

3.3 Aesthetics, Light, and Glare

The aesthetic value of an area is based on the visual character and quality of the natural and human-made features of the site. It is also a function of viewers' perceptions of these features, which can vary according to how sensitive the viewer is and how much they are exposed to certain views. In a developed area, light and glare can also affect the visual landscape by detracting from the aesthetic quality and by interfering with adjacent land uses. For example, increased nighttime lighting can be a nuisance to adjacent residents if the lighting is bright enough.

This section describes the aesthetics, light, and glare in the study area. It then describes impacts on aesthetics that could result from construction and operation of the Proposed Action and under the No-Action Alternative. This section also presents the measures identified to mitigate impacts resulting from the Proposed Action.

3.3.1 Regulatory Setting

No federal, state, or local laws or regulations pertaining to aesthetics, light, and glare apply to the Proposed Action.

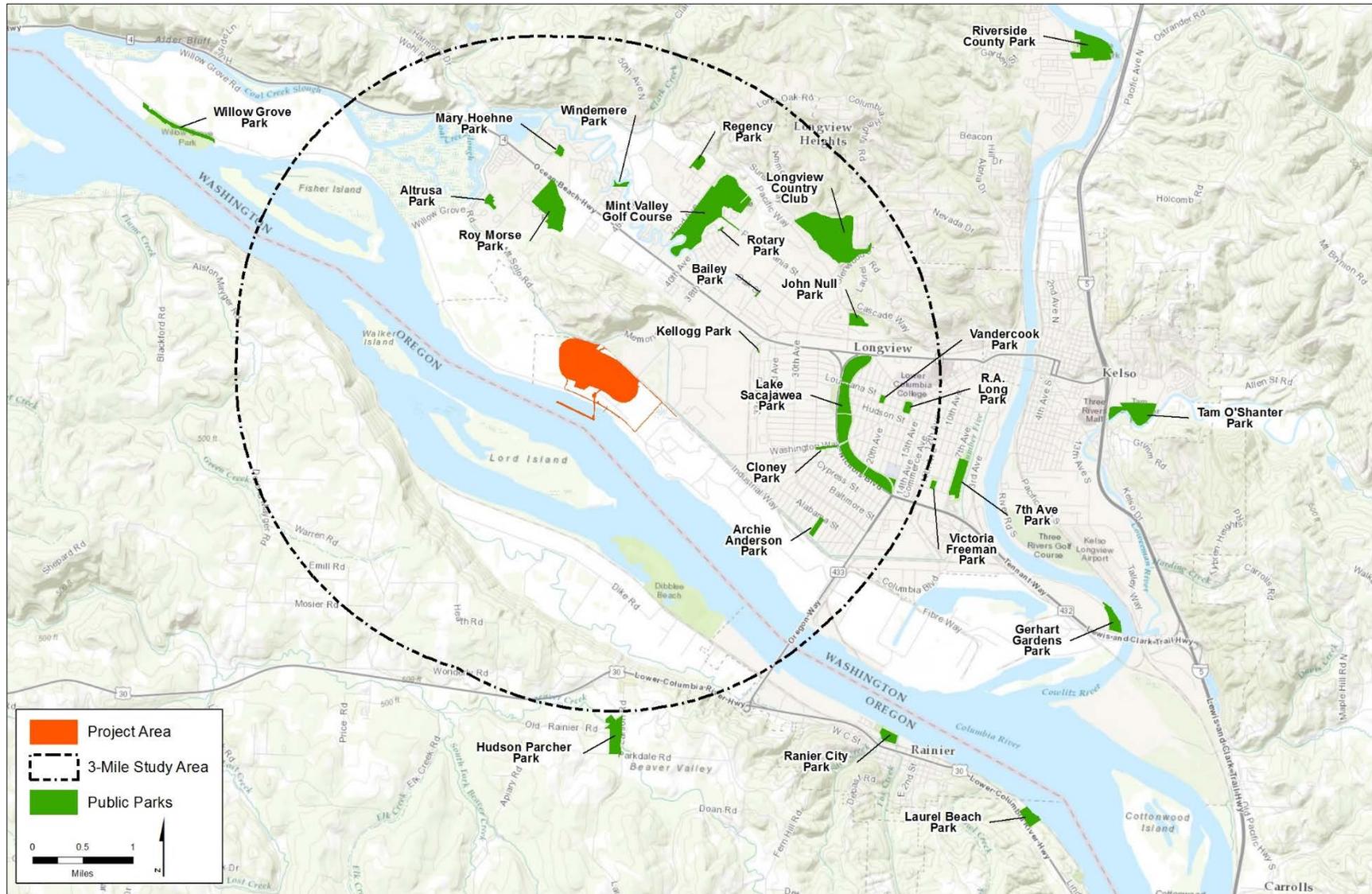
3.3.2 Study Area

The study area for aesthetics, light, and glare is the area within visual range of the project area for the Proposed Action. This study area encompasses ground-based locations from which the activities and structures on the project area could be observed in detail (Bureau of Land Management 1986). The Proposed Action would be observable by viewers at ground-based locations within approximately 3 miles of the project area. Beyond 3 miles, the Proposed Action would blend into the visual background and be obscured by the area's topography, vegetation, and built environment. The study area is, therefore, defined as the area within a 3-mile radius of the project area (Figure 3.3-1).

3.3.3 Methods

This section describes the sources of information and methods used to evaluate the potential impacts on aesthetics associated with the construction and operation of the Proposed Action and No-Action Alternative.

Figure 3.3-1. Study Area for Aesthetics, Light, and Glare



3.3.3.1 Information Sources

The following sources of information were used to identify the potential impacts of the Proposed Action and No-Action Alternative on aesthetics in the study area.

- *Landscape Aesthetics, A Handbook for Scenery Management* (U.S. Forest Service 1995)
- *Visual Impact Assessment for Highway Projects* (Federal Highway Administration 1988)
- *The Visual Resource Management System* (Bureau of Land Management 1986)

Although 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, the visual impact assessment methods they contain were appropriate to inform the methods used in this section.

3.3.3.2 Impact Analysis

Visual impact assessments are based on evaluations of visual quality and viewer sensitivity. Viewer sensitivity is considered in the context of reasonable expectations for views of a heavily industrialized area. The following levels of impact were used to assess visual impacts.

