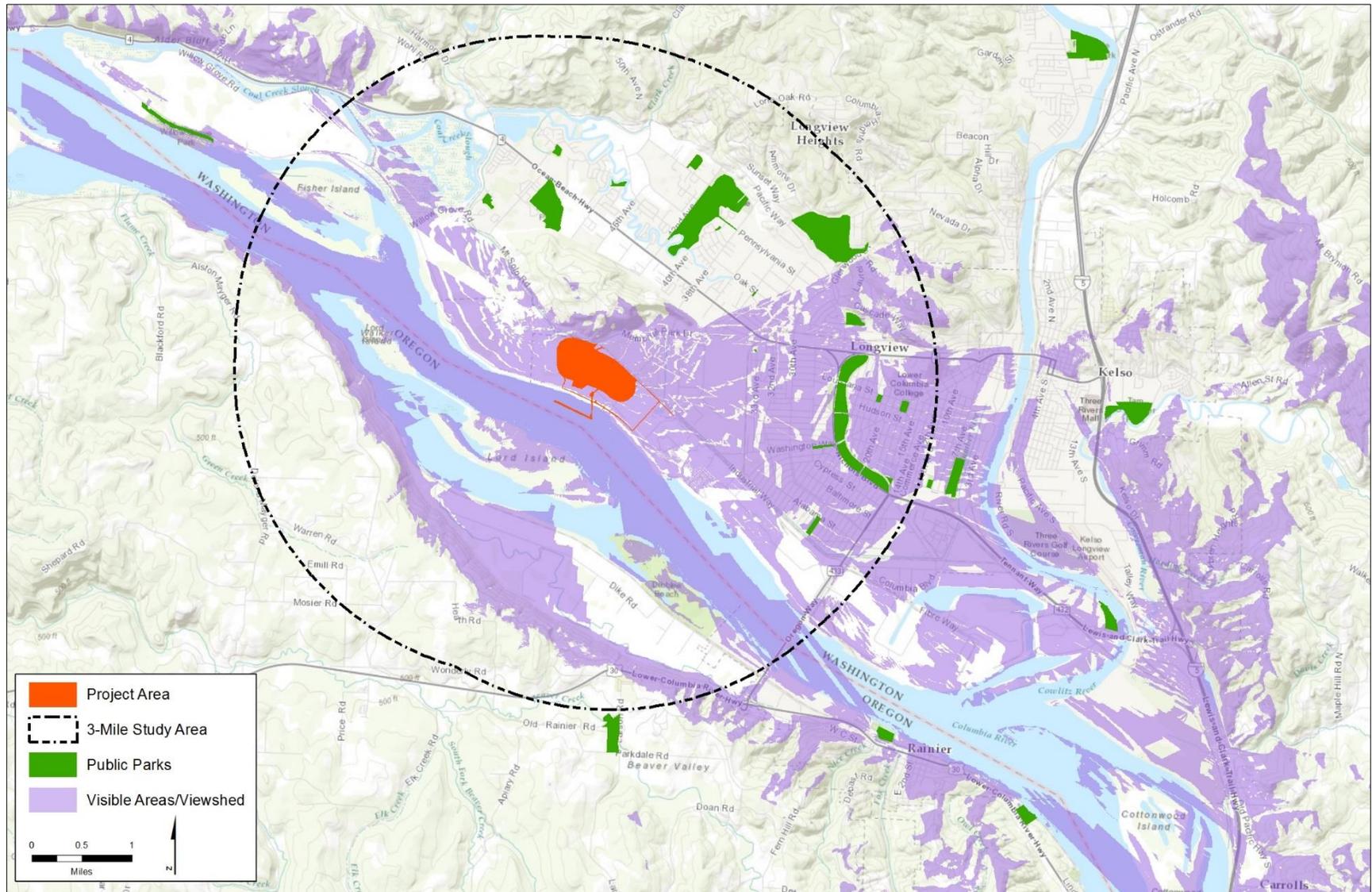
1. Defining the viewshed area.
2. Determining locations that are key viewpoints of the project area.
3. Determining the types of viewers or viewer groups with views of the project area and their relative sensitivity to the changes in aesthetic conditions.

The visual impact analysis used this three-step process. The methods for each step are described below, followed by a discussion of the data and methods used for the visual impact assessment.

2.1.1 Defining the Viewshed

A viewshed is the area within visual range of a given viewpoint (i.e., location of the viewer) which is defined by the regional physiography, vegetation, and built environment. In order to determine the viewshed from which aesthetic changes on the project area may be experienced, city and county maps, U.S. Geological Survey quadrangle maps, project maps, and aerial and project area photographs were consulted to determine large-scale physiographic features in the study area that influence views of the project area and define the visual environment. A digital elevation model of the area was then created using ESRI ArcGIS, a three-dimensional mapping software package. The digital model was used to identify the viewshed of the project area for the Proposed Action based on topographic screening (excluding vegetation) (Figure 4). The viewshed defines the general area within which specific viewpoints are selected. As shown in Figure 4, the viewshed encompasses most areas in the Columbia River floodplain to the west, south, and east of the project area. Views from the north are obstructed by topography (Mount Solo, described below).

Figure 4. Viewshed Determination



The general character of the viewshed is described below based on project area visits and information developed for the SEPA Land and Shoreline Use Technical Report (ICF and BergerABAM 2017).

The viewshed determination is a screening-level assessment that only accounts for topography in determining which locations may have views of the project area. The selection of viewpoints then accounts for vegetation and the built environment. As discussed below, many portions of the viewshed do not have views of the project area because of intervening vegetation and buildings.

2.1.2 Viewpoint Selection

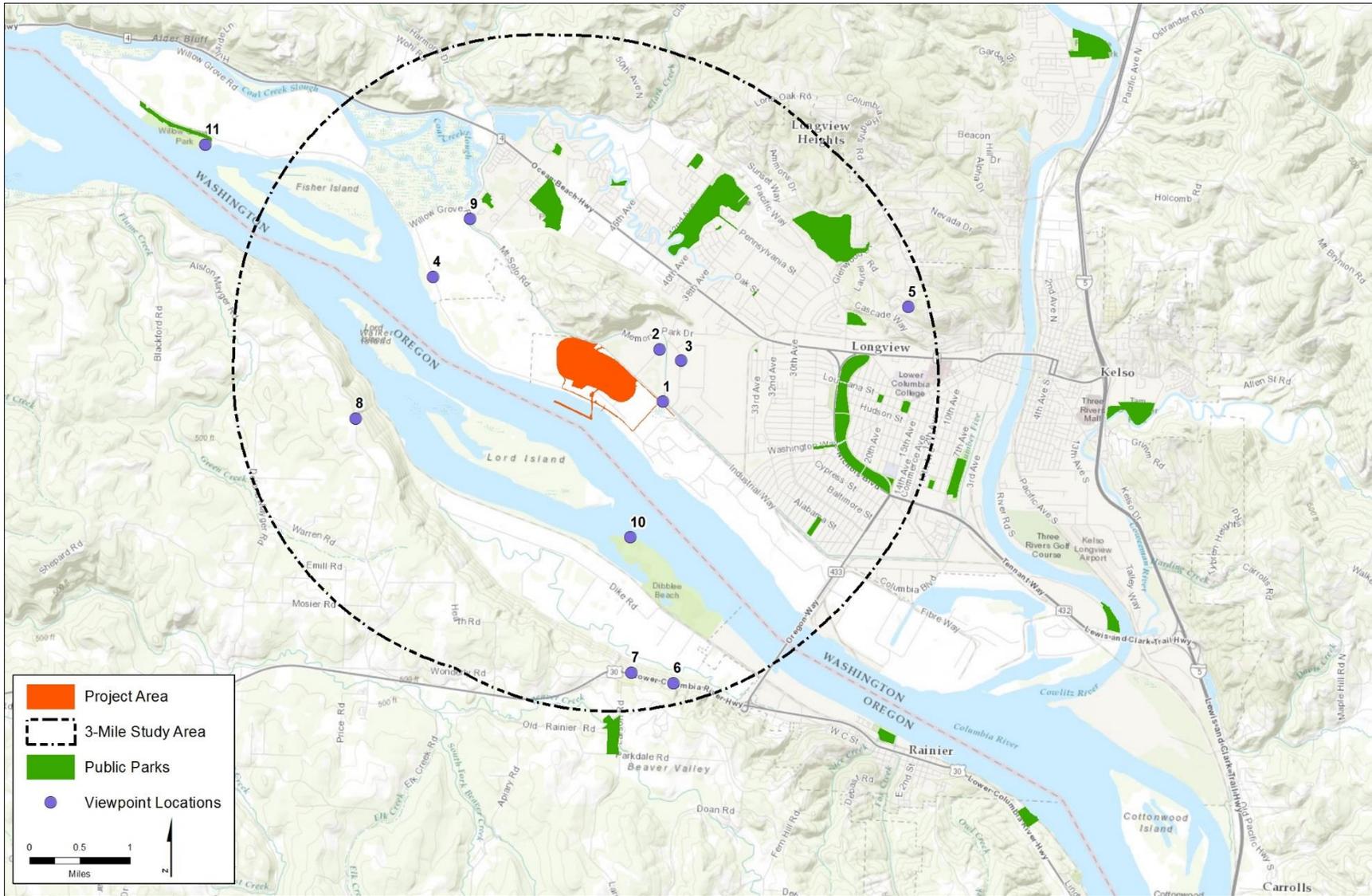
Digital mapping software (e.g., Google Earth, Google Maps, Map Quest, Bing Maps) and aerial and project area photographs were used to identify built environments, public amenities, travel routes, urban areas, residential areas, and existing vegetation in the 3-mile study area. This information, in combination with the viewshed determination, was used to select viewpoint locations for this assessment.

Natural landforms, such as Mount Solo, and human-made landforms, such as the Mount Solo landfill, block views of the project area for viewers in large portions of the study area (Figure 5). In addition, the built environment and existing vegetation obstruct views of the project area for many remaining viewers. However, 11 viewpoints were identified from which views of the project area could be altered by the Proposed Action. Except for the viewpoint at the Willow Grove boat launch, all are located within the 3-mile study area. The Willow Grove boat launch is approximately 4.5 miles west of the project area on the Columbia River. Views of the project area from the boat launch are obstructed by existing vegetation and would not be affected by the Proposed Action; however, the boat launch was included as a viewpoint because it provides public access to the river. Recreational boaters may travel upriver from the boat launch toward Longview and view the project area from the river.

At each viewpoint, views were verified and day and nighttime photographs were taken using a high-resolution digital single-lens reflex camera with a 50-millimeter lens. Daytime photos were taken on a clear, sunny day with a high sun angle to illustrate maximum viewer sensitivities and glare. Nighttime photographs were taken to document existing artificial lighting from viewpoints where nighttime conditions would be most affected by the Proposed Action. Appendix A, *Photographic Inventory*, presents the photographs from each viewpoint.

To approximate what the human eye would see, photographs were taken at the height of an average viewer's eye (5 feet 5 inches above ground level). Because a single photograph cannot capture the field of vision of a human eye, a sequence of photographs was taken from each viewpoint. Using Adobe Photoshop, the photos were digitally grouped together to form panoramas; the photos were overlapped by approximately 30% and their edges were cropped to eliminate edge distortion and to fit print materials. No other photo manipulations were performed. Using the photographs, the extent of the view of the project area from each viewpoint was identified and its existing visual character and the types of viewers using that viewpoint was assessed.

Figure 5. Viewpoint Locations



Based on the existing land uses and environmental conditions at the viewpoints, views of the project area were classified into three categories.

- **Urban and industrial views.** Viewers in this landscape view the project area in the context of existing urban and industrial areas.
- **Rural and residential views.** Viewers in this landscape view the project area in the context of a mixture of surrounding natural and human-made features and patterns, including land used for farming, mineral extraction, or forestry.
- **Natural views.** Viewers in this landscape view the project area in the context of surrounding natural features and a largely undisturbed rural or open space setting. Few human-made developments or disturbances are present.

2.1.3 Viewer Sensitivity

Viewer sensitivity is the measure of concern for visual quality and the response to changes to the elements of the natural and constructed environments the viewer experiences through sight. Viewer sensitivity is related to changes in available views of the landscape, buildings, construction and demolition of structures, operational equipment, and emissions. The effects of those changes on viewers depend on the types of users, the amount of use (number of viewers and view frequency), and adjacent land uses, as described below.

- **Types of users.** Based on the viewpoint locations, the general types of viewers who see the project area can be characterized as residents, workers, travelers, and recreationalists. Visual perception and sensitivity vary with the type of user. Residential or recreational sightseers may be highly sensitive to any changes, while those in a work setting, such as industrial, manufacturing, or warehouse workers, tend to have no to low sensitivity. A working viewer's activity, awareness, and sensitivity are typically limited to the visual setting immediately outside the workplace and do not extend to surrounding views.
- **Amount of use.** The number of viewers varies depending on activity and the location, but areas used by large numbers of people are considered to have a higher exposure, or sensitivity, because more viewers could be affected. Protection of visual quality usually becomes more important as the number of viewers and the duration of views increase.
- **Adjacent land uses.** Proposed changes may or may not directly affect the visual quality or other aspects of adjacent land uses. The visual elements of adjacent landscapes and natural areas, buildings, structures, and operations define a visual character or context with which the proposed uses and facilities are compatible or in conflict.

2.1.4 Data Sources

The following sources of information were used to evaluate the visual characteristics of the study area.

- Cowlitz County geographic information system data.
- *Millennium Coal Export Terminal Longview, Washington Aesthetics, Light, and Glare Resource Report.* (URS Corporation 2014a).

- Guidance documents prepared by the Bureau of Land Management, U.S. Forest Service, and Federal Highways Administration (described in the introduction to Section 2.1, *Methods*).
- 3-D Studio Max and AutoCAD files of the Proposed Action provided by the Applicant.
- Field surveys conducted in April and November 2014.

2.1.5 Impact Analysis

The following methods were used to evaluate the potential impacts of the Proposed Action and No-Action Alternative on visual resources in the study area. For the purposes of this analysis, construction impacts are based on peak construction activities and operations impacts are based on maximum throughput capacity (up to 44 million metric tons per year) and completed facilities.

Visual impact assessments are based on the evaluation of the visual quality and viewer sensitivity. Viewer sensitivity is considered in the context of reasonable expectations of those experiencing views of a heavily industrialized area. As previously described, the visual impact assessment methods were informed by guidance materials from various federal agencies, including *The Visual Resource Management System* (Bureau of Land Management 1986), *Landscape Aesthetics, A Handbook for Scenery Management* (U.S. Forest Service 1995), and *Visual Impact Assessment for Highway Projects* (Federal Highways Administration 1988). These materials provided guidance to develop and define the following levels of impact to assess visual impacts associated with the Proposed Action and No-Action Alternative.

- **High level of impact (H).** Operations, buildings, or other structures would be highly visible to a large number of sensitive viewers and would negatively affect the visual quality of the landscape.¹ Mitigation measures may or may not reduce this level of impact.
- **Moderate level of impact (M).** Operations, buildings, or other structures would be visible to a moderate number of sensitive viewers. Project elements may be generally consistent with adjacent land uses. Some mitigation may be required to reduce this level of impact.
- **Low level of impact (L).** Operations, buildings, or other structures would be minimally visible to a low number of viewers. Distance or visual compatibility with other existing land uses make project elements difficult to perceive.
- **No impact (N).** Operations, buildings, or other structures would not be visible or would have no impact on viewers.

