

**Millennium Bulk Terminals—Longview**  
**Proposed Export Terminal Stages of Construction and Operations: On-Site Alternative**

**TABLE 1. Start of Stage 1 Construction/No Operations: On-Site Alternative**

**Stage of Construction/Operations:** Stage 1a Construction/No Operations

**Description:** Start of Stage 1 Construction

**Timing:** 0–1.5 years (18 months) from the start of construction

**Approximate Years:**<sup>1</sup> 2018–2020

**Throughput Capacity:** 0 MMTPY<sup>2</sup>

Stage 1a Construction	
Project Component	Activity
Number of Construction Workers	<ul style="list-style-type: none"> <li>• Approximately 200,000 construction labor hours would be required with a peak work force of 150-200 construction workers over an approximate 15 - 18 month time period</li> </ul>
Construction Trips	<ul style="list-style-type: none"> <li>• Total construction trips are dependent on how material is imported during preloading activities (numbers below are combined for preloading activities during Stage 1 and Stage 2):               <ul style="list-style-type: none"> <li>○ If all material is imported by truck: approximately 88,000 loaded truck trips over an approximate 5-year period with the majority of the truck trips occurring during the first 1 to 2 years (Stage 1).</li> <li>○ If all material is imported by rail: approximately 35,000 loaded railcars over an approximate 5-year period with the majority of the railcars received during the first 1 to 2 years (Stage 1).</li> <li>○ If all material is imported by barge: approximately 1,130 barge trips over an approximate 5-year period with the majority of the barge trips occurring during the first 1 to 2 years (Stage 1)</li> </ul> </li> </ul>
Construction Staging	<ul style="list-style-type: none"> <li>• Demolish existing structures</li> <li>• Prepare site area and make ground improvements/grading</li> <li>• Stockpile area, including preloading for stockpile pads (2 out of 4 stockpile pads would be preloaded during Stage 1 construction).</li> <li>• Coal export terminal start-up facilities               <ul style="list-style-type: none"> <li>○ One shiploader and related conveyors on Dock 2</li> <li>○ Rail car unloading facilities (rapid unloader, bottom dumper)</li> <li>○ Associated facilities and infrastructure (i.e., conveyors, etc.)</li> </ul> </li> <li>• Construct rail loop               <ul style="list-style-type: none"> <li>○ Complete berm for rail tracks</li> <li>○ Install up to 8 rail storage tracks for train parking</li> <li>○ Install 1 operating track</li> </ul> </li> <li>• Conduct dredging in the Columbia River</li> <li>• Construct 2 docks (Docks 2 and 3) and trestle</li> </ul>
Demolition of Existing Structures	<ul style="list-style-type: none"> <li>• Demolish existing cable plant building (approximately 270,000 ft<sup>2</sup>)</li> <li>• Demolish existing potline buildings (approximately 600,000 ft<sup>2</sup>) and some smaller ancillary structures</li> <li>• Duration of approximately 6 months</li> </ul>

<sup>1</sup> Assumes that construction begins 2018

<sup>2</sup> MMTPY = million metric tons per year

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**Throughput Capacity:** 0 MMTPY<sup>2</sup>

Stage 1a Construction	
Project Component	Activity
Site Preparation	<ul style="list-style-type: none"> <li>• Clearing of vegetation</li> <li>• Grading</li> <li>• Earthmoving</li> <li>• Earthworks</li> <li>• Construction of erosion control facilities (including settlement ponds)</li> <li>• Duration of approximately 3 months</li> </ul>
Preloading	<ul style="list-style-type: none"> <li>• Initiation of rolling preload: up to 7 years total for entire stockpile areas (continues through construction of both Stage 1 and Stage 2)</li> <li>• Preloading would commence on 2 of the 4 stockpiling areas</li> <li>• Existing soil conditions would be strengthened to improve load-bearing capacity</li> <li>• Preload material would be imported and wick drains would be installed for ground improvement for the stockyard area</li> <li>• Preload material would be placed in a pile approximately 35 feet high covering the area of the berm and adjacent stockpile pad(s)</li> <li>• Process would be repeated at each berm and stockpile location until soil consolidation is achieved across the complete stockyard</li> <li>• Groundwater expelled through the wick drains would be collected, treated, and discharged to the Columbia River</li> <li>• Excess preload material would be used on site, stockpiled, or removed from the area</li> <li>• Approximately 2.1 million cubic yards of preload material would be imported (Stage 1 and Stage 2)</li> <li>• Approximately 2.5 million cubic yards of material would be moved around the project area (Stage 1 and Stage 2)</li> </ul>
Construction/Installation of Export Terminal Equipment	<ul style="list-style-type: none"> <li>• Coal would not be stockpiled during any stage of construction</li> <li>• Installation of plant and equipment for start-up operations would include:               <ul style="list-style-type: none"> <li>○ One operating track</li> <li>○ Up to 8 rail storage tracks for train parking/staging</li> <li>○ One rapid discharge (bottom) tandem railcar unloader to unload coal for transfer by conveyor to the dock for shiploading; the rail car unloader would be capable of unloading 2 railcars at once.</li> <li>○ Conveyors, buffer bin, and transfer towers, including approximately 4,300 lineal feet of conveyors, of which approximately 1,000 lineal feet would be open conveyors and approximately 3,300 lineal feet would be enclosed</li> <li>○ Dock 2 and Dock 3</li> <li>○ One shiploader on Dock 2</li> <li>○ Support structures, electrical transformers, switchgear and equipment, process control systems, buildings, etc.</li> </ul> </li> </ul>
Rail Loop Construction	<ul style="list-style-type: none"> <li>• Importing and placing of approximately 130,000 cubic yards of ballast rock for the rail foundations</li> <li>• Placement of railroad ties</li> </ul>