- **High level of impact (H).** Operations, buildings, or other structures would be highly visible to a large number of sensitive viewers and would affect the visual quality of the landscape negatively.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 would 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.

The following process was used to evaluate the potential impacts of the Proposed Action and No-Action Alternative for aesthetics.

1. Define the viewshed area.
2. Determine the key viewpoints of the project area.
3. Determine the types of viewers or viewer groups with views of the project area and their relative sensitivity to the changes in aesthetic conditions.
4. Prepare visual simulations of the Proposed Action.

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 in 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.

The methods for each step are summarized in this section. The *SEPA Aesthetics, Light, and Glare Technical Report* (ICF International and BergerABAM 2016) provides a full discussion of each step.

Define the Viewshed

A viewshed is the area within visual range of a given viewpoint (i.e., the viewer's location) which is defined by the regional physiography, vegetation, and built environment. The viewshed from which aesthetic changes on the project area could be experienced was determined by consulting city and county maps, U.S. Geological Survey quadrangle maps, project maps, and aerial and project area photographs. These helped to show which large-scale physiographic features in the study area influence views of the project area and define the visual environment. A digital elevation model was then used to identify the viewshed of the project area for the Proposed Action based on topographic screening (excluding vegetation) (Figure 3.3-2). Viewpoints were selected within the viewshed. As shown in Figure 3.3-2, 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 the topography, of Mount Solo.

The viewshed determination is a screening-level assessment that accounts only for topography in determining which locations may have views of the project area. The selection of the viewpoints themselves accounts for vegetation and the built environment.

Determine Key Viewpoints

Eleven viewpoints were identified from which views of the project area could be altered by the Proposed Action (Figure 3.3-3).

The assessment involved verifying views at each viewpoint and using a high-resolution digital single-lens reflex camera with a 50-millimeter lens to take daytime and nighttime photographs. A sequence of photographs was taken at the height of an average viewer's eye (5 feet 5 inches above ground level) and digitally grouped together to form panoramas to approximate what the human eye would see at each viewpoint. Based on the existing land uses and environmental conditions at the viewpoints, the assessment classified views of the project area into three categories: urban and industrial, rural and residential, and natural views.

- **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 housing, 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.