In order to assess the impacts of the Proposed Action on aesthetics and visual quality, visual simulations were prepared illustrating how these alternatives would appear once constructed. The visual simulations were developed using existing conditions photographs from each of the viewpoints discussed previously. A combination of 3-D Studio Max and AutoCAD files (provided by the Applicant) and Google SketchUp Pro were used to create an overall 3-D model of the project area and the surrounding area. The 3-D models were then georeferenced and placed in Google Earth Pro. Views of the 3-D models were generated from the viewpoints. Images from the 3-D model were then

¹ The number of sensitive viewers is relative to the total potential viewers of the project area. In this case, the total potential viewers are the residents, workers, and travelers within the 3-mile study area. A large number of viewers applies to viewpoints where many of the total viewers would have views of the project area. A low number of viewers applies to viewpoints where very few of the total viewers would have views of the project area. A moderate number of viewers applies to viewpoints where a number of the total viewers would have views of the project area.

superimposed over the high-resolution digital photographs in Adobe Photoshop to simulate the constructed condition of the project area. The digital photographs and the simulations represent before and after images and show the visual change. No other photo editing or touchup work was done to the simulations. The visual simulation task and analysis provided the basis for the visual assessment.

2.2 Existing Conditions

This section describes the aesthetics characteristics in the study area.

2.2.1 Project Area

The Applicant's leased area was originally a floodplain that supported wetland and shoreline habitats used by wildlife, birds, and people. The eastern portion of the leased area was initially developed for industrial use in 1941 by Reynolds Metals Company as a reduction plant for aluminum smelting and casting operations (Figure 6). These operations were expanded in 1967, when the western portion of the Reynolds Metals Company facility (Reynolds facility) was developed for additional aluminum production. In the late 1960s, a cable mill facility was also constructed in the leased area. The facility was operated as an aluminum smelter until 2001, when smelter operations ceased. Portions of the former Reynolds facility have since been decommissioned.

Following the closure of the Reynolds facility, the project area and the Applicant's leased area were used to store fly ash, petroleum coke, alumina, and cement. The leased area continues to support industrial operations and is currently used as a bulk materials handling facility that includes both marine and upland facilities.

Today, the Applicant uses an area adjoining the project area (i.e., within the leased area), as a bulk products terminal to import, store, and transfer bulk alumina and coal. The project area includes upland facilities, a dock in the Columbia River capable of receiving Panamax-sized ships, and rail and road connections. Alumina is imported by ship, stored, and then transferred by rail to an Alcoa smelter near Wenatchee, Washington (Millennium Bulk Terminals—Longview 2014a). A small amount of coal is currently imported by rail, stored, and transferred by truck to the adjacent Weyerhaeuser facility. Overall, the project area is an underutilized industrial site, with industrial activities occurring at a much lower intensity than historical levels.

While most of the existing project area is developed, the undeveloped western sections consist of open grasslands, wetlands, and a small forested area in the northwest corner. There is an extensive diking system along the Columbia River maintained by the Consolidated Diking and Improvement District #1.

Figure 6. Historic Aerial Photograph (1966)

Adjacent land uses include those in the lease area as well as various other industrial, utility, transportation, commercial, and residential uses. The 550-acre Weyerhaeuser Company lumber products manufacturing facility is located east of the project area and the 478-acre Port Industrial Marine property is located upriver of the Weyerhaeuser site. Port facilities include eight marine terminals that primarily handle commodities such as bulk goods, forest products, wind energy products, steel, and heavy-lift project cargo (Port of Longview 2011). Port properties also include the recently purchased Barlow Point property, located within the city limits of Longview northwest of the project area. The Barlow Point property is currently undeveloped, but the Cowlitz County Public Utility District and Bonneville Power Administration use this and adjacent properties for high-power utility lines and a power substation. The approximately 75-foot-tall, 47-acre Mount Solo landfill is located to the west of the project area and adjacent to the northern boundary of the Barlow Point property. The 445-acre Mint Farm Industrial Park, another prominent adjacent industrial use, is located north of Industrial Way within city limits. Two single-family residences are located across Industrial Way from the project area. These residential uses are on wooded lots set back from the street. Overall, the project area is located in a wide corridor of industrial, transportation, and utility land uses along the Columbia River.

2.2.1.1 Viewshed Overview

The project area and most of Longview and Kelso, along with rural areas south of the Columbia River, lie in the Columbia River floodplain. This floodplain, which affords wide views of the Columbia

River and surrounding area because of its relatively flat topography and limited landform interruptions, is a defining feature of the affected viewshed. The extent of the relatively flat floodplain varies based on the proximity of hillsides north and south of the river. At the project area, the floodplain extends approximately 4 miles perpendicular to the river. With the exception of Mount Solo (elevation 610 feet) directly north of the project area, the elevation of the floodplain varies little across the Longview and Kelso area, ranging from approximately 5 feet to 30 feet. The hillsides north and south of the floodplain rise steeply and are generally heavily forested and in a natural condition. The natural vegetation of the floodplain is a complex landscape composed of riparian and lowland deciduous forest vegetation, but in most areas, depending on the level of existing development, the vegetation has been highly modified. The built environment and existing vegetation block most views of the project area across the relatively flat floodplain.

Downtown Longview is approximately 3 miles east of the project area and Kelso is approximately 5 miles east along the Cowlitz River. Rainier, Oregon, is approximately 4 miles upstream (southeast) of the project area along the south bank of the Columbia River. These cities contain a wide range of industrial, residential, commercial, recreation, and public facility land uses.

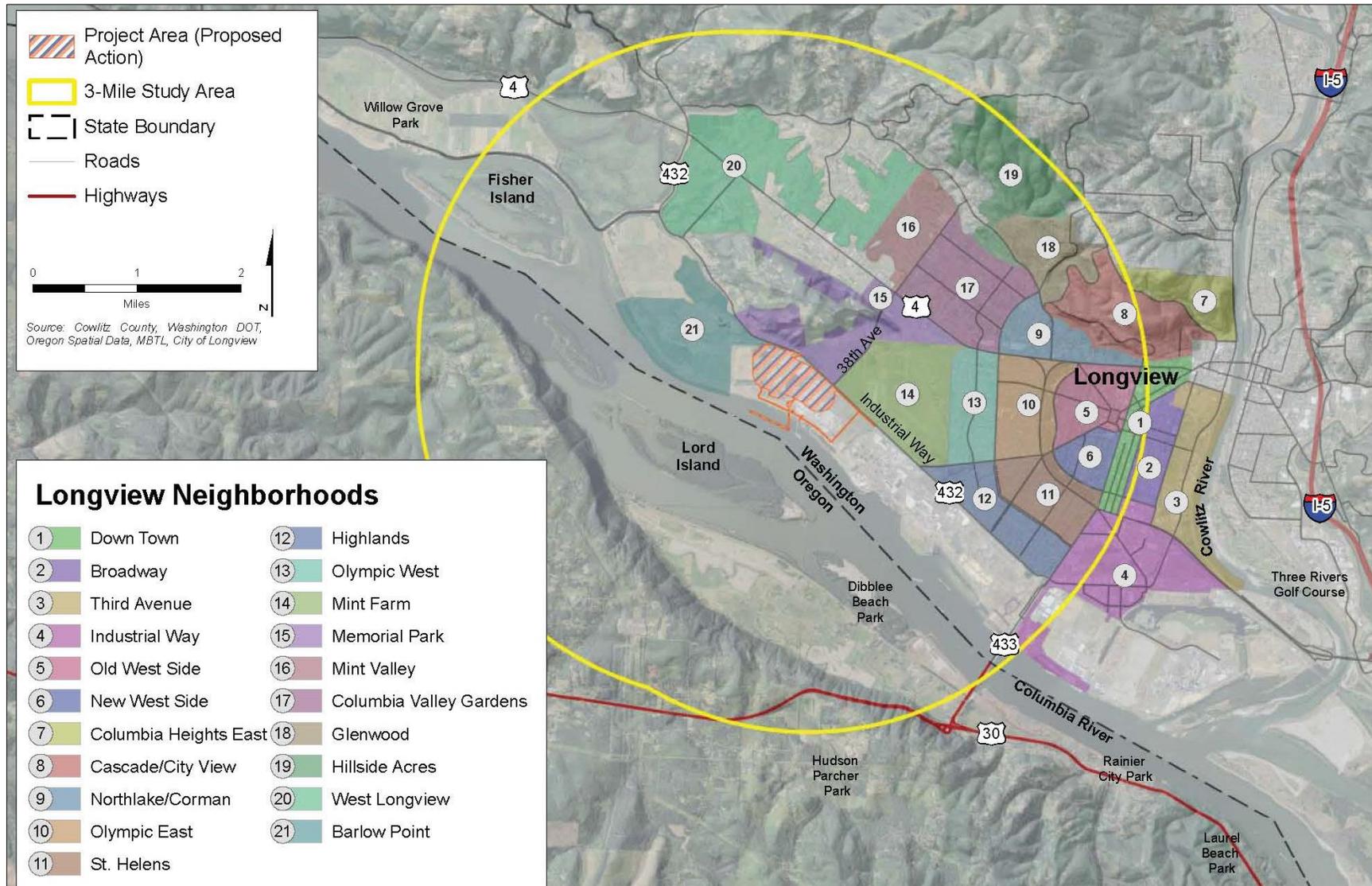
Industrial Way, which extends along the north side of the project area, is the nearest land transportation corridor. The project area includes multiple driveway access points and a short line rail connection to the mainline rail operated by BNSF. The Lewis and Clark Bridge (SR 433) is located approximately 3 miles upriver from the project area.

Except for the two single-family residences across Industrial Way from the project area, most residential areas are located in Longview city limits or unincorporated Cowlitz County and are at least 1 mile away from the project area. Nearby residential neighborhoods and their proximity to the project area are identified below. The distances listed are approximate and are measured from nearest project-area boundary to nearest neighborhood boundary. Figure 7 shows the location of these neighborhoods.

- Downtown (2.7 miles east)
- Broadway (2.9 miles east)
- Third Ave (3.3 miles east)
- Industrial Way (2.7 miles southeast)
- Old West Side (2.1 miles east)
- New West Side (2.2 miles east)
- Columbia Heights East (2.9 miles northeast)
- Cascade/City View (2.2 miles northeast)
- Northlake/Corman (1.6 miles northeast)
- Olympic East (1.6 miles east)
- St. Helens (1.7 miles southeast)
- Highlands (1.0 miles southeast)
- Olympic West (1.1 miles east)
- Mint Farm (0.1 miles east)
- Memorial Park (adjacent to the north/northeast)

- Mint Valley (1.1 mile north/northeast)
- Columbia Valley Gardens (1.1 miles northeast)
- Glenwood (2.1 miles northeast)
- Hillside Acres (1.9 miles northeast)
- West Longview (1.1 miles north/northwest)
- Barlow Point residential/agricultural area (0.2 miles west)

Figure 7. Neighborhoods



There are numerous recreational opportunities and sites within the broader Longview, Kelso, and Rainier urban area. The Columbia River is a prominent recreational resource and supports boating, fishing, and other forms of water recreation. In addition, the Columbia River is part of two recreational trails that pass through the study area: 1) the 146-mile Lower Columbia River Water Trail, which extends from Bonneville Dam to the mouth of the Columbia River; and 2) the Lewis and Clark National Historic Trail. Dibblee Beach, an undeveloped recreational area, is located on the south shore of the Columbia River, directly southeast of the project area. Cowlitz County owns 21 parks and boat launches within 10 miles of the project area. The City of Longview, which adjoins the project area, administers 33 recreational facilities including 17 public parks (URS Corporation 2014b). The 16 parks and recreation areas listed below are in the study area. These parks and recreation areas are identified in Figure 4.

- Altrusa Park
- Archie Anderson Park
- Bailey Park
- Cloney Park
- Dibblee Beach
- John Null Park
- Kellogg Park
- Lake Sacajawea Park
- Mark Hoehne Park
- Mint Valley Golf Course
- R.A. Long Park
- Regency Park
- Rotary Park
- Roy Morse Park
- Vandercook Park
- Windemere Park

Because of existing topography, vegetation, and urban development, none of the parks within the county and the city portions of the study area has a view of the project area. However, users of the Columbia River and Dibblee Beach in Oregon do have views of the project area.

Lord and Walker Islands are located in Oregon directly south across the Columbia River. The islands are undeveloped and have no land access, but are part of the water trail network, and are used for primitive camping (i.e., a campsite with no support facilities). Other areas in the Columbia River floodplain on the south side of the river in Oregon are primarily composed of undeveloped rural or agriculture land. In addition, users of Rainier City Park, which is located along the Columbia River in Rainier, Oregon, outside the study area, have limited views of the project area.

2.2.1.2 Viewer Groups and Associated Key Viewpoints

The following sections describe the viewer sensitivity and associated key viewpoints for the views identified in Section 2.1.2, *Viewpoint Selection*: urban and industrial views, rural and residential views, and natural views. Eleven key viewpoints from which views of the project area could be affected were identified. Viewpoints are described individually below and are grouped by view type.

2.2.1.3 Urban and Industrial Views

The typical viewers in this area are assumed industrial workers and commuters traveling on Industrial Way. Visual sensitivity in the industrial use area along the Columbia River is expected to be low because of the existing industrial character of the landscape. Existing industrial facilities appear large in scale and clearly dominate the landscape character. Major visual lines are defined by buildings and structures, and thus are vertical, horizontal, and diagonal. The colors of the existing structures vary but are primarily neutral, including brown, grey, and white surfaces. Movement is an integral part of views of this area, resulting from vehicular traffic, personnel, and industrial emissions (plumes). Artificial lighting is common throughout the industrial area and clearly defines the extent of the heavy industrial area at night. Although most facilities lack extensive windows or other highly reflective surfaces, glare from light-colored building surfaces can be common on bright days. The concentration of similar facilities and land uses can make changes in nighttime lighting difficult to discern.

Key Urban and Industrial Viewpoints

- **Viewpoint 1, Industrial Way (1,620 feet southeast of the project area).** This viewpoint represents views of the project area from nearby industrial areas. Views are from approximately the same elevation and are dominated by the numerous large-scale industrial facilities, transmission lines, and substations that occupy most of the land in this area. Industrial Way parallels the project area, limiting views to those obtained on approach to the project area, or at an approximate 90-degree angle as the viewer passes the project area (Figure A-1 in Appendix A).
- **Viewpoint 2, 38th Avenue (2,050 feet northeast of the project area).** From 38th Avenue, the project area is directly in front of the viewer on the approach to Industrial Way (Figure A-2 in Appendix A). Industrial facilities, transmission lines, and substations—all in the immediate foreground (within 1 mile) of the view—dominate the existing views.
- **Viewpoint 3, Mint Farm Industrial Area (2,680 feet northeast of the project area).** This viewpoint provides another view of the project area from a nearby industrial area. Existing facilities on the project area and transmission lines are partially visible through vegetation. The visual sensitivity of viewers at this location is low. The industrial character of the area is consistent with the historical industrial use of the Port and this area of Longview (Figure A-3 in Appendix A).

2.2.1.4 Rural and Residential Views

The typical viewers in this area are presumed to be residents of the city neighborhoods or of surrounding low-density unincorporated residential properties, including areas south of the river in Oregon. Some travelers on local and state transportation corridors, such as U.S. Route 30 (US 30) from the rural south side of the Columbia River, also have views of the project area.

The general landscape of the rural and residential area consists of natural and human-made features and patterns, often the result of an altered landscape that now supports rural farming or forestry development. The more intensely developed large-scale industrial facilities, high-voltage electrical transmission lines, electrical substations, and plumes of industrial emissions may or may not be clearly discernible.

As with similar land uses, longer distances make individual sites and uses difficult to discern within the surrounding industrial landscape. For example, a viewer at the Hillside Residential viewpoint (Viewpoint 5) is located approximately 3 miles northeast of the project area, making it difficult to identify specific changes to the existing area. Industrial emission plumes and artificial lighting are common throughout the industrial area along the Columbia River. Moreover, the concentration of emissions and light sources at similar facilities and land uses in this industrial area reduces the visual distinction of any single site or facility.