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**Stage of Construction/Operations:** Stage 1a Construction/No Operations

**Description:** Start of Stage 1 Construction

**Timing:** 0–1.5 years (18 months) from the start of construction

**Approximate Years:**<sup>1</sup> 2018–2020

**Throughput Capacity:** 0 MMTPY<sup>2</sup>

Stage 1a Construction	
Project Component	Activity
	<ul style="list-style-type: none"> <li>• Laying of steel rail lines</li> <li>• Installation of signaling</li> <li>• Installation of switching equipment</li> <li>• Installation of track lighting</li> <li>• Installation of 1 rapid discharge (bottom) tandem railcar unloader</li> </ul>
Dredging, Trestle, and Dock Construction	<ul style="list-style-type: none"> <li>• Dredging would occur as part of the construction of Docks 2 and 3 (simultaneous with site prep and preload; may require 2 fish windows to complete)</li> <li>• Dredging would remove approximately 500,000 cubic yards of material over a 48-acre area and to a depth of -43 feet Columbia River Datum</li> <li>• Dredging would be required from the river side face of the dock out to the Columbia River navigation channel; the riverbed would be sloped from the dock to the riverbank with a 3H:1V slope</li> <li>• Dock and trestle construction would include pile driving of approximately 630 36-inch-diameter steel pipe piles, 610 of which would be installed in aquatic areas below ordinary high water</li> <li>• Piling would be driven to a depth of approximately 140 to 165 feet below the mudline</li> <li>• Dredge spoils will be disposed of adjacent to the navigation channel between approximately river mile 60 and 66</li> <li>• Approximately 225 linear feet (125 feet and 100 feet, respectively) of the existing west and east pile dikes would be removed</li> </ul>

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**TABLE 2. Continuation of Stage 1 Construction/Stage 1 Start-Up Operations: On-Site Alternative**  
**Stage of Construction/Operations:** Stage 1b Construction and Start-Up Operations  
**Description:** Continuation of Stage 1 construction through completion of Stage 1 construction and start-up operations  
**Timing:** 0–3 years from the start of construction  
**Approximate Years<sup>1</sup>:** 2018–2021  
**Throughput Capacity:** 5 to 10 MMTPY<sup>2</sup>

Stage 1b Construction		Start-Up Operations	
Project Component	Activity	Project Component	Activity
N/A	N/A	Number of Trains	Arrival of coal by rail: <ul style="list-style-type: none"> <li>Up to 10 MMTPY throughput capacity</li> <li>Up to 60 unit trains arriving and departing monthly</li> </ul>
N/A	N/A	Number of Vessels	Transfer of coal to ship: <ul style="list-style-type: none"> <li>Up to 10 MMTPY throughout capacity</li> <li>Up to 15 ships loaded monthly (80% Panamax, 20% Handymax)</li> </ul>
Number of Construction Workers	<ul style="list-style-type: none"> <li>Approximately 500,000 construction labor hours with a peak work force of 150-200 construction workers over an approximate 3-1/2 year period</li> </ul>	Number of Employees	<ul style="list-style-type: none"> <li>60 employees required</li> </ul>
Construction Trips	<ul style="list-style-type: none"> <li>Construction trips are dependent on how material is imported during preloading activities (numbers below are combined for preloading activities during Stage 1 and Stage 2): <ul style="list-style-type: none"> <li>If all material is imported by truck: approximately 88,000 loaded truck trips over an approximate 5-year period with the majority of the truck trips occurring during the first 1 to 2 years (Stage 1)</li> <li>If all material is imported by rail: approximately 35,000 loaded railcars over an approximate 5-year period with the majority of the railcars received during the first 1 to 2 years (Stage 1)</li> <li>If all material is imported by barge: approximately 1,130 barge trips over an approximate 5-year period with the majority of the barge trips occurring during the first 1 to 2 years (Stage 1)</li> </ul> </li> </ul>	N/A	—

<sup>1</sup> Assumes that construction begins 2018

<sup>2</sup> MMTPY = million metric tons per year

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**Stage of Construction/Operations:** Stage 1b Construction and Start-Up Operations