Figure 3.3-2. Viewshed Determination

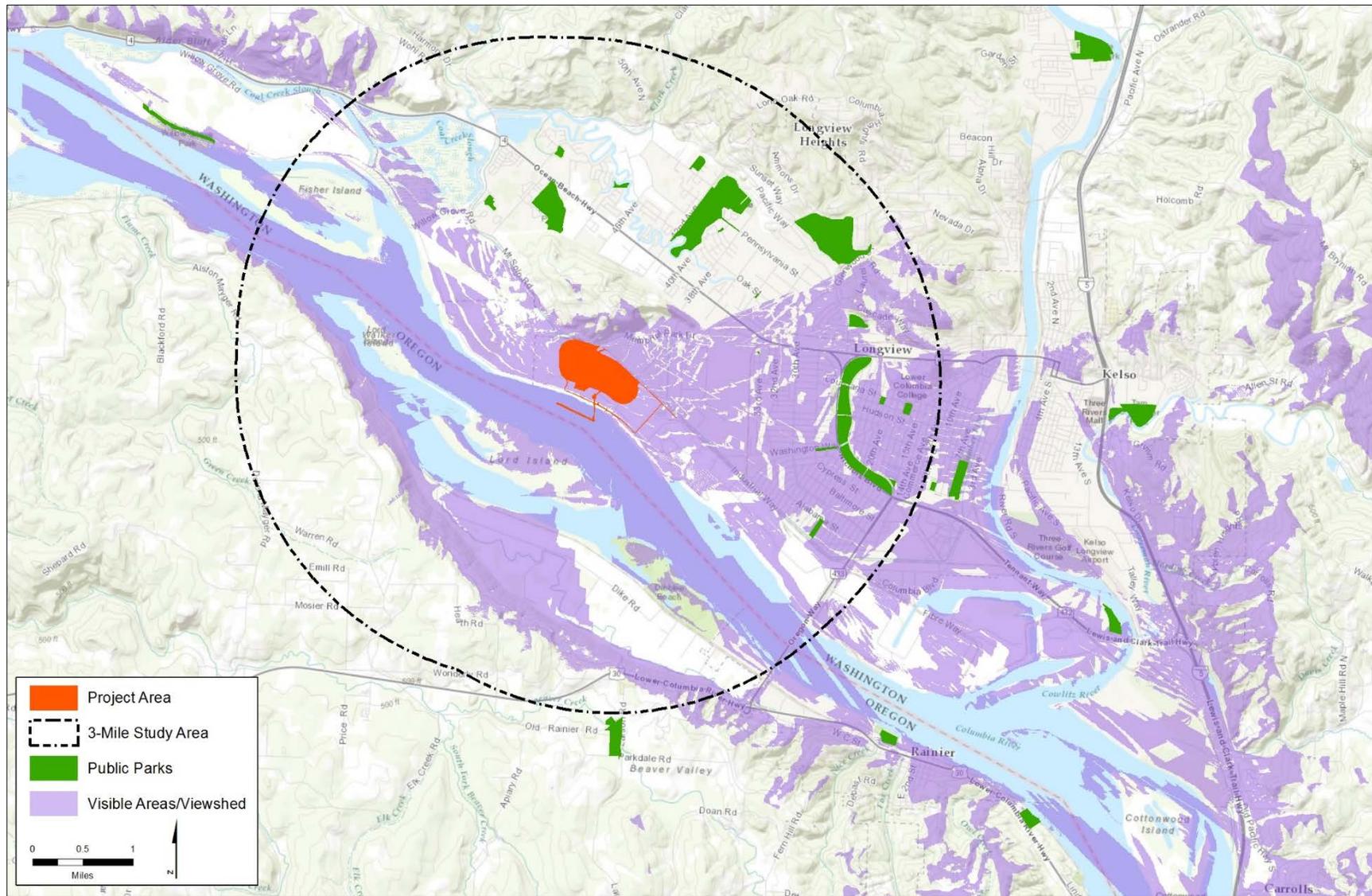