Key Rural and Residential Viewpoints

- **Viewpoint 4, Barlow Point Neighborhood (7,500 feet northwest of the project area).** This viewpoint represents the views of the project area from the Barlow Point neighborhood, located adjacent to the northwest terminus of the project area. The general character of the area is agricultural. Large tracts of flat farm and open space, with dispersed housing (including a row of houses on Barlow Point Road) are accessed by narrow rural roads approximately 20 to 30 feet in width. The view of the project area is obscured from most of the Barlow Point neighborhood by the approximately 75-foot-tall, 47-acre Mount Solo landfill (EMCON Northwest 1992), a broad row of trees, and the levee along the Columbia River. Residents would not have direct views of the project area (Figure A-4 in Appendix A). Most foreground views feature open space but large utility transmission towers and emission plumes are visible in distant views. Although no direct sources of light from the project area or industrial facilities can be seen, ambient light originating from industrial uses, including the project area, is visible.
- **Viewpoint 5, Hillside Residential (14,875 feet northeast of the project area).** This residential area is situated in the hills north of the floodplain and has sweeping views of the floodplain and river, which may include the industrial area. Residents of dispersed locations on the eastern hillsides may have views of the project area. Although private lots could not be accessed, viewpoint photographs were available from an undeveloped lot on Alexia Court (Figure A-5 in Appendix A). These areas are generally characterized by contiguous neighborhoods on winding hillside streets. Views from western residential areas are blocked partially or completely by Mount Solo (elevation 610 feet), which lies between the residential areas and the project area. Views of industrial areas are further obstructed by existing vegetation.

Views from this area vary depending on location, but residential viewers could have high sensitivity to changes to the project area. Nighttime views from residential areas include the residential and commercial lighting of Longview and beyond. Lighting associated with the industrial facilities south of Industrial Way is also visible; however, no single facility dominates the existing views.

- **Viewpoints 6 and 7, US 30 Viewpoints (13,390 to 14,980 feet south of the project area).** The US 30 corridor on the south side of the Columbia River extends 2 miles west from the Lewis and Clark Bridge. The corridor includes two scenic pullouts, both with scenic views of Mount St. Helens, Mount Rainier, the Columbia River, and surrounding hillsides. The prominent natural

features are the primary focal points but views include rural farmland on both sides of the Columbia River and the Longview/Kelso urban and industrial areas (1 to 5 miles away). Although individual facilities can be discerned from both viewpoints, these facilities are located in an industrial context. Furthermore, most viewers do not linger at road pullouts, and views are presumed to be short in duration (Figure A-6 and Figure A-7 in Appendix A).

Sources of light and glare at the viewpoints include moving vehicles. The ambient glow of the industrial use area along the Columbia River, including Port and Weyerhaeuser facilities, is also visible in the distance. Lighting from the individual facilities can be discerned; however, no facility or light source dominates views and light sources blend into the visual context of the industrial area's nighttime condition.

Viewer sensitivity to changes in the study area is assumed moderate from Viewpoints 6 and 7 due to the scenic nature of the views; however, views are transient and already include an existing industrial landscape along the Columbia River.

- **Viewpoint 8, Alston-Mayger Road (10,930 feet southwest of the project area).** The road is located on a high bluff south of the Columbia River in Oregon. Views of the project area from this area occur primarily from single-family residences situated on the northern edge of the bluff. Views of the project area are extremely limited from the roadway because of topography and vegetation. Access constraints precluded observation and evaluation from residential lots. Views were available only from the edge of the road along private property (Figure A-8 in Appendix A). Views vary depending on their exact location, but residential viewers could have high sensitivity to changes to the project area. Scenic views of Mount St. Helens, Mount Rainier, the Columbia River, Lord Island, and Walker Island are the primary focal points, but views also include the Longview urban and industrial areas (approximately 2.5 to 5 miles away). Although individual industrial facilities can be discerned, the considerable distance to the project area reduces viewer sensitivity to individual developments within the larger industrial landscape.

Viewer sensitivity from this viewpoint is moderate to high due to the residential viewing location; however, elements of the project area and the larger agglomeration of industrial facilities blend into a relatively contiguous industrial landscape. The ambient glow of the industrial area along the Columbia River, including Port and Weyerhaeuser facilities, is visible but no single facility dominates views.

- **Viewpoint 9, West Longview Neighborhood (8,000 feet northwest of the project area).** This viewpoint is located along Willow Grove Connection Road (SR 432) just south of the residential neighborhood along Schneiter Drive. The general character of the area is single-family residential homes bordered by extensive wetlands associated with the Coal Creek Slough. The area between the neighborhood and the project area contains large tracts of agricultural land with dispersed single-family residences. The view of the project area is obscured by the approximately 75-foot-tall, 47-acre Mount Solo landfill (EMCON Northwest 1992) and a broad row of trees. Residents would not have direct views of the project area (Figure A-9 in Appendix A). Although no direct sources of lighting from the project area or industrial facilities can be seen, ambient light originating from industrial uses, including the project area, is visible.

2.2.1.5 Natural Views

The typical viewers in natural areas are assumed to be recreationalists using the Columbia River or public parks. As noted above, the Columbia River offers a variety of recreational opportunities such as boating, fishing, and other forms of water recreation, and the Lower Columbia River Water Trail

passes through the study area. Dibblee Beach offers public beach and water access, fishing, swimming, picnicking, sunbathing, and other passive recreation opportunities such as hiking and bird watching. The landscape character of natural areas is formed by distinctive and memorable natural features (e.g., landforms, rock, outcrops) and patterns (vegetation and open space) with few human-made features. Visual texture consists of rough natural surfaces and colors, including browns, yellows, and greens, and the smooth waters of the Columbia River. Views for a typical recreationalist are assumed infrequent and of short to moderate duration; however, viewer sensitivity tends to be high due to interest in natural areas and the inconsistency of natural and industrial lands.

In addition to use by recreationalists, the Columbia River is also navigable by commercial boat operators. Viewers from commercial boats are expected to have a low sensitivity to visual changes because of the infrequent and transitory nature of their views, making it unlikely that they would focus on changes to the project area.

Key Natural Viewpoints

- **Viewpoint 10, Dibblee Beach (6,500 feet south of the project area).** This waterfront area extends along the Columbia River from the confluence of the Cowlitz and Columbia Rivers northwest to the project area. This section of the river is characterized as a wide channel of flat water, with Lord Island and Walker Island visible in the northwest portion. The viewshed includes the river channel and shoreline areas on both the Washington and Oregon sides. The Washington shoreline includes heavy industrial and shipping uses with no public access. Dibblee Beach offers public recreational access to the Oregon shoreline south/southeast of the project area (Figure A-10 in Appendix A). Viewers from Dibblee Beach and on-water river recreationalists (e.g., anglers, water trail users, cruisers) are expected to have high viewer sensitivity to changes in the existing area. Light along the Columbia River mainly originates from industrial facilities along the river. Water surfaces also reflect light and glare during low light conditions.
- **Viewpoint 11, Willow Grove Park and Boat Launch (21,375 feet northwest of the project area).** The park offers 0.75 mile of public beach, picnic areas, pedestrian trails, and open spaces. The park shares paved parking lots and restroom facilities with the large paved boat launch, which is an important public access for boating and water activities on the Columbia River. The boat launch is located outside the study area, approximately 4.5 miles west of Longview, but was included as a viewpoint because it offers public access to the river and allows a viewer to travel upriver from the boat launch and into the study area. Views may then be affected as discussed in Viewpoint 10.

Views of the project area are obstructed by vegetation on Fisher Island and Hump Island (Figure A-11 in Appendix A). Transmission lines and emission plumes adjacent to the project area are visible in background views (4 to 10 miles). Because of the existing vegetation, no individual lighting source is discernible from this location, but the ambient glow of the industrial area along the Columbia River and city lights from Longview and Kelso are detectable. Based on the screened views and distance from the project area, viewers would not be sensitive to changes in the project area.

Table 2 summarizes the viewer sensitivity levels and the existing visual quality of each viewpoint as it relates to the Proposed Action.

Table 2. Viewpoints, Viewer Sensitivity, and Existing Visual Quality—Proposed Action

View-point	View	Viewer Sensitivity	Viewer Description	Type
1	Looking west on Industrial Way	Low	Industrial workers and commuters travelling on Industrial Way and other local roads. Would experience frequent views of the project area from nearby industrial areas.	Urban/ Industrial
2	Looking south along 38th Avenue	Low	Industrial workers and commuters traveling on 38th Avenue and other local roads. Would experience frequent views of the project area from nearby industrial areas.	Urban/ Industrial/ Rural
3	Looking southwest from Mint Farm Industrial Area (from Prudential Boulevard)	Low	Industrial workers and commuters traveling Prudential Boulevard and other local roads. Would likely experience frequent views of the project area from nearby industrial areas.	Urban/ Industrial/ Commercial
4	Looking east from Barlow Point Road	High	Residents and agricultural workers looking east toward the project area. Would likely experience frequent views of the project area from rural areas located within the City of Longview and unincorporated Cowlitz County. Views may be of long duration and viewers may have a high sensitivity to change.	Rural/ Residential
5	Looking southwest from Hillside Residential (from Alexia Court)	High	Residents and travelers of local roads. Viewers would experience frequent dispersed views of the project area at various times of day and for long durations.	Rural/ Residential
6,7	Looking north/northwest from US 30 viewpoints	Moderate	Highway travelers looking northwest from US 30 and scenic pullouts. Viewers would experience views of the project area for short durations. Frequency may range from infrequent for visitors to daily for commuters.	Rural
8	Looking northeast from Alston-Mayger Road	Moderate/ High	Residents and travelers looking northeast from rural residential areas along this road and to experience frequent dispersed views of the project area at various times and for long durations.	Rural/ Residential
9	Looking southeast from West Longview Neighborhood	None	Residents looking southeast toward the project area. Views of the project area are obstructed by Mount Solo landfill and existing vegetation.	Rural/ Residential

View-point	View	Viewer Sensitivity	Viewer Description	Type
10	Looking north from Dibblee Beach	High	Public beach and on-water recreationalists looking north toward the project area. Infrequent views of the project area of short duration but viewers may be highly aware of change. Few night viewers.	Natural
11	Looking east from Willow Grove Park and Boat Launch	None	Boaters and recreationalists looking east toward project area. Views would be obstructed by vegetation on Fisher and Hump Islands in Columbia River. Boaters traveling upriver may experience varying views of the project area.	Natural

This chapter describes the impacts on aesthetics that would result from construction and operation of the Proposed Action or the ongoing activities of the No-Action Alternative.

3.1 Proposed Action

The Proposed Action would introduce new light sources to the project area. The new artificial light would be partially offset by removing some outdoor lighting during the demolition of existing buildings and facilities. Lighting plans are preliminary and it is expected that the Proposed Action would require three levels of lighting, as described below.

- **Low-level lighting.** Low-level ambient light would be required for general area lighting. This level of lighting would be used along pedestrian and vehicular access roads, in the maintenance and storage areas, and at the water treatment and pump stations. Most ambient lights would be standard pole-mounted streetlights (approximately 30 feet in height) or structure-mounted lights. Typical access lighting in some areas, such as stairways and walkways on the stackers and reclaimers or conveyor transfer points, would be turned on with light and motion sensors as needed for operator safety. In addition, most conveyor lighting would be contained within the structures enclosing the conveyors and light spill would be limited.
- **Moderate-level lighting.** Moderate-level lighting would provide safety and operation lighting at key points such as the head or tail end of the conveyor system or indexers. Colored navigational lights on the docks and clearance lights at the top of tall structures are also considered a moderate-level light. In most instances, moderate-level lights would be directed sources.
- **High-intensity, spot-level lighting.** High-intensity, spot-level lighting would be required for vessel arrival and departure and for accessing equipment on the docks during nighttime operation. One or two ships would be moored at the terminal at a time and would be lit with suitable working and safety lighting. Stockpiles would not be lit except for some high-intensity, directed lighting to illuminate areas where stackers and reclaimers are working during periods of low light. Stackers and reclaimers would be unmanned but monitored with cameras; this lighting would be necessary for camera visibility. It is anticipated that only one stacker and one or two reclaimers and the associated lighting would operate at any given time.

Table 3 summarizes the proposed operational areas and light conditions. Figure 8 identifies the operational areas discussed in Table 3.

Table 3. Proposed Operational Areas and Lighting—Proposed Action

Area	Function	Level of Lighting	Type of Lighting^a
Rail Operations			
Train arrivals and departures	Lighting for areas for crew changes, switching points, etc.	Low	Area. Mounted on 30-foot poles.
Indexer	Lighting for placement and operation of indexer and sufficient for camera to monitor safety of work and equipment use	Moderate	Directed.
Stockyard			
Berm conveyors	Lighting for personnel access along length of conveyor; more lighting at tail and head ends of conveyors	Low/ Moderate	Area.
Conveyor transfer points	Pedestrian-level lighting; higher levels around head and tail ends of conveyors	Low	Directed. Mostly within enclosed structures.
Stackers and reclaimers	Pedestrian-level stair and walkway lighting; higher levels for work areas, operational equipment, and clearance lights at top of equipment masts	Low/ Moderate/ High	Directed. Illuminates stacking and reclaiming operation for camera visibility. Access lights would be motion/light-sensor controlled.
Enclosure Conveyor			
Receiving and shipping	Lighting for pedestrian access along conveyor and through gallery	Low	Directed. Access lights would be motion/light-sensor controlled.
Dock			
Conveyors	Pedestrian-level lighting along length of conveyors	Low	Area.
Conveyor transfer points	Pedestrian-level lighting; higher levels around head and tail ends of conveyors	Moderate	Directed.
Mooring, deck	Lighting for vessel arrival/departure and for dock plant and equipment	High	Directed. As required to illuminate operations and to ensure edge of dock is clearly visible.
Navigation	Clearance lighting	Moderate	Point. Shows extent and height of facilities.

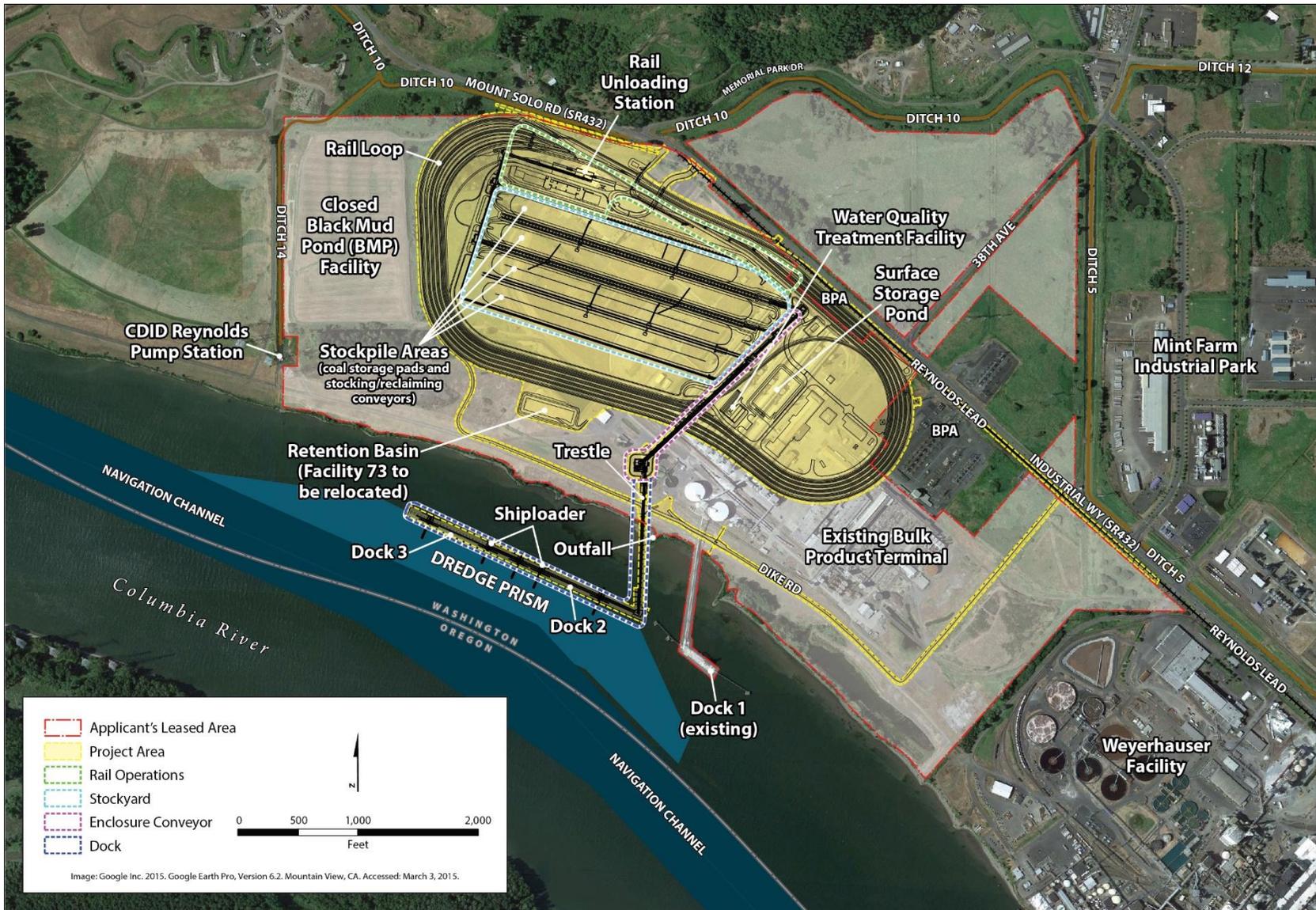
Area	Function	Level of Lighting	Type of Lighting^a
General Area			
Access road	Lighting for clear identification of roadways	Low	Area. Lighting for roadways. Mounted on 30-foot poles.
Maintenance area and storage	Maintenance/services/repair lighting for work and safety	Low	Area. Lighting for roadways. Mounted on 30-foot poles.
Water treatment and pump stations	Plant and equipment lighting for operation and maintenance	Low	Area. Lighting walkway and work areas.
Structures, towers, and docks	Air clearance lighting to warn of equipment proximity and potential interference	Moderate	Point. Shows extent and height of facilities.