**Description:** Continuation of Stage 1 construction through completion of Stage 1 construction and start-up operations

**Timing:** 0–3 years from the start of construction

**Approximate Years<sup>1</sup>:** 2018–2021

**Throughput Capacity:** 5 to 10 MMTPY<sup>2</sup>

Stage 1b Construction		Start-Up Operations	
Project Component	Activity	Project Component	Activity
Construction/Installation of Export Terminal Equipment	<p>Coal would not be stockpiled during any stage of construction. Would include the installation of additional facilities and equipment not installed during the start of Stage 1a construction:</p> <ul style="list-style-type: none"> <li>• Tandem rotary unloading facility (capable of unloading 2 rail cars)</li> <li>• Three berms (for stackers and reclaimers)</li> <li>• Water management facilities</li> <li>• Two stackers</li> <li>• Two reclaimers</li> <li>• Conveyors, buffer bin, and transfer towers, including approximately 16,100 lineal feet of conveyors, of which approximately 11,200 lineal feet would be open conveyors and approximately 4,900 lineal feet would be enclosed</li> <li>• Support structures, electrical transformers, switchgear and equipment, process control systems, buildings, etc.</li> </ul> <p>Completion of Stage 1 construction would result in a nominal throughput capacity of up to 25 MMTPY</p>	Rail Cars/Trains	<ul style="list-style-type: none"> <li>• Inbound and outbound trains would be staged on site on up to eight available storage tracks</li> <li>• Rail car unloading operations would use the operating track and the rapid discharge (bottom) unloaders</li> <li>• Up to 60 unit trains would arrive and depart monthly</li> </ul>
		Rail Car Unloading	<ul style="list-style-type: none"> <li>• No stockpiling of coal; coal would be delivered directly from the rail cars to the shiploader by way of a rapid discharge unloading facility and interconnecting conveyors</li> </ul>
		Water Management Facilities	<ul style="list-style-type: none"> <li>• Water collection, conveyance, treatment, reuse, or discharge</li> </ul>
—	—	Shiploading	<ul style="list-style-type: none"> <li>• Ship loading would be performed using a single electrical-powered traveling shiploader installed on Dock 2</li> <li>• The shiploader would have an average capacity of 6,500 metric tons per hour</li> </ul>
		Shipping	<ul style="list-style-type: none"> <li>• Up to 15 ships per month (80% Panamax, 20% Handymax) would be loaded</li> </ul>
		Ship Bunkering Crew Supplies	<ul style="list-style-type: none"> <li>• These activities would not be allowed or provided for at the dock</li> </ul>

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**Stage of Construction/Operations:** Stage 1b Construction and Start-Up Operations

**Description:** Continuation of Stage 1 construction through completion of Stage 1 construction and start-up operations

**Timing:** 0–3 years from the start of construction

**Approximate Years<sup>1</sup>:** 2018–2021

**Throughput Capacity:** 5 to 10 MMTPY<sup>2</sup>

Stage 1b Construction		Start-Up Operations	
<u>Project Component</u>	<u>Activity</u>	<u>Project Component</u>	<u>Activity</u>
		Equipment	<ul style="list-style-type: none"> <li>• Equipment needed to maintain the terminal would include               <ul style="list-style-type: none"> <li>○ wheel loaders</li> <li>○ cranes</li> <li>○ forklifts</li> <li>○ trucks</li> <li>○ welders</li> <li>○ pumps and other similar equipment</li> </ul> </li> </ul>

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**TABLE 3. Stage 2 Construction/Stage 1 Operations: On-Site Alternative**

**Stage of Construction/Operations:** Stage 2 Construction/Increased Operations

**Description:** Stage 2 Construction and increased operations through completion of Stage 2 construction

**Timing:** 4–6 years from the start of construction

**Approximate Years<sup>1</sup>:** 2022–2024

**Throughput Capacity:** Up to 25 MMTPY<sup>2</sup>

Stage 2 Construction		Increased Operations	
<u>Project Component</u>	<u>Activity</u>	<u>Project Component</u>	<u>Activity</u>
N/A	N/A	Number of Trains	Arrival of coal by rail: <ul style="list-style-type: none"> <li>Up to 25 MMTPY throughput capacity</li> <li>An average of 150 unit trains arriving and departing monthly</li> </ul>
N/A	N/A	Number of Vessels	Transfer of coal to ship: <ul style="list-style-type: none"> <li>Up to 25 MMTPY throughput capacity</li> <li>Total average of 40 ships loaded monthly (80% Panamax, 20% Handymax)</li> </ul>
Number of Construction Workers	<ul style="list-style-type: none"> <li>Approximately 300,000 construction labor hours would be required over an approximately 2 year duration, with a peak work force of 75-100 construction workers; total of 1,350 construction workers (combined number of workers for all construction activities associated with Stage 1 and Stage 2)</li> </ul>	Number of Employees	<ul style="list-style-type: none"> <li>115 employees required</li> </ul>
Construction Trips	<ul style="list-style-type: none"> <li>Construction trips are dependent on how material is imported during preloading activities (numbers below are combined for preloading activities during Stage 1 and Stage 2 Construction): <ul style="list-style-type: none"> <li>If all material is imported by truck: approximately 88,000 loaded truck trips over an approximate 5-year period with the majority of the truck trips occurring during the first 1 to 2 years (Stage 1).</li> <li>If all material is imported by rail: approximately 35,000 loaded railcars over an approximate 5-year period with the majority of the railcars received during the first 1 to 2 years (Stage 1)</li> <li>If all material is imported by barge: approximately 1,130 barge trips over an approximate 5-year period with the majority of the barge trips occurring during the first 1 to 2 years (Stage 1)</li> </ul> </li> </ul>	N/A	—
Construction Staging	<ul style="list-style-type: none"> <li>Associated stockpile pads (preloading for remaining 2 of 4 berms/stockpile pads)</li> <li>Any of the remaining eight rail storage tracks for train parking that were not constructed as part of Stage 1</li> </ul>	Rail Cars/Trains	<ul style="list-style-type: none"> <li>Inbound and outbound trains would be stored on site on up to eight available storage tracks</li> </ul>