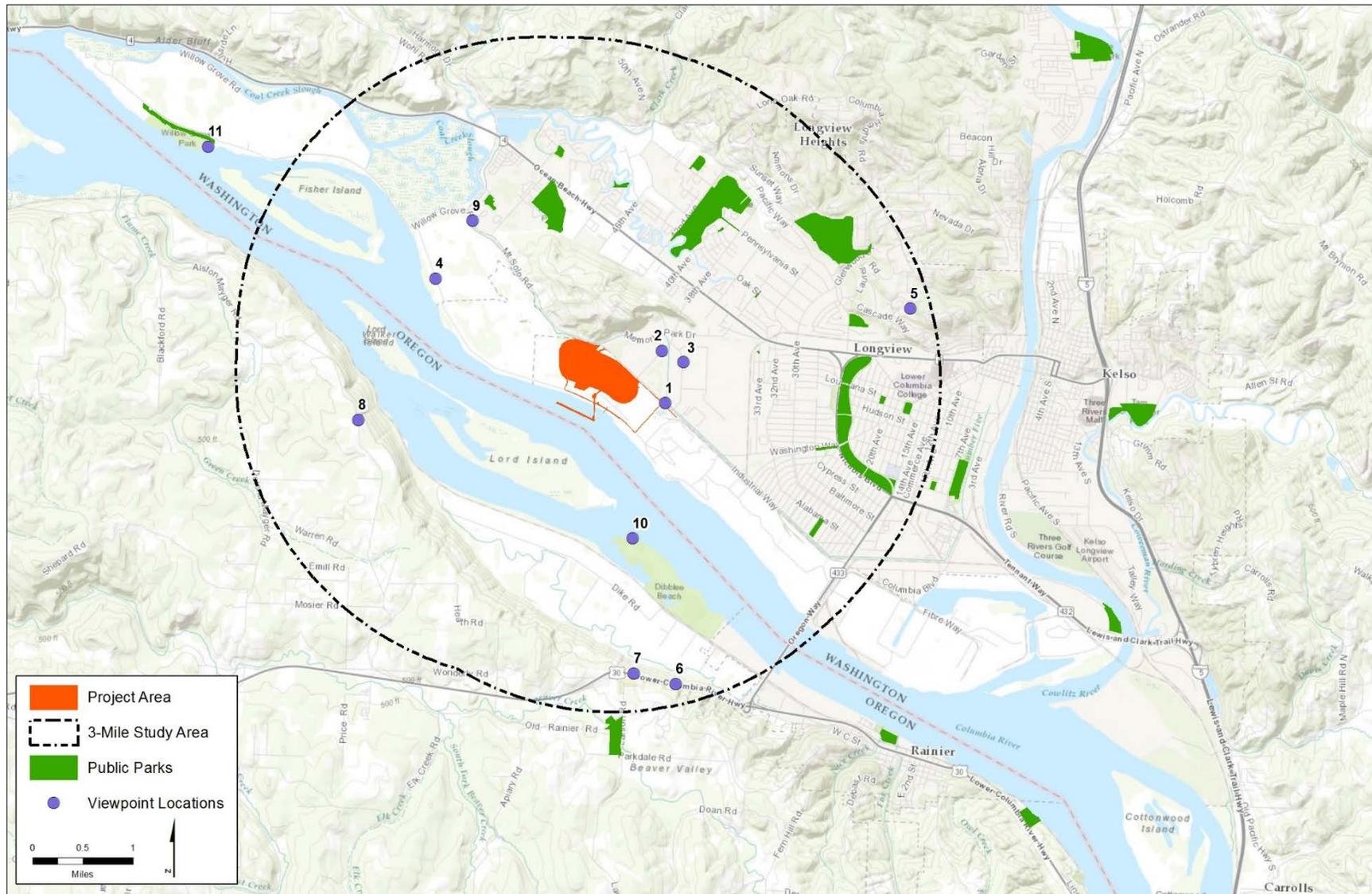