Notes:

Source: Millennium Bulk Terminals—Longview 2014b

^a Area Lighting: General illumination for pedestrian and vehicle travel, general task lighting, or security. Directed Lighting: Illumination for function purposes such as inspections, safe equipment operation and maintenance, and work areas. Point Lighting: Light sources identifying direction or navigational extents, height, or direction

Figure 8. Proposed Operational Areas and Lighting



Overall, the visual quality of the Proposed Action would be similar to the existing surrounding industrial development. The forms, lines, colors, and scale of existing and proposed buildings and elements also would be similar to nearby heavy industrial developments and the facility would be visually compatible with the surrounding industrial uses. Prominent new visual features and structures would include the coal stockpiles (approximately 85 feet high), eight transfer towers and two shiploaders (80 to 90 feet high), a surge bin (approximately 146 feet high), and vessels at the docks (approximately 190 feet high for Panamax vessels).

The following sections describe the potential aesthetic impacts attributable to the construction and operation of the Proposed Action. The levels of impact for each viewpoint are identified as high, moderate, low, and no impact, as defined above in Section 2.1.5, *Impact Analysis*.

3.1.1 Construction: Direct Impacts

The construction of the Proposed Action would begin with the demolition of the existing cable plant (approximately 270,000 square feet) and potline buildings (approximately 600,000 square feet) and ancillary structures and facilities (URS Corporation 2013). Demolition activities also would include the removal of approximately 6 acres of forested wetland in the northwest corner of the project area. The existing trees are directly south of Mount Solo and east of the Mount Solo landfill along Industrial Way; their removal would mainly affect travelers along Industrial Way.

Following demolition and general area preparation, the project area would be preloaded to increase the strength of the underlying project area soils to accommodate the four future coal stockpiles. This activity would involve placing preloading material (soils from the project area and elsewhere) in piles up to 35 feet high in the location of each future coal stockpile pad. This material would remain in place until soil consolidation below is achieved, which may take up to 7 years. Two stockpile areas would be preloaded during Stage 1 of construction and up to 3 years could be required for the consolidation of the underlying soils. The remaining two stockpile areas would be preloaded during Stage 2 of construction. As with the Stage 1 preloading, up to 3 years could be required for the consolidation of the underlying soils. The preloading activities would be the longest phase of construction.

During construction, activities would include the use of heavy machinery such as cranes, wheel loaders, dozers, dump trucks, excavators, graders, rollers, compactors, drill rigs, pile driving equipment, portable ready-mix batch plant, ready-mix trucks, concrete pumps, elevated work platforms, forklifts, rail track laying equipment, welders, water pumps, river dredging barges, and other related equipment (URS Corporation 2013). Construction would also involve construction lighting and project area safety lighting or warning flashers as well as shoreline and in-water construction activities for the proposed docks.

Overall, construction of the Proposed Action would result in the following direct impact.

Change Visual Features of Project Area

Construction activities on the project area would be visible to residents, workers, commuters, recreationalists, and boat operators, but these activities would be temporary and consistent with the general industrial context of the surrounding area. Although preloading berms may remain in place for up to 7 years, these would not be a prominent visual feature in the larger industrial waterfront. Furthermore, in this industrial context, it would be difficult for more

distant viewers, particularly rural and residential viewers at Viewpoints 6, 7 and 8 (Figures A-6, A-7, and A-8 in Appendix A), to perceive noticeable changes during construction. Construction of the Proposed Action would result in a low level of impact on aesthetics and visual quality.

3.1.2 Construction: Indirect Impacts

Construction of the Proposed Action would not result in indirect impacts on aesthetics and visual quality.

3.1.3 Operations: Direct Impacts

Operations associated with the Proposed Action would result in the following direct impacts.

3.1.3.1 Urban and Industrial Views

Change Visual Features of the Project Area

Operation of the Proposed Action would introduce new visual features to the project area and accompanying new sources of light and glare. The new visual features would include new structures and equipment, additional workers, and increased vehicle, train, and ship movements on and adjacent to the project area. It is also anticipated that at least one Panamax-sized vessel would be moored at the proposed dock facilities at any given time. These features would alter the aesthetics of the project area. The new activities would result in new sources of light and glare. However, these changes would be consistent with the existing industrial aesthetics of the project area and the surrounding area.

Viewpoints from urban and industrial areas are generally near the project area. Views are dominated by existing industrial facilities, operations, and activities. Large-scale buildings, heavy utility transmission lines, industrial plumes, and ancillary facilities and equipment define the existing visual character of the project area. The coal stockpiles and conveyor systems, rail lines, and other equipment and structures would be consistent with the overall visual character of the urban and industrial viewpoints. With the Proposed Action, the existing, rectangular, geometric potline buildings and cable plant buildings would be replaced by coal stockpiles. The sizes and long, straight lines of the coal piles would be similar to the concrete and metal buildings, and the horizontal ground-level rail lines would be less visually dominant than the existing buildings. Vessels moored at the proposed docks are not expected to be visible from most urban and industrial viewpoints. Figures A-12 and A-13 in Appendix A present the photo simulations for Viewpoints 1 and 2. Overall, because the Proposed Action would be visually compatible with surrounding industrial uses and would affect a low number of sensitive viewers, the Proposed Action would have a low level of impact on views from urban and industrial viewpoints.

Introduce New Sources of Light and Glare to the Project Area

Artificial light is common throughout the Longview industrial area and along the Columbia River adjacent to the Port of Longview. It clearly defines the extent of the heavy industrial operations but the concentration of similar facilities and land uses would make changes in nighttime lighting on a particular area difficult to discern. The new artificial light produced by the Proposed Action would be partially offset by the removal of some outdoor ambient lighting

during demolition of existing buildings and facilities. Similarly, the Proposed Action would have considerably fewer reflective surfaces than the existing buildings. Glare impacts for urban and industrial viewers would be reduced because metal, concrete, and other reflective materials (including windows) would be demolished under the Proposed Action. Overall, the Proposed Action would result in no new light and glare impacts on views from urban and areas.

Change Visual Perception by Viewers

The viewers in this area would be industrial workers and commuters traveling on Industrial Way. The visual perception of these viewers is limited because their attention is focused on work, construction, or commuting activities. Project area operations would occur 24 hours per day, similar to adjacent industrial areas. The sensitivity of workers at adjacent facilities is generally considered low. The Proposed Action would result in a low level of impacts on viewers' visual perception from urban and industrial Viewpoints 1, 2, and 3.

Table 4 summarizes visual, light and glare, and viewer impacts from Viewpoints 1, 2, and 3 (see Figures A-12 and A-13 in Appendix A for photo simulations of viewpoints 1 and 2).

Table 4. Visual, Light and Glare, and Viewer Impacts (Viewpoints 1, 2, and 3)—Proposed Action

View-point	View	Distance (feet) ^a	Visual Impact	Light & Glare Impact	Viewer Impact
1	Looking west on Industrial Way. Primary view would be of rail lines and stockpile areas. Demolition of existing buildings and lighting and reduction of manmade materials would reduce visual impacts. Visual impact also would be reduced because views would be partially obscured by utility transmission lines and structures.	1,620	L	N	L
2	Looking south along 38th Street. Main views would be almost perpendicular to project area. Demolition of existing buildings and lighting and reduction of manmade materials would reduce visual impacts and resulting colors and textures would partially blend into background and natural environments.	2,050	L	N	L
3	Looking southwest from Mint Farm Industrial Area (from Prudential Boulevard). Most views of would be screened by vegetation. Some structures and facilities may be seen more easily during winter months when vegetation is dormant.	2,680	L	N	L

Notes:

^a Distance from project area

L = low level of impact; N = no impact.

3.1.3.2 Rural and Residential Views

Change Visual Features of Project Area

Prominent views from the rural and residential viewpoints include the existing industrial area along the Columbia River and a broader context that includes Mount St. Helens, Mount Rainier, the Columbia River, surrounding hillsides, rural farmland, and continuous stands of native vegetation and other features that bring natural characteristics into the visual character.

Views from the upland viewpoints would change as the large, rectangular potline and cable plant buildings are demolished and replaced by large coal piles with the Proposed Action. The demolition of approximately 6 acres of forested wetland would change the visual character of the northwest corner of the project area. However, due to the proximity to Mount Solo and the Mount Solo landfill, which obstruct views from many rural and residential areas, this part of the project area is seen by a limited number of viewers and commuters traveling along US 30 in Oregon. Overall, the project area would continue to appear in a larger context of existing vegetated and undeveloped areas. The Proposed Action would not obstruct views of Mount St. Helens, Mount Rainier, or the Columbia River from rural and residential viewpoints. Figures A-14, A-15, A-16 in Appendix A present the photo simulations for Viewpoints 5, 6, and 8.

The scale of the proposed dock, vessels, shiploaders, coal piles, and related conveyors would be discernible from the more distant rural and residential viewpoints. However, these facilities would appear in the context of the existing upland industrial facilities and adjacent heavy industrial areas as a relatively continuous visual resource for viewers. Views of the shoreline would be obstructed by the proposed docks, which would be up to 2,300 feet long. Overall, visual impacts on rural and residential views due to the Proposed Action would be difficult to perceive because of the distance between the viewpoints and the project area, as well as the Proposed Action's visual compatibility with adjacent industrial uses. Therefore, the Proposed Action would result in a low level of impact on rural and residential views from Viewpoints 5, 6, 7, and 8. The Proposed Action would not be visible from Viewpoints 4 and 9 and would result in no impact on views from these viewpoints.

Introduce New Sources of Light and Glare to Project Area

New artificial light produced by the Proposed Action would be partially offset by the removal of some outdoor ambient lighting during demolition of existing buildings and facilities. In addition, glare would be reduced because most demolished facilities include extensive metal, concrete, or other reflective surfaces (including windows). In distant views from hillsides in Longview (Viewpoint 5), the Proposed Action's artificial lighting would likely be difficult to discern given the distance between the viewpoint and the project area and the existing context of lighted industrial uses along the Columbia River. Furthermore, the Proposed Action would not be visible from Viewpoint 4 on Barlow Point and Viewpoint 9 in West Longview because of the Mount Solo landfill and existing vegetation. Therefore, the Proposed Action would result in a low level of impact on rural and residential views from Viewpoint 5 and no impact on rural and residential views from Viewpoints 4 and 9.

The proposed dock facilities would require prolonged moderate to high levels of light for operation at night while vessels are arriving, departing, or being loaded. Proposed lighting associated with the dock facilities would be reflected in the waters of the Columbia River and may be visible from some rural and residential viewpoints (Viewpoints 6, 7, and 8). However,

the distance to these viewpoints and the existing concentration of similar facilities and land uses along the waterfront would make changes in nighttime lighting difficult to discern. Therefore, the Proposed Action would have a low level of impact on light and glare at these viewpoints. Overall, light and glare impacts for rural and residential views would range from no impacts to low impacts.

Change Visual Perception by Viewers

Viewers in the rural and residential area are presumed to be residents within the City of Longview neighborhoods or of surrounding low-density residential areas, including areas south of the Columbia River in Oregon. Some travelers on local and state transportation corridors such as US 30 south of the Columbia River would also have dispersed views of the project area. Visual sensitivity in the rural and residential area is assumed high because views are often prolonged and stationary and residential viewers are sensitive to change. However, most residents would not have direct views of the project area and the Proposed Action would be in keeping with the existing industrial character of the surrounding area. Therefore, the Proposed Action would result in a low level of impact on viewers' visual perceptions from Viewpoints 5, 6, 7, and 8, and no impact on views from Viewpoints 4 and 9.

Table 5 summarizes visual, light and glare, and viewer impacts from Viewpoints 4 through 8 (see Figures A-14, A-15, and A-16 in Appendix A for photo simulations of viewpoints 5, 6, and 8).

Table 5. Visual, Light and Glare, and Viewer Impacts (Viewpoints 4 through 8)—Proposed Action

View-point	View	Distance (feet) ^a	Visual Impact	Light & Glare Impact	Viewer Impact
4	Looking east from Barlow Point Road. General visual character is agricultural with large tracts of farmland and dispersed housing. Views obstructed by small hill, broad row of trees, and Columbia River levee. Project area would not be visible from this location. Direct sources of light would not be seen.	7,500	N	N	N
5	Looking southwest from hillside residential areas (from Alexia Court). Views are elevated above the project area. Small portion of proposed facility would be visible in this view; other locations on hillside are expected to have views of project area. Areas are characterized by contiguous residential neighborhoods on winding hillsides. Most views partially/completely blocked by vegetation and Mount Solo. Light sources may be discerned but no single facility expected to dominate views.	14,875	L	L	L
6 & 7	Looking north/northwest from US 30. Views are from vehicles traveling along highway and from two scenic viewpoints. Views of Mount St. Helens, Mount Rainier, the Columbia River, rural farmland, and surrounding hillsides are prominent scenic focal points. Individual facilities and vessels can be discerned but no	13,390– 14,980	L	L	L

View-point	View	Distance (feet) ^a	Visual Impact	Light & Glare Impact	Viewer Impact
	single facility expected to dominate views. Lighting for dock facilities may be visible and reflected by Columbia River while vessels are arriving, departing, or being loaded.				
8	Looking northeast from Alston-Mayger Road. Views of project area occur primarily from single-family residences. Viewpoint dominated by scenic views of Mount St. Helens, Columbia River, and Lord and Walker Islands. Individual facilities and vessels can be discerned but no single facility expected to dominate views. Lighting for dock facilities may be visible and reflected by Columbia River while vessels are arriving, departing, or being loaded.	10,930	L	L	L
9	Looking south from West Longview residential neighborhood. Project area would not be visible from this location.	8,000	N	N	N

Notes:
^a Distance from project area
L = low level of impact; N = no impact.