<sup>1</sup> Assumes that construction begins 2018

<sup>2</sup> MMTPY = million metric tons per year

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**Description:** Stage 2 Construction and increased operations through completion of Stage 2 construction  
**Timing:** 4–6 years from the start of construction  
**Approximate Years<sup>1</sup>:** 2022–2024  
**Throughput Capacity:** Up to 25 MMTPY<sup>2</sup>

Stage 2 Construction		Increased Operations	
<u>Project Component</u>	<u>Activity</u>	<u>Project Component</u>	<u>Activity</u>
	<ul style="list-style-type: none"> <li>Two additional stackers</li> <li>Two additional reclaimers</li> <li>Conveyors</li> <li>One additional shiploader on Dock 3</li> <li>Equipment necessary to add 19 MMTPY and bring the nominal total throughput up to 44 MMTPY</li> </ul>		<ul style="list-style-type: none"> <li>Rail car unloading operations would use the operating track and rail cars would be unloaded using the tandem rotary unloader</li> <li>An average of 150 unit trains would arrive and depart monthly</li> </ul>
Preloading	<ul style="list-style-type: none"> <li>Remaining 2 of 4 berms/stockpile areas would be preloaded during Stage 2 construction</li> <li>Existing soil conditions would be strengthened to improve load bearing capacity</li> <li>Preload material would be imported and wick drains would be installed for ground improvement for the stockyard area</li> <li>Preload material would be placed in a pile approximately 35 feet high covering the area of the berm and adjacent stockpile pad(s)</li> <li>The preload process would be repeated at each berm and stockpile location until soil consolidation is achieved across the complete stockyard</li> <li>Excess preload material would be used on site, stockpiled, or removed from the site</li> <li>Approximately 2.1 million cubic yards of preload material would be imported (Stage 1 and 2)</li> <li>Approximately 2.5 million cubic yards of material would be moved around the project area (Stage 1 and 2)</li> </ul>	Rail Car Unloading	<ul style="list-style-type: none"> <li>Rail cars would be unloaded by an electrical-powered tandem rotary unloader</li> <li>The terminal would include a mechanical positioner to index the unit into the rotary unloader</li> <li>Coal would be transferred to the stackers via conveyors</li> </ul>



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**TABLE 3. Stage 2 Construction/Stage 1 Operations: On-Site Alternative**  
**Stage of Construction/Operations:** Stage 2 Construction/Increased Operations  
**Description:** Stage 2 Construction and increased operations through completion of Stage 2 construction  
**Timing:** 4–6 years from the start of construction  
**Approximate Years<sup>1</sup>:** 2022–2024  
**Throughput Capacity:** Up to 25 MMTPY<sup>2</sup>

Stage 2 Construction		Increased Operations	
<u>Project Component</u>	<u>Activity</u>	<u>Project Component</u>	<u>Activity</u>
Construction/ Installation of Export Terminal Equipment	Coal would not be stockpiled during any stage of construction. Would include the installation of additional facilities and equipment not installed during Stage 1 construction: <ul style="list-style-type: none"> <li>• The remaining rail storage tracks (total of eight rail storage tracks)</li> <li>• The remaining 2 berms for stackers and reclaimers (total of 5 berms after Stages 1 and 2 construction is complete)</li> <li>• Two stackers (total of up to 4 stackers after Stages 1 and 2 of construction are complete)</li> <li>• Two reclaimers (total of up to 4 reclaimers after Stages 1 and 2 construction are complete)</li> <li>• Conveyors, buffer bin, and transfer towers, including approximately 26,200 lineal feet of conveyors, of which approximately 17,900 lineal feet would be open conveyors and approximately 8,300 lineal feet would be enclosed</li> <li>• One shiploader on Dock 3</li> <li>• Support structures, electrical transformers, switchgear and equipment, buildings, process control equipment, etc.</li> </ul>	Conveyor Systems	<ul style="list-style-type: none"> <li>• Conveyors would transport coal from rail unloading to the stockyard and from the stockyard to the shiploader</li> <li>• Conveyors would be enclosed except where required to feed onto or reclaim from stockpiles or onto the shiploaders</li> <li>• Rail car unloading and shiploading would at times occur both independently and simultaneously</li> <li>• Conveyors would operate for approximately 45% of the available time</li> <li>• Conveyor drives are electrically powered</li> </ul>
		Stockpiling	<ul style="list-style-type: none"> <li>• Two electrical-powered traveling stackers would stockpile coal at an average rate of 7,500 metric tons per hour onto 2 longitudinal stockpiles with an estimated total storage capacity of 750,000 metric tons</li> </ul>
		Reclaiming	<ul style="list-style-type: none"> <li>• Two electrical-powered traveling bucket wheel reclaimers, each with an average rate of 6,500 metric tons per hour, would transfer coal from the stockpile to the shiploading system</li> </ul>
		Shiploading	<ul style="list-style-type: none"> <li>• Would use the shiploader installed for startup operations on Dock 2 only</li> </ul>
		Shipping	<ul style="list-style-type: none"> <li>• Total average of 40 ships per month (80% Panamax, 20% Handymax) would be loaded</li> </ul>
		Equipment	<ul style="list-style-type: none"> <li>• Equipment needed to maintain the terminal would include:               <ul style="list-style-type: none"> <li>○ wheel loaders</li> </ul> </li> </ul>