Figure 3.3-3. Viewpoint Locations



Determine Viewer Groups and Viewer Sensitivity

Viewer sensitivity is the measure of the 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 the available views of the landscape and buildings, the construction and demolition of structures, operational equipment, and emissions.

The effects of these 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 as follows.

- **Types of users.** Based on the viewpoint locations, the types of viewers who see the project area can be generally characterized as residents, workers, travelers, and recreationalists. Visual perception and sensitivity vary between types of users. Residents or recreational sightseers could be highly sensitive to any changes, while those in a work setting, such as industrial, manufacturing, or warehouse workers, could 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.** 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 could 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 context with which the proposed uses and facilities could be compatible or in conflict.

Prepare Visual Simulations

To assess the impacts of the Proposed Action on aesthetics and visual quality, visual simulations were prepared to illustrate how it would appear if constructed. The visual simulations were developed using existing conditions photographs from each of the viewpoints and a three-dimensional model of the project area and surrounding area. The completed visual simulations show the visual change associated each action alternative through "before and after" images. No other photo editing or touch-up work was done to the simulations. The visual simulation task and analysis provided the basis for the visual assessment (*SEPA Aesthetics, Light, and Glare Technical Report*).

3.3.4 Existing Conditions

This section describes the existing environmental conditions in the study area related to aesthetics that could be affected by the construction and operation of the Proposed Action and the No-Action Alternative.

The Applicant's leased area was originally a floodplain that supported wetland and shoreline habitats used by wildlife, birds, and people. Industrial use dates back to 1941. Today, the Applicant uses an area adjoining the project area (within the leased area) as a bulk product 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. 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.

Adjacent land uses include those in the leased 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 northwest of the project area within the city limits of Longview. 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 between the project area and 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.

3.3.4.1 Viewshed

The project area and most of Longview and Kelso, along with rural areas south of the Columbia River, lie in the Columbia River floodplain. The floodplain affords wide views of the Columbia River and surrounding area because of its flat topography and limited landform interruptions, and is a defining feature of the affected viewshed. The extent of the flat floodplain varies based on the proximity of hillsides to the 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 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.

From the project area, downtown Longview is approximately 3 miles east, Kelso is approximately 5 miles east along the Cowlitz River, and Rainier, Oregon, is approximately 4 miles upriver (southeast) 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 main line rail operated by BNSF Railway Company (BNSF). The Lewis and Clark Bridge (State Route 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 within Longview city limits or unincorporated Cowlitz County and are at least 1 mile away from the project area.

There are numerous recreational opportunities and sites in 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, two major recreational trails pass through the study area: the 146-mile Lower Columbia River Water Trail, which extends from Bonneville Dam to the mouth of the Columbia River, and the Lewis and Clark National Historic Trail.

Cowlitz County owns 21 parks and boat launches within 10 miles of the project area and the City of Longview, which adjoins the project area, administers 33 recreational facilities including 17 public parks (URS Corporation 2014). 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. Dibblee Beach, an undeveloped recreational area, is located on the south shore of the Columbia River, directly southeast of the project area. Lord and Walker Islands are 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 agricultural land.

3.3.4.2 Viewer Groups and Key Viewpoints

The following sections describe viewer sensitivity and associated key viewpoints for the types of views identified: urban and industrial views, rural and residential views, and natural views. These types of views are described in more detail below. Eleven key viewpoints from which views of the Proposed Action project area could be affected were identified (Table 3.3-1).

Table 3.3-1. Viewpoints, Viewer Sensitivity, and Existing Visual Quality

View-point	View	Viewer Sensitivity	Viewer Description	Type
1	Looking west on Industrial Way	Low	Industrial workers and commuters traveling 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

View-point	View	Viewer Sensitivity	Viewer Description	Type
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 could be of long duration and viewers could have a high sensitivity to change.	Rural/ Residential
5	Looking southwest from Hillside Residential (from Alexia Court)	High	Residents and travelers on 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 could 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 would 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
10	Looking north from Dibblee Beach	High	Public beach and on-water recreationalists looking north toward the project area. Infrequent, short-duration views of the project area, but viewers could 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 could experience varying views of the project area.	Natural

Urban and Industrial Views

The typical viewers in this area are assumed to be 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 dominate the landscape character. Artificial lighting is common throughout

the industrial area and clearly defines the extent of the heavy industrial area at night. The concentration of similar facilities and land uses can make changes in nighttime lighting difficult to discern.

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) on 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 existing large-scale industrial facilities, high-voltage electrical transmission lines, electrical substations, and plumes of industrial emissions may or may not be clearly discernible.

Individual sites and uses are more difficult to discern within the surrounding industrial landscape when viewed from longer distances. For example, a viewer at the Hillside Residential viewpoint (Viewpoint 5) is located approximately 3 miles northeast of the project area; from this view, it would be difficult to identify 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.

Natural Views

The typical viewers in natural areas are 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 two recreational trails pass through the study area. Dibblee Beach offers public beach and water access, fishing, swimming, picnicking, sunbathing, 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 generally 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 being used 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; it is unlikely that they would focus on changes to the project area.