3.1.3.3 Natural Views

Change Visual Features of Project Area

The proposed docks, shiploaders, coal stockpiles, trestles and ancillary equipment associated with the Proposed Action would introduce new large-scale industrial uses along the Columbia River. The Proposed Action would introduce straight lines, geometric forms, hard visual textures, and human-made materials to the project area. It is also anticipated that at least one vessel would be moored at the proposed docks at any given time. Panamax-sized vessels that would use the proposed docks would be approximately 950 feet in length, 106 feet wide (beam), and 190 feet high. These changes would be visible to on-water recreational users and viewers from Dibblee Beach on the south shore of the river (Viewpoint 10). However, the new facilities would be contiguous and visually consistent with existing industrial facilities, and vessels are commonly traveling up river, anchored, or moored along the Port of Longview shoreline. Therefore, the Proposed Action would have a moderate impact on views from Viewpoint 10 because it would introduce operations, buildings, and structures that would be visible to sensitive viewers, but the Proposed Action would be consistent with adjacent land uses. Figure A-17 in Appendix A presents the photo simulation for Viewpoint 10. The Proposed Action would not be visible from Viewpoint 11 and would not result in impacts on views from Viewpoint 11. Proposed mitigation measures presented in the Final EIS (Volume I) would minimize the moderate level of impacts on views from Viewpoint 10.

Introduce New Sources of Light and Glare to Project Area

New lighting associated with the dock facilities would result in a moderate level of light impacts on views from Dibblee Beach (Viewpoint 10) where the Proposed Action's lighting would be visible and would be reflected in the waters of the Columbia River. For distant viewers, artificial

lighting is common throughout the Port of Longview industrial area on the Columbia River, and the concentration of similar facilities and land uses would make changes in nighttime lighting difficult to discern for distant viewers. The Proposed Action would result in moderate impacts related to light and glare because most recreational viewers in natural areas view the project area during daylight conditions. Proposed mitigation measures presented in the Final EIS (Volume I) would minimize the moderate level of impacts on viewers from Viewpoint 10.

Change Visual Perception by Viewers

The views from natural areas are presumed to be from on-water recreational viewers (e.g., anglers, water trail users, cruisers) and viewers from Dibblee Beach on the south bank of the Columbia River. For a typical recreationalist, views would be infrequent and of short to moderate duration. However, viewer sensitivity tends to be high because of viewers' expectation of natural views, the public nature of and interest in some natural areas, and the contrast between natural and industrial lands. Moreover, the movement of ships, trains, and equipment introduces additional visual impacts on viewers from natural areas.

The Columbia River is also navigated by commercial boat operators. Viewers from commercial boats are expected to have a low sensitivity to changes in aesthetics. Because of low sensitivity, infrequent views, and the transitory nature of boat operator views, it is unlikely that viewers would experience negative visual impacts based on changes to the existing project area. Overall, the Proposed Action would not result in impacts on viewers' visual perceptions from Viewpoint 11 and a moderate level of impact on viewers' visual perceptions from Viewpoint 10. Proposed mitigation measures presented in the Final EIS (Volume I) would minimize the moderate level of impacts on viewers from Viewpoint 10.

Table 6 summarizes visual, light and glare, and viewer impacts from Viewpoints 10 and 11 (see Figure A-17 in Appendix A for a photo simulation of Viewpoint 10).

Table 6. Visual, Light and Glare, and Viewer Impacts (Viewpoints 10 and 11)—Proposed Action

View-point	View	Distance (feet)^a	Visual Impact	Light & Glare Impact	Viewer Impact
10 ^b	Looking north/northwest from Dibblee Beach. Views are of wide flat-water channel with Lord and Walker Islands to west. Heavy industrial uses and facilities characterize north riverbank. Light sources may be discerned and glare impacts are increased by water; however, no single facility expected to dominate views and recreational viewers are limited at night. Lighting for dock facilities may be visible and reflected by Columbia River while vessels are arriving, departing, or being loaded.	6,500	M	M	M
11	Looking east from Willow Point Boat Launch. Views of project area are obstructed by vegetation on two islands in Columbia River and light sources would have no impact. Located outside the study area, approximately 4.5 miles northwest of Longview on Columbia River, but allows river access from which public could travel upriver and into study area, where views of project area may be affected as for Viewpoint 9.	21,375	N	N	N

Notes:

^a Distance from project area

^b This viewpoint also represents the potential impacts of the Proposed Action for on-water viewers. Views would be comparable from Dibblee Beach and an on-water location.

L = low level of impact; N = no impact

3.1.4 Operations: Indirect Impacts

Operation of the Proposed Action would not result in indirect impacts on aesthetics and visual quality.

3.1.5 Proposed Action Impact Summary

Construction and operation of the Proposed Action would introduce new visual, aesthetic, and light and glare elements that would be visible from viewpoints in the study area. These elements would result in varying levels of aesthetic impacts depending on the type of viewer, the use of the view, and the context of the view.

Viewers from urban and industrial viewpoints would view the Proposed Action from similar heavy industrial areas. The Proposed Action would be visually compatible with surrounding industrial uses and would affect a low number of sensitive viewers, and thus would have no visual impact to low visual impacts on views from urban and industrial viewpoints.

For viewers at rural and residential viewpoints, the Proposed Action would appear in the context of the existing upland industrial facilities and adjacent heavy industrial areas as a relatively continuous visual resource. Visual impacts on rural and residential views would be difficult to perceive because

of the distance between the viewpoints and the project area, as well as the Proposed Action's visual compatibility with adjacent industrial uses. Therefore, the Proposed Action would result in no visual impact to low visual impacts on views from rural and residential viewpoints.

For viewers at natural viewpoints, the Proposed Action would introduce operations, buildings, and structures that would be visible to sensitive viewers from the Columbia River and Dibblee Beach. The Proposed Action would also introduce moderate to high levels of light for operation at night. This light would be visible from the natural viewpoints and would be reflected in the waters of the Columbia River. Although the Proposed Action would appear in the context of similar industrial uses along the Columbia, it would result in moderate visual impacts on views from natural viewpoints due to the sensitivity of viewers, its proximity to certain viewpoints (notably Dibblee Beach), and the potential for new sources of nighttime light and glare from dock lighting.

Overall, the Proposed Action would result in no visual impact to low visual impacts on views from all viewpoints except the natural viewpoint at Dibblee Beach (Viewpoint 10), where it would result in moderate impacts. Moderate level impacts from Viewpoint 10 would be minimized with the implementation of proposed mitigation measures presented in the Final EIS (Volume I).

3.2 No-Action Alternative

The following sections describe the potential aesthetic impacts attributable to the construction and operation of the No-Action Alternative.

3.2.1 Construction: Direct Impacts

Construction of the No-Action Alternative would result in the following direct impact on aesthetics, and visual quality.

Change Visual Features of Project Area

Construction of the No-Action Alternative may involve the demolition and replacement of some existing buildings on the project area to facilitate the expansion of current operations and the development of an expanded bulk products terminal. As with the Proposed Action, construction activities under the No-Action Alternative would be visible to residents, workers, commuters, recreationalists, and boat operators, but these activities would be temporary and consistent with the general industrial context of the surrounding area. Furthermore, given the more limited physical changes to the project area under the No-Action Alternative compared to the Proposed Action, construction activities would be expected to be of shorter duration and intensity. Like the Proposed Action, it would be difficult for more distant viewers (particularly rural and residential viewers at Viewpoints 6, 7 and 8) to perceive noticeable changes during construction under the No-Action Alternative. The No-Action Alternative would not involve physical changes to the existing dock (Dock 1) nor construction of new docks and, therefore, recreational viewers on the Columbia River (Viewpoint 10) would not be affected.

Overall, construction of the No-Action Alternative would have a low level of impact on aesthetics and visual quality.

3.2.2 Construction: Indirect Impacts

Construction of the No-Action Alternative would not result in indirect impacts on aesthetics and visual quality.

3.2.3 Operations: Direct Impacts

Operation of the No-Action Alternative would result in the following direct impacts on aesthetics and visual quality. Given the minimal changes to the project area proposed under the No-Action Alternative, no photo simulations were produced.

Change Visual Features of Project Area and Introduce New Sources of Light and Glare

As allowed under existing zoning, the No-Action Alternative could result in new buildings or structures on the project area, an expanded bulk product terminal, and increased bulk product transfer activities. Changes to aesthetic and visual conditions would occur as a result of these new structures and changes to operations, which would include the increased movements of people, equipment, vehicles, trains and ships as bulk product transfer activities increase. These activities would alter the aesthetics of the project area. However, these changes would be consistent with the existing industrial aesthetics of the project area and the surrounding area, and would therefore result in a low level of impact.

New activities and structures under the No-Action Alternative would be visible to viewers at industrial viewpoints (Viewpoints 1, 2, and 3) but, as noted above, these viewers tend to have low sensitivity to changes in visual conditions. Furthermore, the facilities and activities under this alternative would not substantially change the project area's existing visual attributes, and new industrial forms would be compatible with the existing visual character of the surrounding industrial area. Therefore, the No-Action Alternative would result in a low level of impacts on views from industrial viewpoints.

From more distant viewpoints (Viewpoints 4, 5, 6, 7, 8, and 10), changes to project area operations would become more difficult to perceive, and new or changed buildings or facilities would appear as a relatively continuous industrial waterfront for viewers. Therefore, the No-Action Alternative would result in a low level of impacts on views from more distant viewpoints (Viewpoints 4, 5, 6, 7, and 8). The No-Action Alternative would not be visible from Viewpoints 9 and 11 and would therefore result in no impact on views from these viewpoints.

As with the Proposed Action, the No-Action Alternative would be visible to viewers at Dibblee Beach (Viewpoint 10) and on the Columbia River. However, new or changed facilities would be located among existing industrial facilities on the project area and would remain contiguous and visually consistent with existing industrial facilities along the Longview shoreline. No additional docks would be built under the No-Action Alternative. Therefore, the No-Action Alternative would have a low level of impact on views from Viewpoint 10.

The No-Action Alternative would not change the existing dock, but there could be an increase in the volume or timing of material transport operations and lighting on the existing dock. Light and glare impacts on recreational viewers on the Columbia River (Viewpoint 10) would be low because most recreational viewers access the river during daylight hours and would not experience increased light and glare impacts. Furthermore, potential changes to nighttime lighting under the No-Action Alternative would be seen within the industrial visual context of

this section of the Columbia River waterfront. Additional lighting under the No-Action Alternative would not dramatically increase ambient or point source light sources in the industrial area. Therefore, the No-Action Alternative would have a low level of light and glare impacts.

3.2.4 Operations: Indirect Impacts

Operation of the No-Action Alternative would not result in indirect impacts on aesthetics and visual quality.

Chapter 4 **Required Permits**

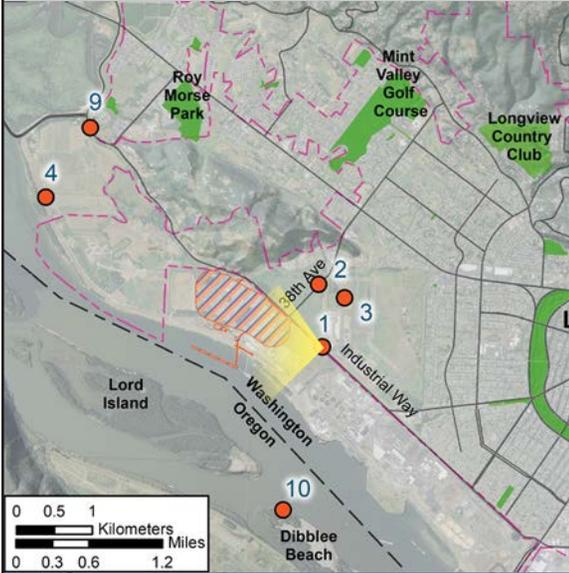
No permits related to aesthetics and visual quality would be required for the Proposed Action.

Chapter 5 References

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Appendix A
Viewpoints for Aesthetics, Light, and Glare Analysis

Viewpoint Location Map



Existing Nighttime Conditions



Existing Conditions Photograph - Viewpoint 1



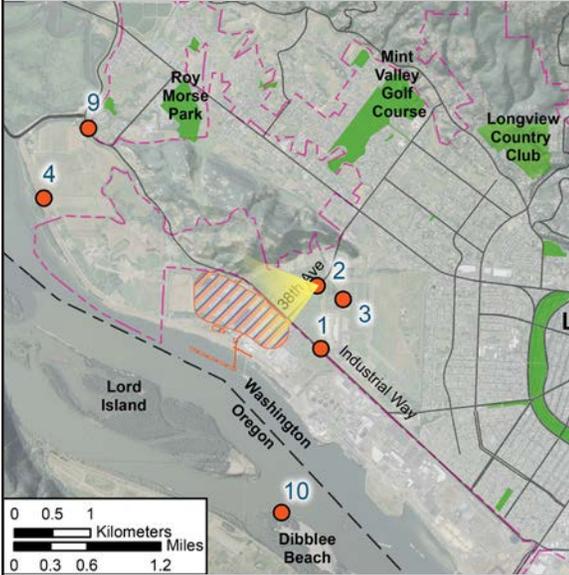
Approximate Location of project area for Proposed Action
-Existing facilities on project area are visible in background behind electrical substation and utility lines

Industrial Way

Figure A-1

Proposed Action Existing Conditions Photograph - Viewpoint 1
(View from Industrial Way)
Millennium Bulk Terminals—Longview

Viewpoint Location Map



Existing Nighttime Conditions



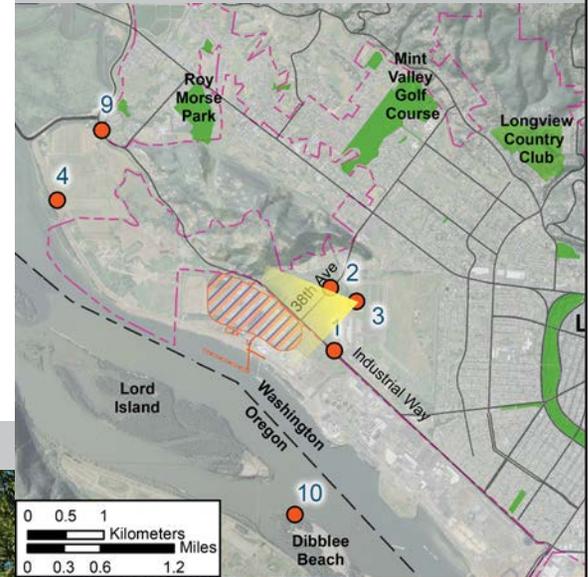
Existing Conditions Photograph - Viewpoint 2



Figure A-2

Proposed Action Existing Conditions Photograph - Viewpoint 2
(View from 38th Ave)
Millennium Bulk Terminals—Longview

Viewpoint Location Map



Existing Conditions Photograph - Viewpoint 3

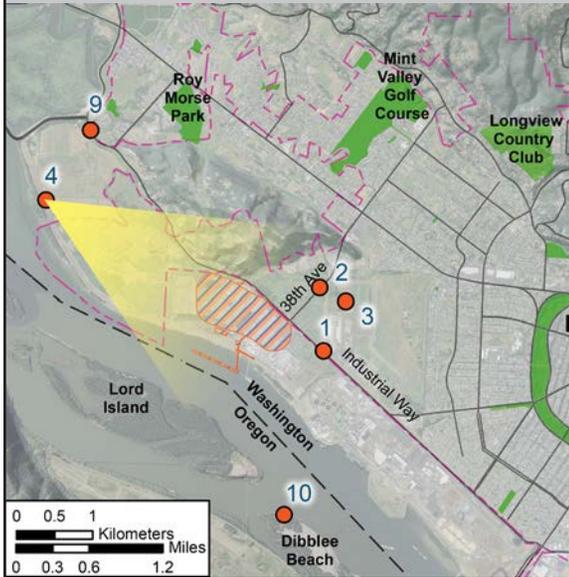


Approximate Location of project area for Proposed Action
-Roof line of existing facilities on project area can be seen behind vegetation.