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**TABLE 3. Stage 2 Construction/Stage 1 Operations: On-Site Alternative**  
**Stage of Construction/Operations:** Stage 2 Construction/Increased Operations  
**Description:** Stage 2 Construction and increased operations through completion of Stage 2 construction  
**Timing:** 4–6 years from the start of construction  
**Approximate Years<sup>1</sup>:** 2022–2024  
**Throughput Capacity:** Up to 25 MMTPY<sup>2</sup>

Stage 2 Construction		Increased Operations	
<u>Project Component</u>	<u>Activity</u>	<u>Project Component</u>	<u>Activity</u>
			<ul style="list-style-type: none"> <li>○ dozers</li> <li>○ cranes</li> <li>○ forklifts</li> <li>○ trucks</li> <li>○ welders</li> <li>○ pumps and other similar equipment</li> </ul>

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**TABLE 4. Construction Complete/Stage 2 Operations (Full Build-Out Operations): On-Site Alternative**

**Stage of Construction/Operations:** Full Build-Out Operations

**Description:** Construction complete and full build-out operations

**Timing:** 6+ years from the start of construction

**Approximate Years<sup>1</sup>:** 2024+

**Throughput Capacity:** Up to 44 MMTPY<sup>2</sup>

Full Build-Out Operations	
Project Component	Activity
Number of Trains	Arrival of coal by rail: <ul style="list-style-type: none"> <li>• Up to 44 MMTPY throughput capacity</li> <li>• Average of 240 unit trains arriving and departing monthly</li> </ul>
Number of Vessels	Transfer of coal to ship: <ul style="list-style-type: none"> <li>• Up to 44 MMTPY throughput capacity</li> <li>• Total average of 70 ships loaded monthly (80% Panamax, 20% Handymax)</li> </ul>
Number of Employees	<ul style="list-style-type: none"> <li>• 135 employees</li> </ul>
Rail Loop	<ul style="list-style-type: none"> <li>• Arrival and departure tracks, with 1 operating turnaround track</li> <li>• Eight storage tracks would allow trains to travel directly onto the site from the Reynolds Lead</li> <li>• Two rail cars at unloading station inside an enclosed facility; both would be rotated at the same time for discharge of material</li> <li>• Hopper to feed coal onto conveyor 2 at a nominal rate of 7,500 metric tons per hour</li> </ul>
Stockyard	<ul style="list-style-type: none"> <li>• Four parallel stockpile pads (hold approximately 1,500,000 metric tons of coal) and 5 berms, located inside the rail loop</li> <li>• Stockyard would cover an area of approximately 75 acres</li> <li>• Served by up to 4 rail-mounted stackers and up to 4 bucket wheel reclaimers, each with associated conveyors</li> <li>• Pads would vary in length from 2,200 feet to 2,500 feet and hold from 360,000 metric tons to 400,000 metric tons each</li> <li>• Coal would be stacked up to a height of approximately 85 feet above the pads</li> <li>• Stockyard would be graded to allow water to drain and be collected for treatment and reuse</li> </ul>
Conveyors, Transfer Towers, and Buffer Bins	<ul style="list-style-type: none"> <li>• Conveyors would transport coal from railcar unloading to the stockpile and stockpile to the shiploader</li> <li>• Conveyors would be enclosed except where required to feed to or receive from stacking, reclaiming, or shiploading equipment</li> <li>• Stockyard and ship loading conveyors would be open</li> <li>• Buffer bins would provide storage capacity during the shiploading process</li> <li>• Once unloaded, coal would be stockpiled or loaded directly onto ships</li> <li>• Stockpiled coal would be reclaimed for shiploading</li> </ul>
Dock 2	<ul style="list-style-type: none"> <li>• 1,400 feet long and varying in width from approximately 100 feet up to 130 feet</li> <li>• Dredging required to provide berthing access</li> </ul>
Dock 3	<ul style="list-style-type: none"> <li>• 900 feet long, with a width of approximately 100 feet</li> <li>• Dredging would be required to provide berthing access</li> </ul>
Trestle	<ul style="list-style-type: none"> <li>• Access to Docks 2 and 3 would be provided by a single trestle approximately 800 feet long and varying in width from approximately 35 feet on the northern end and up to 60 feet on the southern end</li> </ul>

<sup>1</sup> Assumes that construction begins 2018

<sup>2</sup> MMTPY = million metric tons per year

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**TABLE 4. Construction Complete/Stage 2 Operations (Full Build-Out Operations): On-Site Alternative**