Key Viewpoints

Table 3.3-1 lists the viewpoints and summarizes the levels of viewer sensitivity, and the existing visual quality of each viewpoint as they relate to the Proposed Action. The *SEPA Aesthetics, Light, and Glare Technical Report* provides a detailed discussion of each viewpoint. Appendix G, *Viewpoints for Aesthetics, Light, and Glare Analysis*, describes the viewpoints and show the existing views from each viewpoint.

3.3.5 Impacts

This section describes the potential direct and indirect impacts related to aesthetics, light, and glare that would result from construction and operation of the Proposed Action and the No-Action Alternative.

This section describes and illustrates the impacts associated with each viewpoint for the Proposed Action and the No-Action Alternative. Impacts on the visual quality of the study area would vary depending on the location of the viewer, the sensitivity of the viewer, the duration of the view, and the operational practices at each project area.

3.3.5.1 Proposed Action

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 in Section 3.3.3, *Methods*.

Construction—Direct Impacts

As explained in Chapter 2, *Project Objectives, Proposed Action, and Alternatives*, construction-related activities include demolishing existing structures and preparing the site, constructing the rail loop and dock, and constructing supporting infrastructure (i.e., conveyors and transfer towers).

Construction of the Proposed Action would begin with demolishing the existing cable plant and pottle buildings and ancillary structures and facilities. 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. A rolling preload of material would be used to improve the load-bearing capacity of the soils (i.e., one stockpile pad at a time would be preloaded). Preloading material would be placed in a pile approximately 35 feet high covering the area of the berm and adjacent stockpile pads and would be left in place until soil consolidation is achieved. Following consolidation, preloading material would be moved to another berm and stockpile pad location, with supplementary import material added to achieve a pile approximately 35 feet high. The process would be repeated at each berm and stockpile location until soil consolidation is achieved across the entire stockpile area. Ground improvement would occur progressively and would take up to 7 years to complete. 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. 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.

Construction-related activities associated with the Proposed Action could result in direct impacts as described below.

Change Visual Features of Project Area

Construction activities in 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 could 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 (Appendix G, *Viewpoints for Aesthetics, Light, and Glare Analysis*) to perceive noticeable changes during construction. Construction of the Proposed Action would result in a low level of impact on visual quality.

The Applicant anticipates that construction activities would occur primarily during daylight hours. Therefore, construction of the Proposed Action would not result in adverse impacts related to light and glare.

Construction—Indirect Impacts

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

Operations—Direct Impacts

Operations-related activities are described in Chapter 2, *Project Objectives, Proposed Action, and Objectives*. The Proposed Action would consist of one operating rail track, eight rail tracks for storing up to 8 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 ship-loading facilities on the two docks. Coal would be unloaded from rail cars, stockpiled and blended, and loaded by conveyor onto ocean-going vessels at two new docks for export. Coal would be stacked to approximately 85 feet above the pads in the project area. Vehicles would access the project area from Industrial Way, and vessels would access the project area via the Columbia River and berth at one of the two new docks. Terminal operations would occur 24 hours per day, 7 days per week.

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 would be similar to nearby heavy industrial developments and the facility would be visually compatible with the surrounding industrial uses.

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 lighting ranging from low-level lighting for general area lighting (e.g., streetlights) to high-intensity, spot-level lighting (e.g., lighting on the docks at night).

- **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 high) 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 3.3-2 summarizes the proposed operational areas and light conditions. Figure 3.3-4 identifies the operational areas discussed in the table.

Table 3.3-2. Proposed Operational Areas and Lighting

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.

Area	Function	Level of Lighting	Type of Lighting^a
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.
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:

^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. Source: Millennium Bulk Terminals—Longview 2014b