Prudential Blvd

Figure A-3
Proposed Action Existing Conditions Photograph - Viewpoint 3
(View From Mint Farm Industrial Park)
Millennium Bulk Terminals—Longview

Viewpoint Location Map



Existing Nighttime Conditions

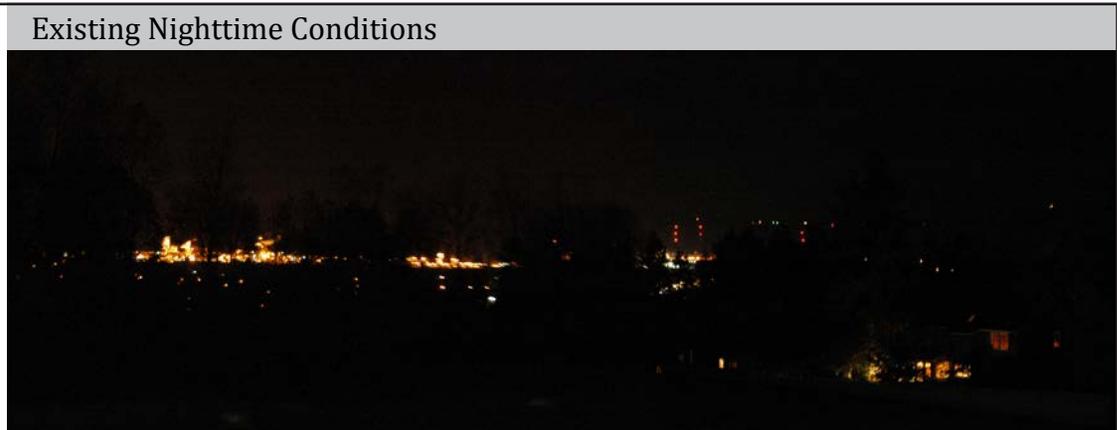
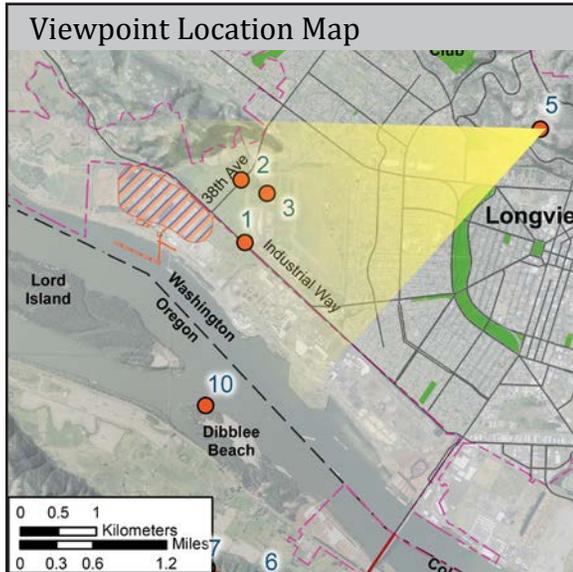


Existing Conditions Photograph - Viewpoint 4



Figure A-4

Proposed Action Existing Conditions Photograph - Viewpoint 4
(View from Barlow Point Road)
Millennium Bulk Terminals—Longview



Existing Conditions Photograph - Viewpoint 5



Approximate Location of project area for Proposed Action
- Top of existing dock facilities can be seen from this location.

Figure A-5
Proposed Action Existing Conditions Photograph - Viewpoint 5
(View from Hillside Residences)
Millennium Bulk Terminals—Longview

Existing Nighttime Conditions



Existing Conditions Photograph - Viewpoint 6

Approximate Location of project area for Proposed Action
- Existing facilities can be seen in the distance.



Viewpoint Location Map

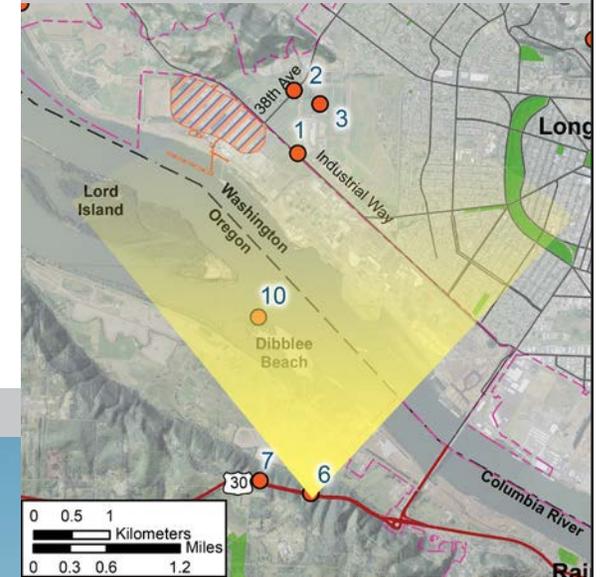
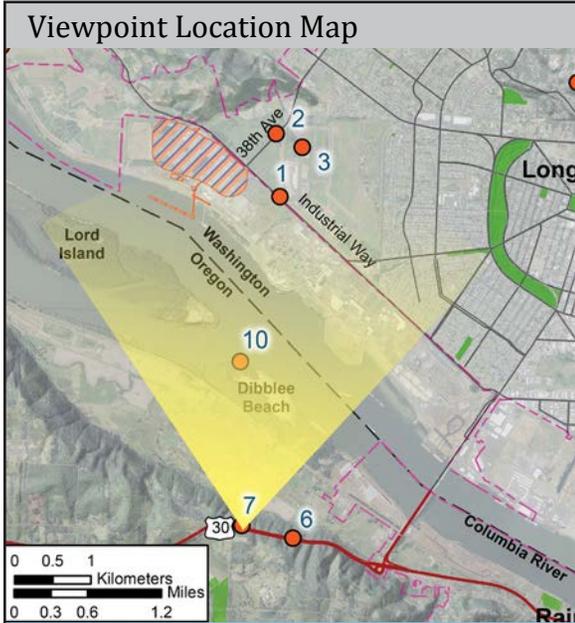


Figure A-6
Proposed Action Existing Conditions Photograph - Viewpoint 6
(View from US Route 30, Upper Pull-off)
Millennium Bulk Terminals—Longview

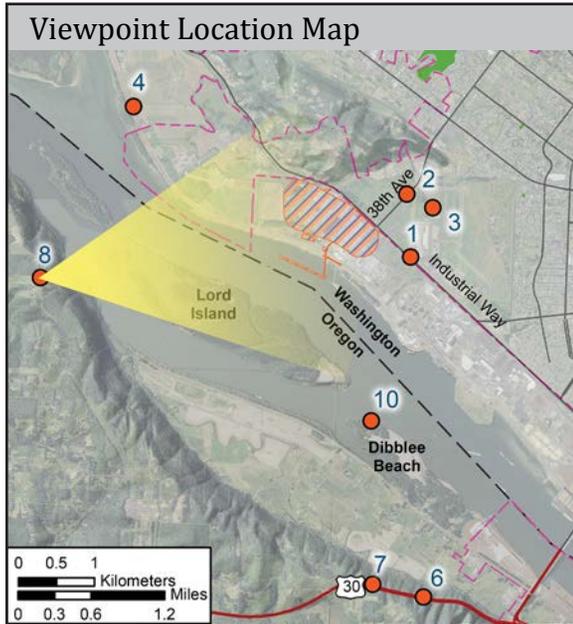


Existing Conditions Photograph - Viewpoint 7



Approximate Location of project area for Proposed Action
- Existing facilities can be seen in the distance.

Figure A-7
Proposed Action Existing Conditions Photograph - Viewpoint 7
(View from US Route 30, Lower Pull-off)
Millennium Bulk Terminals—Longview



Existing Nighttime Conditions

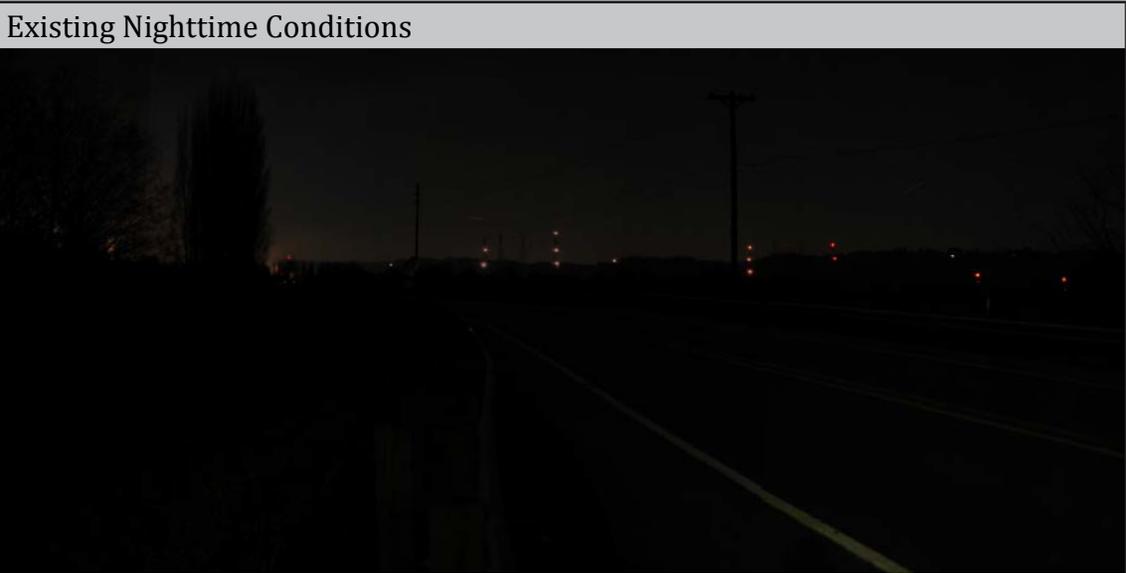
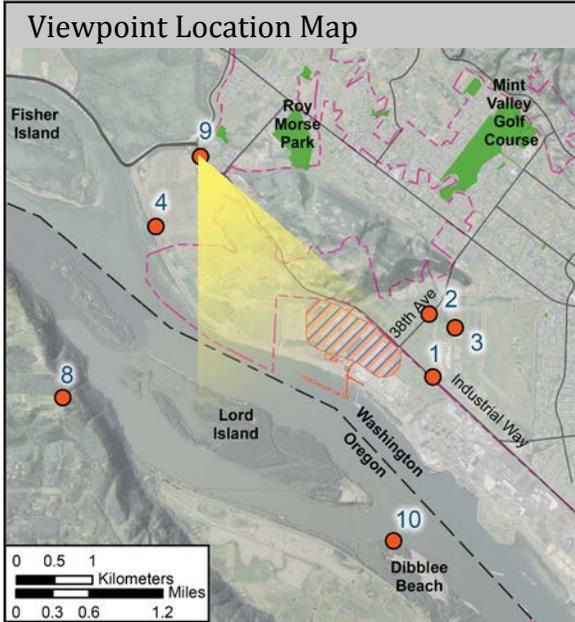


Existing Conditions Photograph - Viewpoint 8

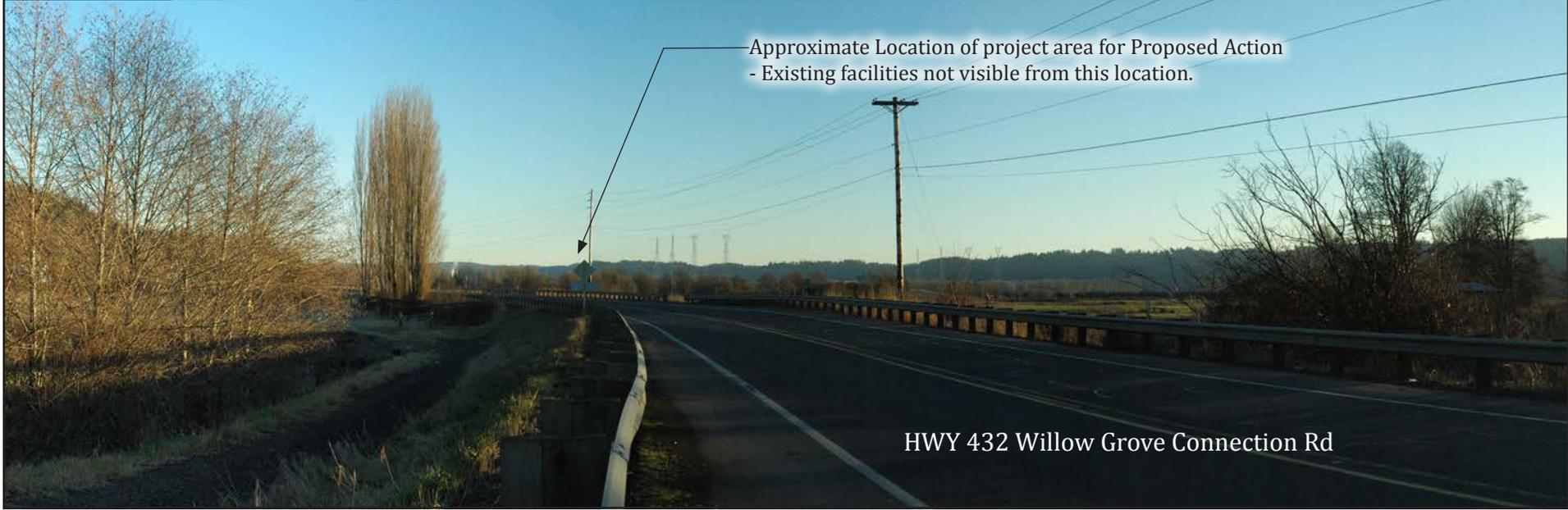


Approximate Location of project area for Proposed Action - Existing facilities can be seen in the distance.

Figure A-8
Proposed Action Existing Conditions Photograph - Viewpoint 8
(View from Alston-Mayger Road)
Millennium Bulk Terminals—Longview



Existing Conditions Photograph - Viewpoint 9



HWY 432 Willow Grove Connection Rd

Figure A-9
 Proposed Action Existing Conditions Photograph - Viewpoint 9
 (View from West Longview Neighborhood)
 Millennium Bulk Terminals—Longview

Existing Nighttime Conditions



Existing Conditions Photograph - Viewpoint 10

Approximate Location of project area for Proposed Action
- Existing facilities can be seen in the distance.