**Stage of Construction/Operations:** Full Build-Out Operations

**Description:** Construction complete and full build-out operations

**Timing:** 6+ years from the start of construction

**Approximate Years<sup>1</sup>:** 2024+

**Throughput Capacity:** Up to 44 MMTPY<sup>2</sup>

<b>Full Build-Out Operations</b>	
<u>Project Component</u>	<u>Activity</u>
Shiploaders	<ul style="list-style-type: none"> <li>• Each dock would be served by its own shiploader to load ships at the 2 docks</li> </ul>
Rail Cars/Trains	<ul style="list-style-type: none"> <li>• Total of 8 storage tracks and 1 operating track</li> <li>• The 1 operating track installed as part of start-up operations would service full build-out operations</li> <li>• 90 additional unit trains per month, increasing the overall number of trains to an average of 240 unit trains arriving and departing monthly</li> </ul>
Rail Car Unloading	<ul style="list-style-type: none"> <li>• The Stage 1 tandem rotary unloader would service full build-out operations</li> <li>• No additional unloading equipment would be required</li> <li>• The rapid discharge (bottom) tandem railcar unloader installed for Stage 1 Start-Up Operations would remain operable and be used during maintenance of the tandem rotary unloader</li> </ul>
Conveyor Systems	<ul style="list-style-type: none"> <li>• Conveyors would transport coal from railcar unloading area to the stockyard, and from the stockyard to the shiploader</li> <li>• Conveyors would be enclosed except where required to feed onto or reclaim from stockpiles or onto the shiploaders</li> <li>• When unloading rail cars, the conveyors from rail car unloading to the stockyard would operate</li> <li>• When loading ships, the conveyors from the stockyard to the shiploaders would operate</li> <li>• Rail car unloading and ship loading would at times occur both independently and simultaneously</li> <li>• Conveyors would operate approximately 80% of the time</li> </ul>
Stockpiling	<ul style="list-style-type: none"> <li>• Total of up to 4 stackers</li> <li>• Each stacker would stockpile coal at an average rate of 7,500 metric tons per hour onto 2 additional longitudinal stockpiles with a total storage capacity of up to 1.5 million metric tons</li> </ul>
Reclaiming	<ul style="list-style-type: none"> <li>• Total of up to 4 reclaimers</li> <li>• Each would reclaim coal from the stockpile to the shiploading system, with an average capacity of 6,500 metric tons per hour</li> </ul>
Shiploading (Docks 2 and 3)	<ul style="list-style-type: none"> <li>• Total of 2 traveling shiploaders, 1 on each dock</li> <li>• Each shiploader would have an average rated capacity of 6,500 metric tons per hour</li> </ul>
Shipping	<ul style="list-style-type: none"> <li>• Up to 30 additional ships, for a total average of 70 ships per month (80% Panamax, 20% Handymax) would be loaded</li> </ul>
Ship Bunkering and Crew Supplies	<ul style="list-style-type: none"> <li>• These activities would not be allowed or provided for at the dock</li> </ul>
Mobile Equipment	<ul style="list-style-type: none"> <li>• Equipment needed to maintain the terminal would include:               <ul style="list-style-type: none"> <li>○ wheel loaders</li> <li>○ dozers</li> <li>○ cranes</li> <li>○ forklifts</li> <li>○ trucks</li> <li>○ welders</li> <li>○ pumps and other similar equipment</li> </ul> </li> </ul>

**Millennium Bulk Terminals—Longview**  
**Proposed Export Terminal Stages of Construction and Operations: Off-Site Alternative**

TABLE 1. Start of Stage 1 Construction/No Operations: Off-Site Alternative	
Stage of Construction/Operations: Stage 1a Construction/No Operations	
Description: Start of Stage 1 Construction	
Timing: 0 – 1.5 years (18 months) from the start of construction	
Approximate Years: <sup>1</sup> 2018 – 2020	
Throughput Capacity: 0 MMTPY <sup>2</sup>	
Stage 1a Construction	
Project Component	Activity
Number of Construction Workers	<ul style="list-style-type: none"> <li>• Approximately 200,000 construction labor hours would be required with a peak work force of 150-200 construction workers over an approximate 15 - 18 month time period</li> </ul>
Construction Trips	<ul style="list-style-type: none"> <li>• Total construction trips are dependent on how material is imported during preloading activities (numbers below are combined for preloading activities during Stage 1 and Stage 2):               <ul style="list-style-type: none"> <li>○ If all material is imported by truck: approximately 88,000 loaded truck trips over an approximate 5-year period with the majority of the truck trips occurring during the first 1 to 2 years (Stage 1).</li> <li>○ If all material is imported by rail: approximately 35,000 loaded railcars over an approximate 5-year period with the majority of the railcars received during the first 1 to 2 years (Stage 1).</li> <li>○ If all material is imported by barge: approximately 1,130 barge trips over an approximate 5-year period with the majority of the barge trips occurring during the first 1 to 2 years (Stage 1)</li> </ul> </li> <li>• <i>Additional vehicle information is currently not available</i></li> </ul>
Construction Staging	<ul style="list-style-type: none"> <li>• Prepare site area and make ground improvements/grading</li> <li>• Stockpile area, including preloading for stockpile pads (2 out of 4 stockpile pads would be preloaded during Stage 1 construction)</li> <li>• Coal export terminal start-up facilities               <ul style="list-style-type: none"> <li>○ One shiploader and related conveyors on Dock A</li> <li>○ Rail car unloading facilities (rapid unloader, bottom dumper)</li> <li>○ Associated facilities and infrastructure (i.e., conveyors, etc.)</li> </ul> </li> <li>• Construct rail loop               <ul style="list-style-type: none"> <li>○ Complete berm for rail tracks</li> <li>○ Install up to 8 rail storage tracks for train parking</li> <li>○ Install one operating track</li> </ul> </li> <li>• Conduct dredging in the Columbia River</li> <li>• Construct two docks (Docks A and B) and trestle</li> </ul>
Demolition of Existing Structures	<b>None</b>
Site Preparation	<ul style="list-style-type: none"> <li>• Clearing of vegetation</li> <li>• Grading</li> <li>• Earthmoving</li> <li>• Earthworks</li> <li>• Construction of erosion control facilities (including settlement ponds)</li> <li>• Duration of approximately 3 months</li> </ul>