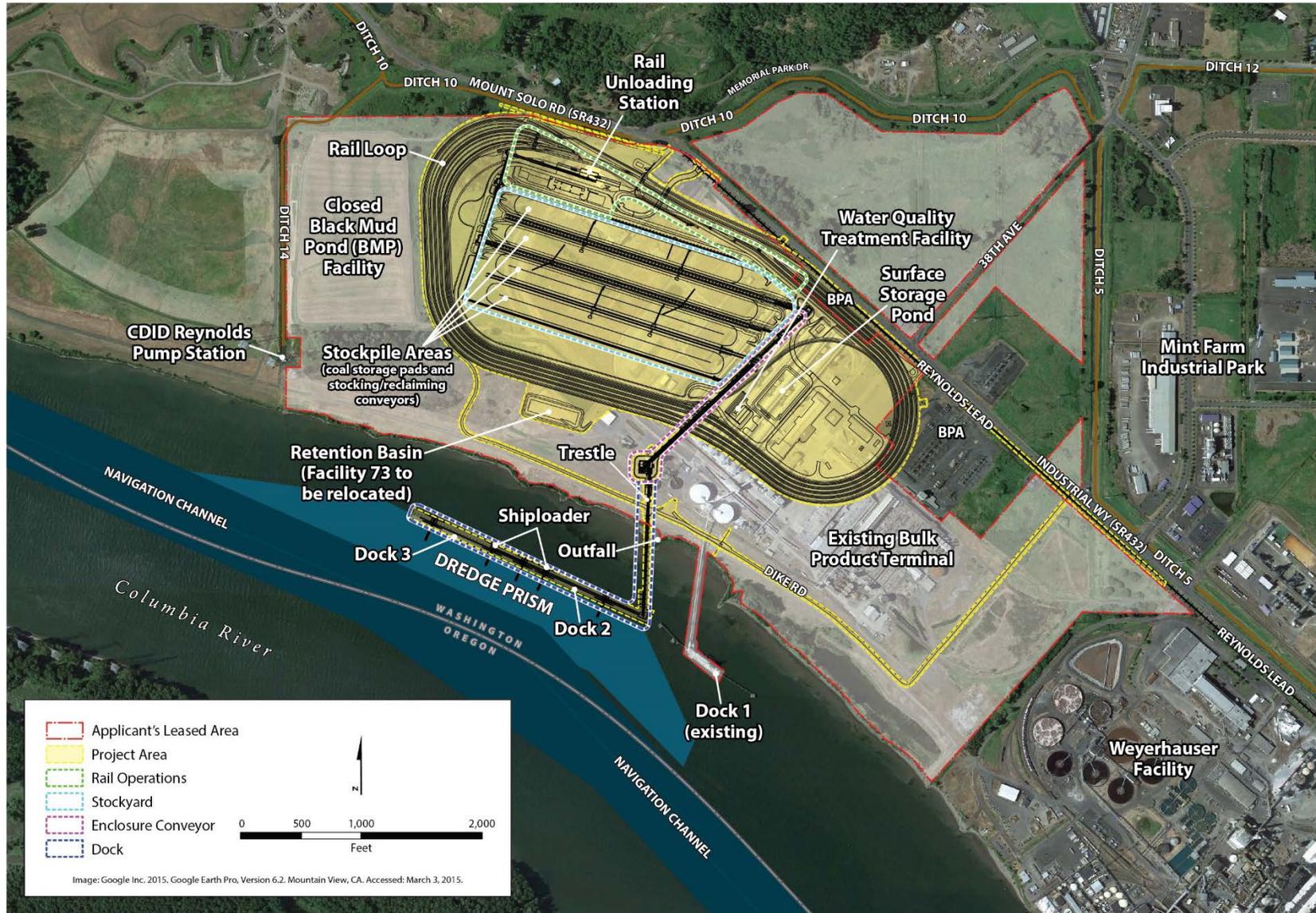
Operation of the Proposed Action would result in the following direct impacts.

Urban and Industrial Views

Change Visual Features of Project Area

Operation of the Proposed Action would introduce new visual features to the project area. 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 also 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.

Figure 3.3-4. Proposed Operational Areas



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, straight-line potline 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. Appendix G, *Viewpoints for Aesthetics, Light, and Glare Analysis*, of this Draft EIS provides 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. The extent and concentration of similar heavy industrial operations facilities and land uses would make changes in nighttime lighting in 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. Also, 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 industrial 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 general sensitivity of workers at adjacent facilities is 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 3.3-3 summarizes the visual, light and glare, and viewer impacts from Viewpoints 1, 2, and 3 for photo simulations of Viewpoints 1 and 2.

**Table 3.3-3. 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 would be screened by vegetation. Some structures and facilities could 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.

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. Views of the shoreline would be obstructed by the proposed docks, which would be up to 2,300 feet long.

Appendix G, *Viewpoints for Aesthetics, Light, and Glare Analysis*, presents the photo simulations for Viewpoints 5, 6, and 8.

The scale of the proposed docks, vessels, ship loaders, 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. 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 could 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 impact to low impact.