Viewpoint Location Map

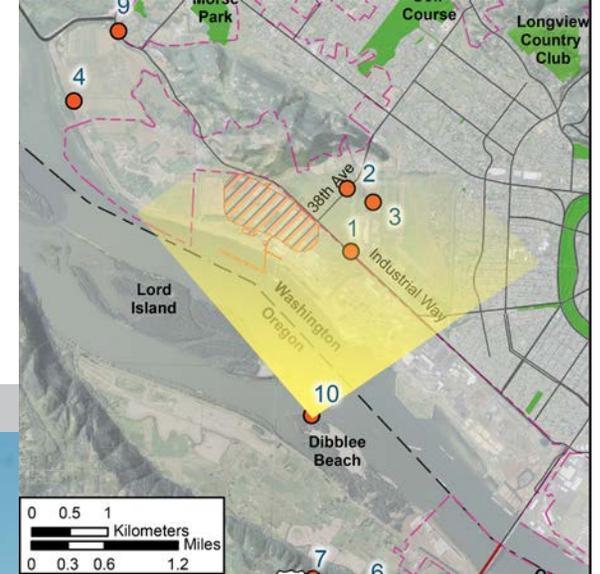
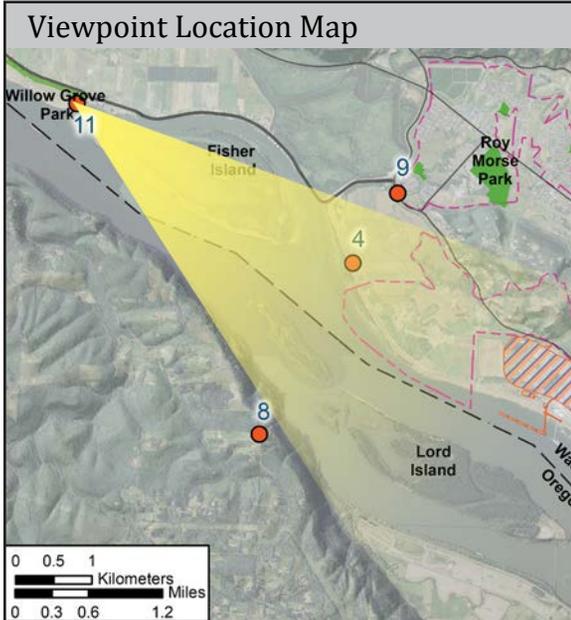


Figure A-10
Proposed Action Existing Conditions Photograph - Viewpoint 10
(View from Dibblee Beach)
Millennium Bulk Terminals—Longview



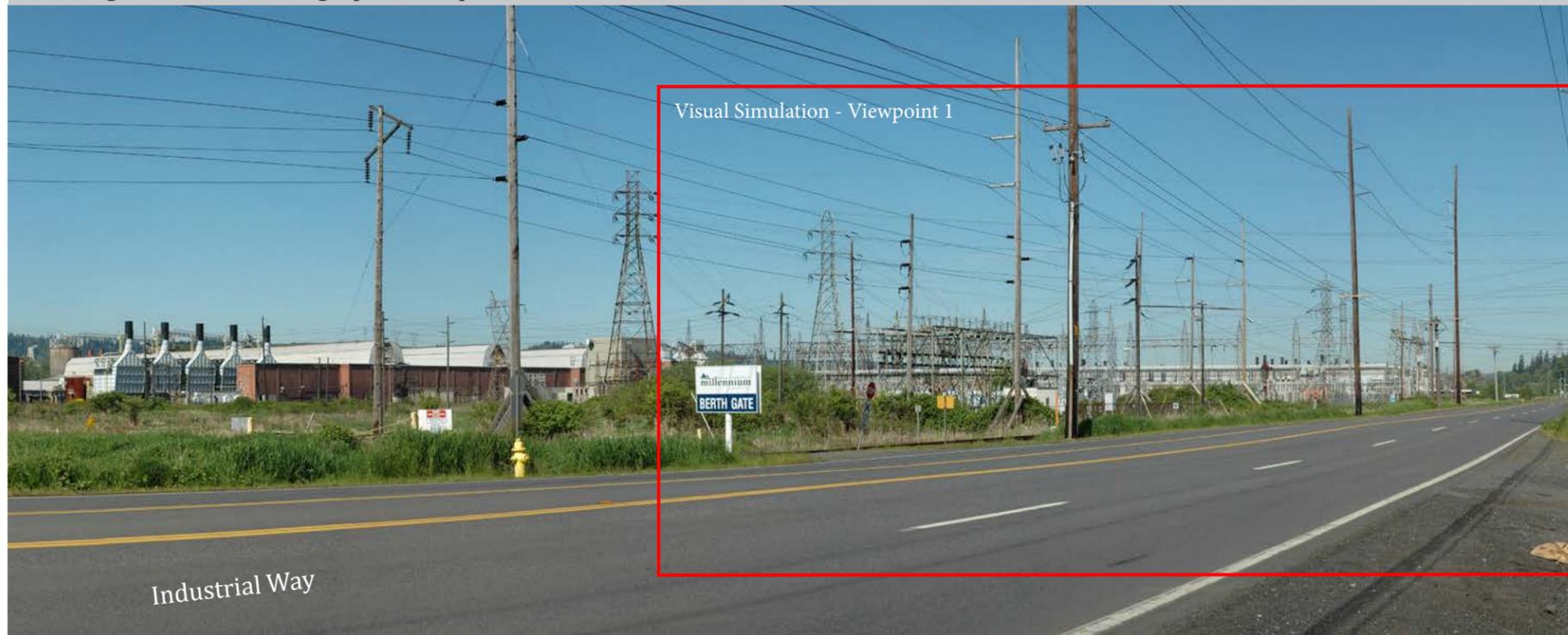
Existing Conditions Photograph - Viewpoint 11



Approximate Location of project area for Proposed Action
- Existing facilities cannot be seen from this location.

Figure A-11
Proposed Action Existing Conditions Photograph - Viewpoint 11
(View from Willow Grove Park and Boat Launch)
Millennium Bulk Terminals—Longview

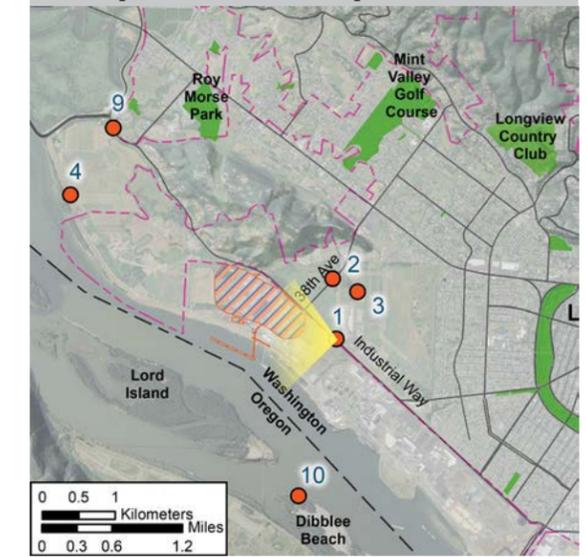
Existing Conditions Photograph - Viewpoint 1



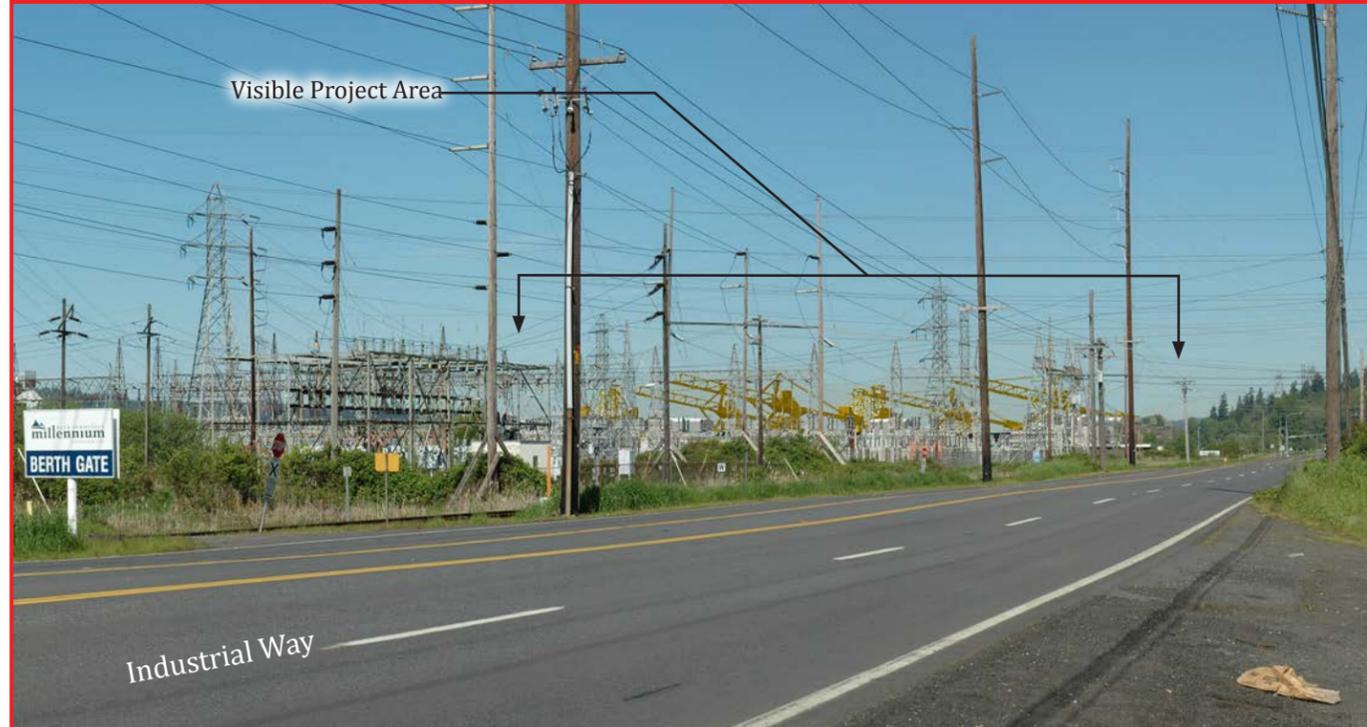
Visual Simulation - Viewpoint 1



Viewpoint Location Map



Proposed Action Visual Simulation - Viewpoint 1



Visual Simulation Viewpoint 1
 Field of View = 46 degrees
 Image Width = 7.5 inches
 Zoom = 50%
 True View Distance = 17.7" inches

Notes:

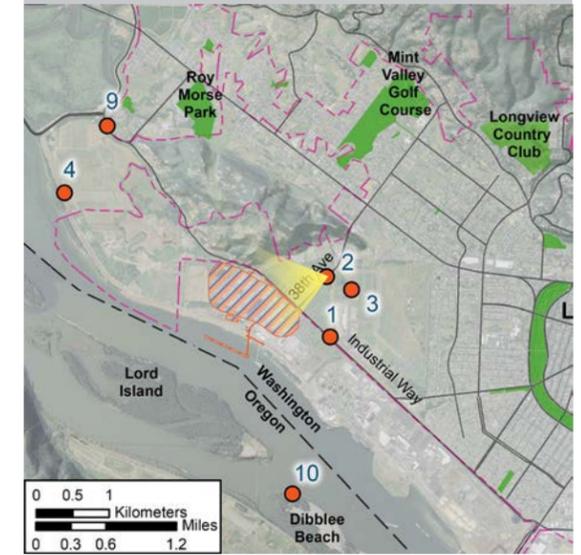
1. Existing Conditions photographs taken with Nikon D-70 (50mm lens) and panorama photomerged using Photoshop CSS.
2. Visual Simulation is based on 3D model and AutoCAD files provided by MBLT.
3. Visual Simulation created with AutoCAD, Sketchup Pro, Google Earth and Photoshop CSS.

Figure A-12
 Proposed Action Visual Simulation - Viewpoint 1
 (View from Industrial Way)
 Millennium Bulk Terminals—Longview

Existing Conditions Photograph - Viewpoint 2



Viewpoint Location Map



Proposed Action Visual Simulation - Viewpoint 2

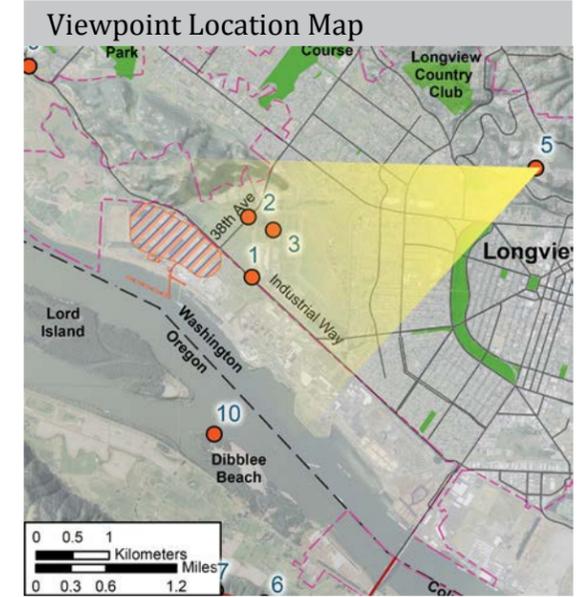


Visual Simulation Viewpoint 2
Field of View = 53 degrees
Image Width = 13.5 inches
Zoom = 50%
True View Distance = 27.2" inches

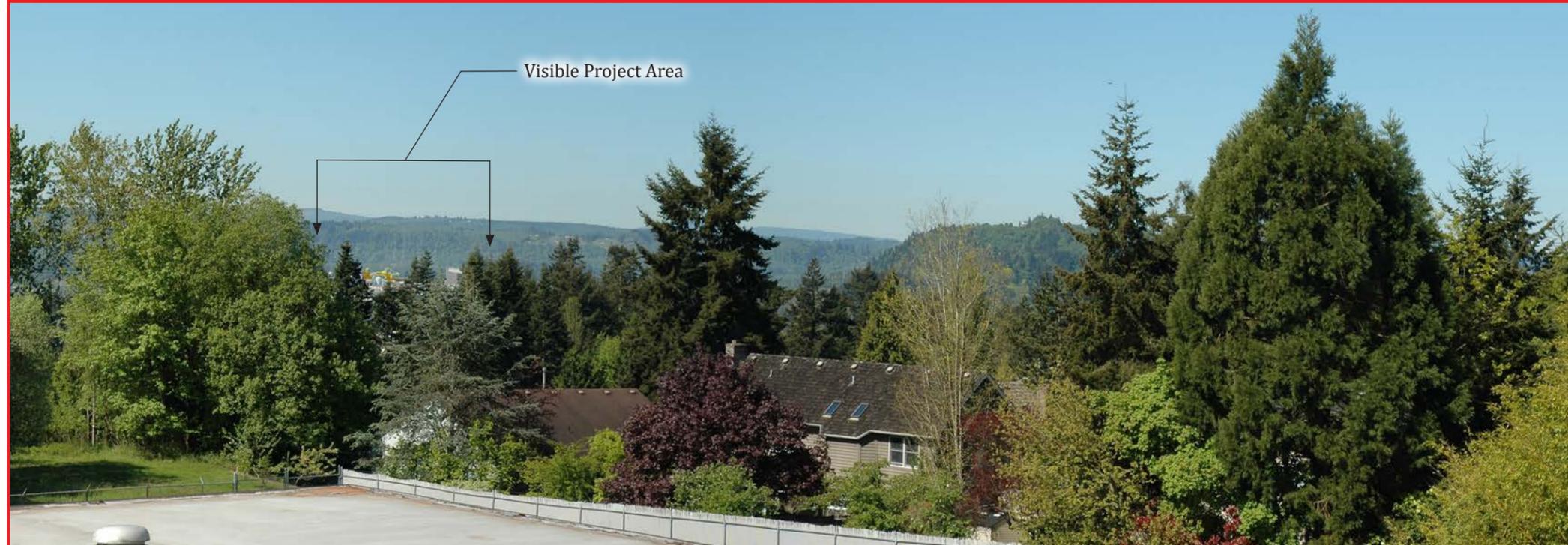
- Notes:
1. Existing Conditions photographs taken with Nikon D-70 (50mm lens) and panorama photomerged using Photoshop CSS.
 2. Visual Simulation is based on 3D model and AutoCAD files provided by MBLT.
 3. Visual Simulation created with AutoCAD, Sketchup Pro, Google Earth and Photoshop CSS.

Figure A-13
Proposed Action Visual Simulation - Viewpoint 2
(View from 38th Ave)
Millennium Bulk Terminals—Longview

Existing Conditions Photograph - Viewpoint 5



Proposed Action Visual Simulation - Viewpoint 5



Visual Simulation Viewpoint 5
 Field of View = 27 degrees
 Image Width = 11.5 inches
 Zoom = 50%
 True View Distance = 48.5" inches

Notes:

1. Existing Conditions photographs taken with Nikon D-70 (50mm lens) and panorama photomerged using Photoshop CSS.
2. Visual Simulation is based on 3D model and AutoCAD files provided by MBLT.
3. Visual Simulation created with AutoCAD, Sketchup Pro, Google Earth and Photoshop CSS.