<sup>1</sup> Assumes that construction begins 2018

<sup>2</sup> MMTPY = million metric tons per year

**Millennium Bulk Terminals—Longview**  
**Proposed Export Terminal Stages of Construction and Operations: Off-Site Alternative**

**TABLE 1. Start of Stage 1 Construction/No Operations: Off-Site Alternative**  
**Stage of Construction/Operations:** Stage 1a Construction/No Operations  
**Description:** Start of Stage 1 Construction  
**Timing:** 0 – 1.5 years (18 months) from the start of construction  
**Approximate Years:**<sup>1</sup> 2018 – 2020  
**Throughput Capacity:** 0 MMTPY<sup>2</sup>

Stage 1a Construction	
Project Component	Activity
New Access Road	<ul style="list-style-type: none"> <li>• New access road would be approximately 80 feet wide and would extend from State Route 432 for 0.5-mile to a new Maintenance and Storage Building to be constructed as part of the project.</li> <li>• The access road and some parking areas would likely be sealed with asphalt pavement, and other roads including the perimeter road would likely be gravel.</li> </ul>
New Spur Line	<ul style="list-style-type: none"> <li>• The new spur line would extend from the rail loop access point approximately 2,500 feet east to a Longview short line track, which in turn connects to the mainline rail operated by BNSF railroad.</li> <li>• The new spur line and rail loop construction would require importing and placing of ballast rock for the rail foundations, placement of railroad ties, laying steel rail lines, installing signaling, switching equipment, and track lighting.</li> </ul>
Preloading	<ul style="list-style-type: none"> <li>• Initiation of rolling preload: up to 7 years total for entire stockpile areas (continues through construction of both Stage 1 and Stage 2)</li> <li>• Preloading would commence on 2 of the 4 stockpiling areas</li> <li>• Existing soil conditions would be strengthened to improve load-bearing capacity</li> <li>• Preload material would be imported and wick drains would be installed for ground improvement for the stockyard area</li> <li>• Preload material would be placed in a pile approximately 35 feet high covering the area of the berm and adjacent stockpile pad(s)</li> <li>• Process would be repeated at each berm and stockpile location until soil consolidation is achieved across the complete stockyard</li> <li>• Groundwater expelled through the wick drains would be collected, treated, and discharged to the Columbia River or the CDID ditch network</li> <li>• Excess preload material would be used on site, stockpiled, or removed from the area</li> <li>• Approximately 2.1 million cubic yards of preload material would be imported (Stage 1 and Stage 2)</li> <li>• Approximately 2.5 million cubic yards of material would be moved around the project area (Stage 1 and Stage 2)</li> </ul>
Construction/Installation of Export Terminal Equipment	<ul style="list-style-type: none"> <li>• Coal would not be stockpiled during any stage of construction.</li> <li>• Installation of plant and equipment for start-up operations would include:               <ul style="list-style-type: none"> <li>○ One operating track</li> <li>○ Up to 8 rail storage tracks for train parking/staging</li> <li>○ One rapid discharge (bottom) tandem railcar unloader to unload coal for transfer by conveyor to the dock for ship loading; the rail car unloader would be capable of unloading 2 railcars at once</li> <li>○ Conveyors, buffer bin, and transfer towers; including approximately 4,300 lineal feet of conveyors, of which approximately 1,000 lineal feet would be open conveyors and approximately 3,300 lineal feet would be enclosed</li> <li>○ Dock A and Dock B</li> <li>○ One shiploader on Dock A</li> <li>○ Support structures, electrical transformers, switchgear and equipment, process control systems, buildings, etc.</li> </ul> </li> </ul>

**Millennium Bulk Terminals—Longview**  
**Proposed Export Terminal Stages of Construction and Operations: Off-Site Alternative**

**TABLE 1. Start of Stage 1 Construction/No Operations: Off-Site Alternative**

**Stage of Construction/Operations:** Stage 1a Construction/No Operations

**Description:** Start of Stage 1 Construction

**Timing:** 0 – 1.5 years (18 months) from the start of construction

**Approximate Years:**<sup>1</sup> 2018 – 2020

**Throughput Capacity:** 0 MMTPY<sup>2</sup>

**Stage 1a Construction**

<u>Project Component</u>	<u>Activity</u>
Rail Loop Construction	<ul style="list-style-type: none"> <li>• Importing and placing of approximately 130,000 cubic yards of ballast rock for the rail foundations</li> <li>• Placement of railroad ties</li> <li>• Laying of steel rail lines</li> <li>• Installation of signaling</li> <li>• Installation of switching equipment</li> <li>• Installation of track lighting</li> <li>• Installation of 1 rapid discharge (bottom) tandem railcar unloader</li> </ul>
Dredging, Trestle, and Dock Construction	<ul style="list-style-type: none"> <li>• Dredging would occur as part of the construction of Docks A and B (simultaneous with site prep and preload; may require 2 fish windows to complete)</li> <li>• Dredging would remove approximately 50,000 cubic yards of material over an approximately 48-acre area and to a depth of -43 feet Columbia River Datum.</li> <li>• Dredging would be required from the river side face of the dock out to the Columbia River navigational channel; the river bed would be sloped from the dock to the riverbank with a 3H:1V slope.</li> <li>• Dock and trestle construction would include pile driving of approximately 630 36-inch diameter steel pipe piles, 610 of which would be installed in aquatic areas below ordinary high water</li> <li>• Piling would be driven to a depth of approximately 140 to 165 feet below the mudline</li> <li>• Dredge spoils will be disposed of adjacent to the navigation channel between approximately river mile 60 and 66.</li> </ul>