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 3.3-4 provides a summary of visual, light and glare, and viewer impacts from Viewpoints 4 through 9 (Appendix G, *Viewpoints for Aesthetics, Light, and Glare Analysis*).

Table 3.3-4. Visual, Light and Glare, and Viewer Impacts (Viewpoints 4 through 9)—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 or completely blocked by vegetation and Mount Solo. Light sources could 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 single facility expected to dominate views. Lighting for dock facilities could be visible and reflected by Columbia River while vessels are arriving, departing, or being loaded.	13,390– 14,980	L	L	L

View-point	View	Distance (feet)^a	Visual Impact	Light & Glare Impact	Viewer Impact
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 could 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 is 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, US 30 = U.S. Route 30

Natural Views

Change Visual Features of Project Area

The proposed docks, ship loaders, 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. The 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 level of impact on views from Viewpoint 10 because it would introduce operations, buildings, and structures that would be visible to sensitive viewers, but would be consistent with adjacent land uses.

Appendix G, *Viewpoints for Aesthetics, Light, and Glare Analysis*, 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 (Section 3.3.7.2, *Applicant Mitigation*) 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. 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 (Section 3.3.7.2, *Applicant Mitigation*) 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 would result in a moderate level of impact on viewers' visual perceptions from Viewpoint 10. Proposed mitigation (Section 3.3.7.2, *Applicant Mitigation*) would minimize would minimize the moderate level of impacts on viewers from Viewpoint 10.

Table 3.3-5 summarizes the visual, light and glare, and viewer impacts from Viewpoints 10 and 11. Appendix G, *Viewpoints for Aesthetics, Light, and Glare Analysis*, provides a photo simulation of Viewpoint 10.

Table 3.3-5. 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 could 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 could be visible and reflected by Columbia River while vessels are arriving, departing, or being loaded.	6,500	M	M	M

View-point	View	Distance (feet)^a	Visual Impact	Light & Glare Impact	Viewer Impact
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 could 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.

M = moderate level of impact; N = no impact

Operations—Indirect Impacts

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

3.3.5.2 No-Action Alternative

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

Construction—Direct Impacts

Operation 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 could 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 product 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; therefore, recreational viewers on the Columbia River (Viewpoint 10) would not be affected. It is expected that construction of the

No-Action Alternative would occur primarily during daylight hours. Therefore, construction of the No-Action Alternative would not result in impacts related to light and glare.

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

Construction—Indirect Impacts

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

Operations—Direct Impacts

Operation of the No-Action Alternative would result in the following direct impacts on aesthetics and visual quality.

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, the 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 change the project area's existing visual attributes substantially, 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 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.

Operations—Indirect Impacts

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

3.3.6 Required Permits

No permits related to aesthetics, light, and glare would be required for the Proposed Action.

3.3.7 Potential Mitigation Measures

This section describes the mitigation measures that would reduce impacts related to aesthetics, light, and glare from construction and operation of the Proposed Action. These mitigation measures would be implemented in addition to project design measures, best management practices, and compliance with environmental permits, plans, and authorizations that are assumed as part of the Proposed Action.

3.3.7.1 Voluntary Mitigation

The Applicant has committed to implementing the following measures to mitigate impacts on aesthetics.

- Typical industrial lighting would be provided and installed in a manner to prevent light and glare from spilling from the site.
- Night lighting would be restricted to the minimum required for operational and safety requirements and would be directed away from roads and sensitive viewpoints, where practicable.
- Light shields would be used to limit the spill of lighting where practicable.

3.3.7.2 Applicant Mitigation

Implementing the following mitigation measure would reduce aesthetics impacts associated with the Proposed Action.

MM ALG-1. Modify Lighting and Appearance of Facility Surfaces to Minimize Visual Impacts

To minimize the aesthetic, light, and glare impacts, the Applicant will:

- Use directional lighting with full box cut-off fixtures, or equivalent, where practicable and feasible.
- Use neutral colors for non-safety-related structures and equipment.

- Use nonreflecting materials and finishes, where practicable and feasible.
- Use motion- or user-controlled light systems, where practicable and feasible.

3.3.8 Unavoidable and Significant Adverse Environmental Impacts

Implementation of mitigation measures identified above would reduce impacts on aesthetics. There would be no unavoidable and significant adverse environmental impacts on aesthetics.