Figure A-14
 Proposed Action Visual Simulation - Viewpoint 5
 (View from Hillside Residences)
 Millennium Bulk Terminals—Longview

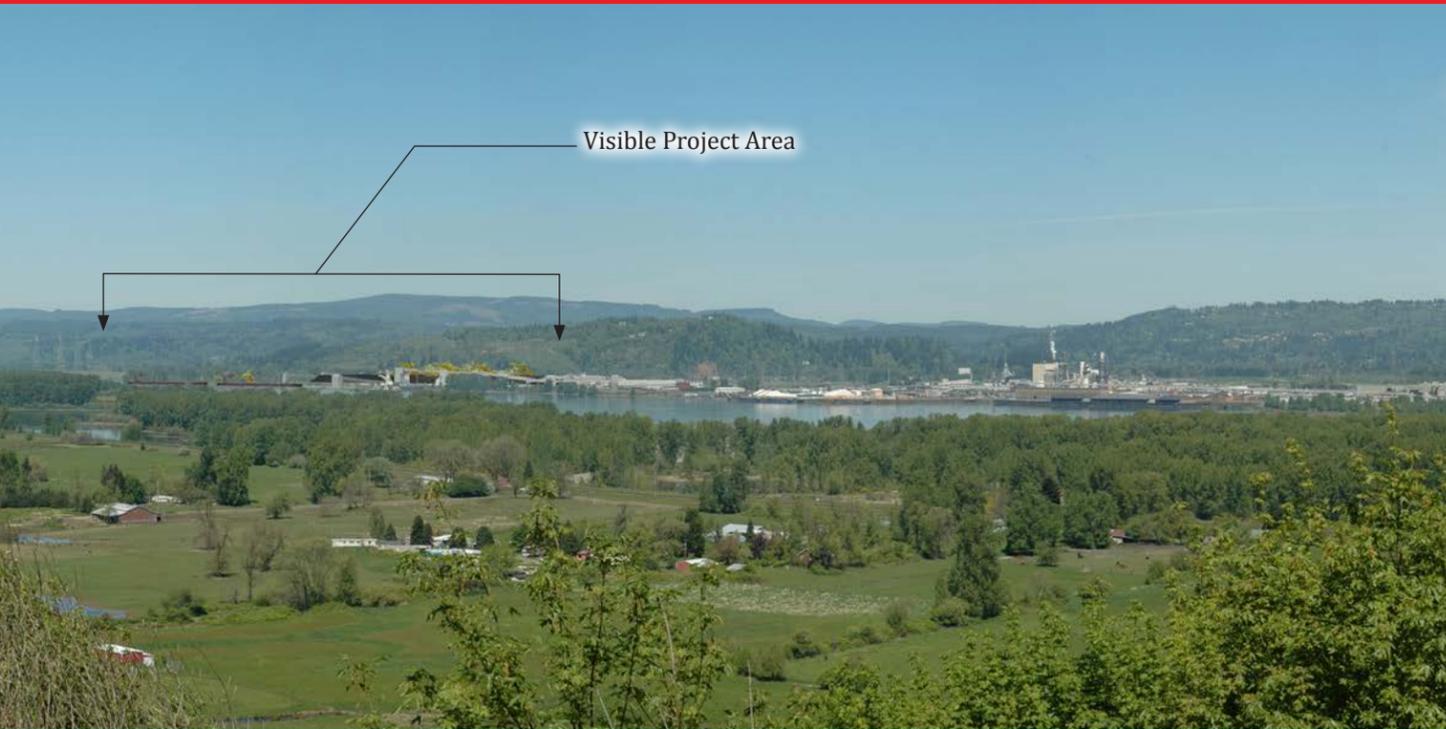
Existing Conditions Photograph - Viewpoint 6



Visual Simulation - Viewpoint 6



Proposed Action Visual Simulation - Viewpoint 6



Visual Simulation Viewpoint 6
 Field of View = 32 degrees
 Image Width = 8.0 inches
 Zoom = 50%
 True View Distance = 13.0" inches

- Notes:
1. Existing Conditions photographs taken with Nikon D-70 (50mm lens) and panorama photomerged using Photoshop CSS.
 2. Visual Simulation is based on 3D model and AutoCAD files provided by MBLT.
 3. Visual Simulation created with AutoCAD, Sketchup Pro, Google Earth and Photoshop CSS.

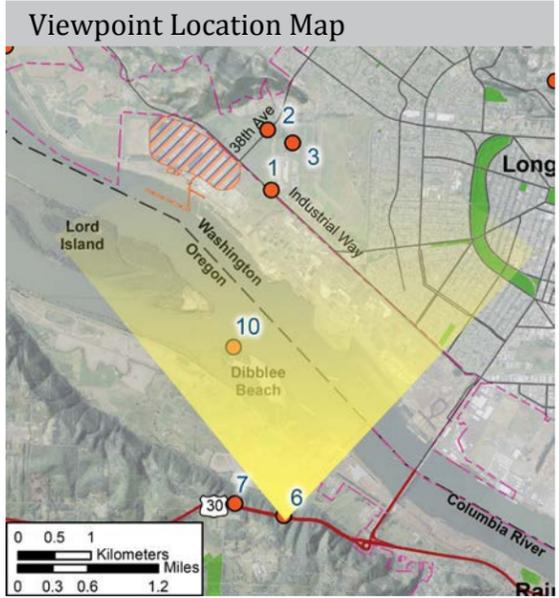


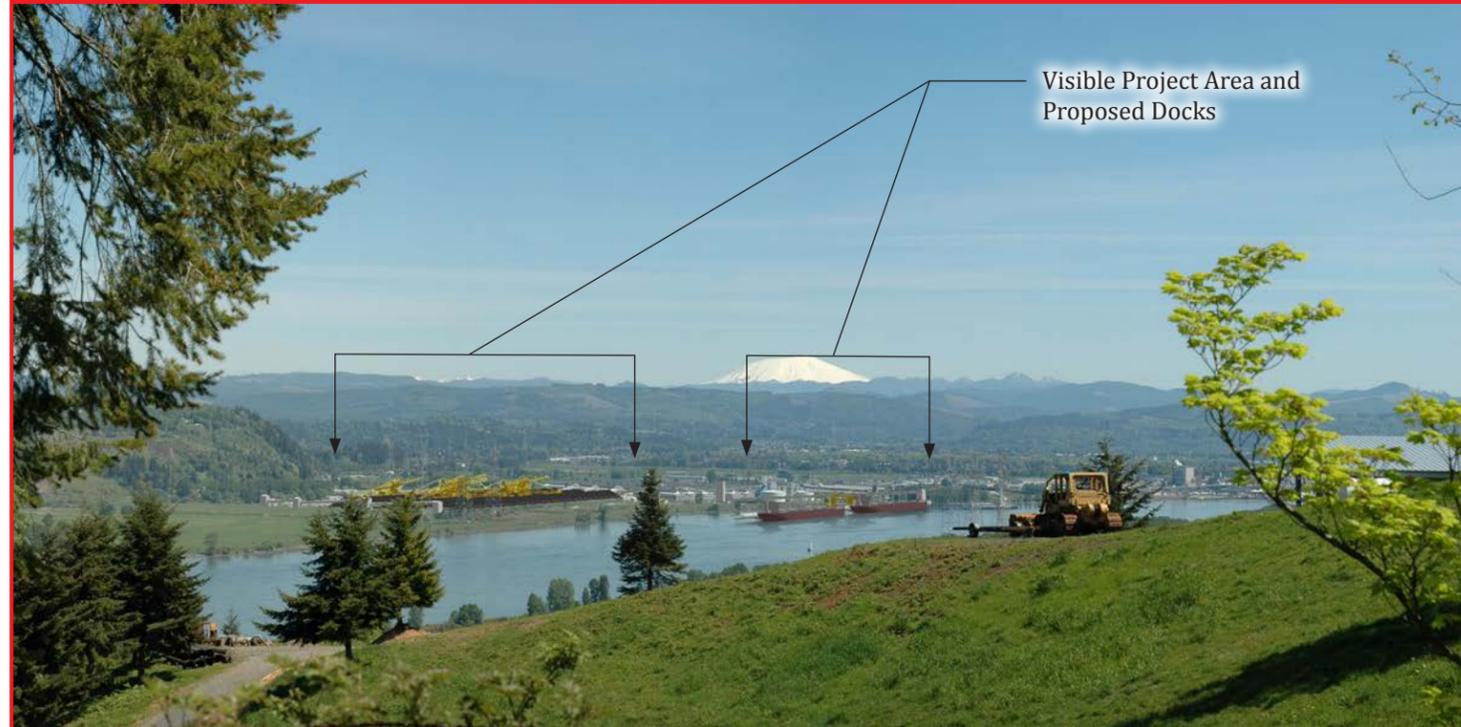
Figure A-15
 Proposed Action Visual Simulation - Viewpoint 6
 (View from US Route 30, Lower Pull-off)
 Millennium Bulk Terminals—Longview

Existing Conditions Photograph - Viewpoint 8



Visual Simulation - Viewpoint 8

Proposed Action Visual Simulation - Viewpoint 8



Visible Project Area and Proposed Docks

Visual Simulation Viewpoint 8
 Field of View = 34 degrees
 Image Width = 8.0 inches
 Zoom = 50%
 True View Distance = 13.0" inches

- Notes:
1. Existing Conditions photographs taken with Nikon D-70 (50mm lens) and panorama photomerged using Photoshop CSS.
 2. Visual Simulation is based on 3D model and AutoCAD files provided by MBLT.
 3. Visual Simulation created with AutoCAD, Sketchup Pro, Google Earth and Photoshop CSS.

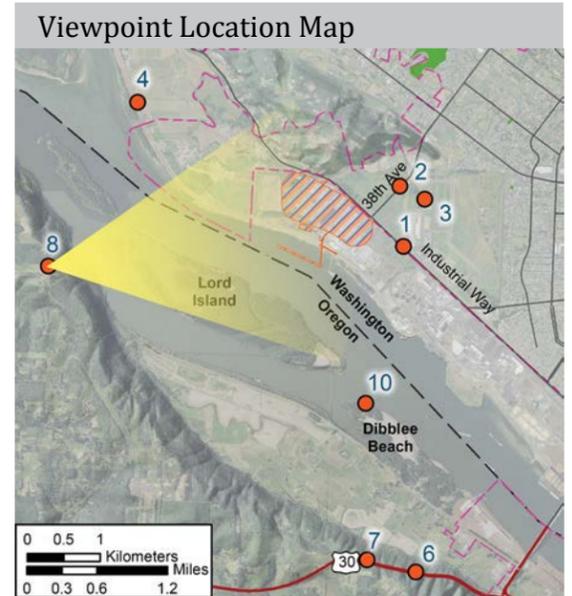
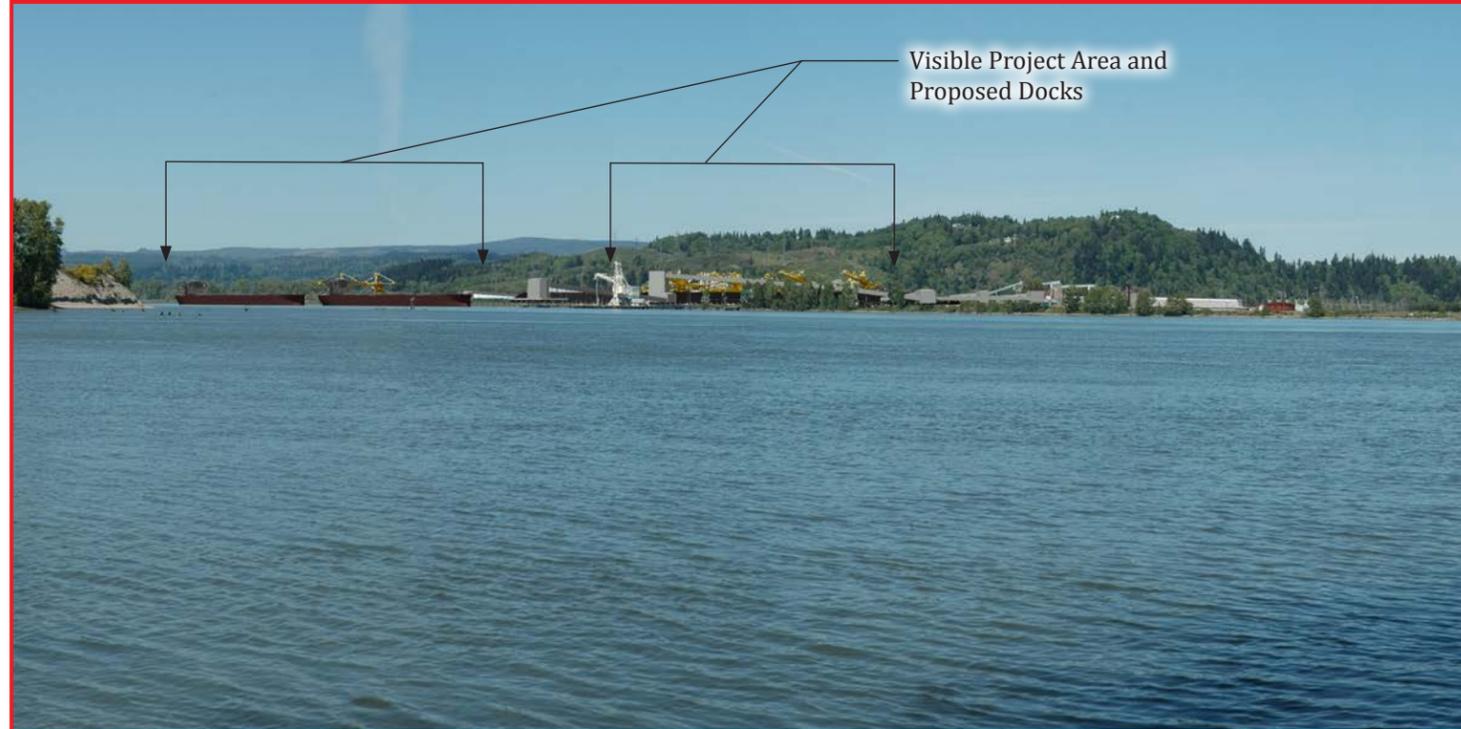


Figure A-16
 Proposed Action Visual Simulation - Viewpoint 8
 (View from Alston-Mayger Road)
 Millennium Bulk Terminals—Longview

Existing Conditions Photograph - Viewpoint 10



Proposed Action Visual Simulation - Viewpoint 10



Visible Project Area and Proposed Docks

Visual Simulation Viewpoint 10
 Field of View = 54 degrees
 Image Width = 8 inches
 Zoom = 50%
 True View Distance = 15.8" inches

- Notes:
1. Existing Conditions photographs taken with Nikon D-70 (50mm lens) and panorama photomerged using Photoshop CSS.
 2. Visual Simulation is based on 3D model and AutoCAD files provided by MBLT.
 3. Visual Simulation created with AutoCAD, Sketchup Pro, Google Earth and Photoshop CSS.

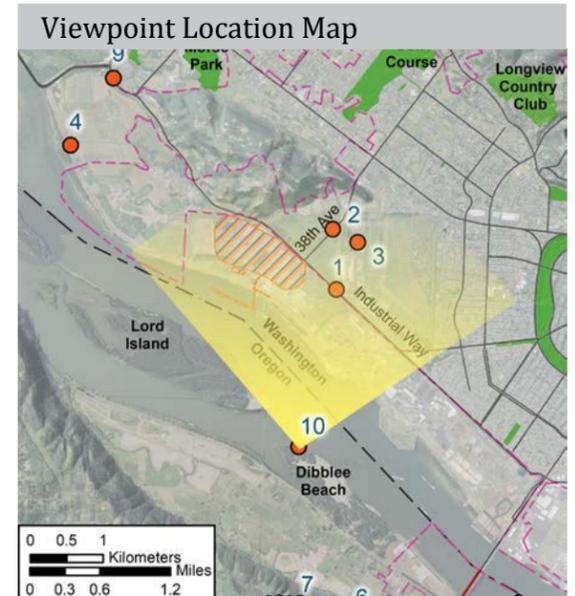


Figure A-17
 Proposed Action Visual Simulation - Viewpoint 10
 (View from Dibblee Beach)
 Millennium Bulk Terminals—Longview