**Millennium Bulk Terminals—Longview**  
**Proposed Export Terminal Stages of Construction and Operations: Off-Site Alternative**

**TABLE 2. Continuation of Stage 1 Construction/Stage 1 Start-Up Operations: Off-Site Alternative**  
**Stage of Construction/Operations:** Stage 1b Construction and Start-Up Operations  
**Description:** Continuation of Stage 1 construction through completion of Stage 1 construction and start-up operations  
**Timing:** 0 – 3 years from the start of construction  
**Approximate Years:**<sup>1</sup> 2018 – 2021  
**Throughput Capacity:** 5 to 10 MMTPY<sup>2</sup>

Stage 1b Construction		Start-Up Operations	
Project Component	Activity	Project Component	Activity
N/A	N/A	Number of Trains	Arrival of coal by rail: <ul style="list-style-type: none"> <li>Up to 10 MMTPY throughput capacity</li> <li>Up to 60 unit trains arriving and departing monthly</li> </ul>
N/A	N/A	Number of Vessels	Transfer of coal to ship: <ul style="list-style-type: none"> <li>Up to 10 MMTPY throughout capacity</li> <li>Up to 15 ships loaded monthly (80% Panamax, 20% Handymax)</li> </ul>
Number of Construction Workers	<ul style="list-style-type: none"> <li>Approximately 500,000 construction labor hours with a peak work force of 150-200 construction workers over an approximate 3-1/2 year period</li> </ul>	Number of Employees	<ul style="list-style-type: none"> <li>60 employees required</li> </ul>
Construction Trips	<ul style="list-style-type: none"> <li>Construction trips are dependent on how material is imported during preloading activities (numbers below are combined for preloading activities during Stage 1 and Stage 2): <ul style="list-style-type: none"> <li>If all material is imported by truck: approximately 88,000 loaded truck trips over an approximate 5-year period with the majority of the truck trips occurring during the first 1 to 2 years (Stage 1)</li> <li>If all material is imported by rail: approximately 35,000 loaded railcars over an approximate 5-year period with the majority of the railcars received during the first 1 to 2 years (Stage 1)</li> <li>If all material is imported by barge: approximately 1,130 barge trips over an approximate 5-year period with the majority of the barge trips occurring during the first 1 to 2 years (Stage 1)</li> </ul> </li> <li><i>Additional vehicle information is currently not available</i></li> </ul>	N/A	—

<sup>1</sup> Assumes that construction begins 2018

<sup>2</sup> MMTPY = million metric tons per year



**Millennium Bulk Terminals—Longview**  
**Proposed Export Terminal Stages of Construction and Operations: Off-Site Alternative**

**TABLE 2. Continuation of Stage 1 Construction/Stage 1 Start-Up Operations: Off-Site Alternative**  
**Stage of Construction/Operations:** Stage 1b Construction and Start-Up Operations  
**Description:** Continuation of Stage 1 construction through completion of Stage 1 construction and start-up operations  
**Timing:** 0 – 3 years from the start of construction  
**Approximate Years:**<sup>1</sup> 2018 – 2021  
**Throughput Capacity:** 5 to 10 MMTPY<sup>2</sup>

Stage 1b Construction		Start-Up Operations	
Project Component	Activity	Project Component	Activity
Construction/Installation of Export Terminal Equipment	Coal would not be stockpiled during any stage of construction. Would include the installation of additional facilities and equipment not installed during start of Stage 1 construction: <ul style="list-style-type: none"> <li>• Tandem rotary unloading facility (capable of unloading 2 rail cars)</li> <li>• Three berms (for stackers and reclaimers)</li> <li>• Water management facilities</li> <li>• Two stackers</li> <li>• Two reclaimers</li> <li>• Conveyors, buffer bin, and transfer towers, including approximately 16,100 lineal feet of conveyors, of which approximately 11,200 lineal feet would be open conveyors and approximately 4,900 lineal feet would be enclosed</li> <li>• Support structures, electrical transformers, switchgear and equipment, process control systems, buildings, etc.</li> </ul> Completion of Stage 1 construction would result in a nominal throughput capacity of up to 25 MMTPY	Rail Cars/Trains	<ul style="list-style-type: none"> <li>• Inbound and outbound trains would be staged on site on up to eight available storage tracks</li> <li>• Rail car unloading operations would use the operating track and the rapid-discharge (bottom) unloaders</li> <li>• Up to 60 unit trains would arrive and depart monthly</li> </ul>
		Rail Car Unloading	<ul style="list-style-type: none"> <li>• No stockpiling of coal; coal would be delivered directly from the rail cars to the shiploader by way of a rapid discharge unloading facility and interconnecting conveyors</li> </ul>
		Water Management Facilities	<ul style="list-style-type: none"> <li>• Water collection, conveyance, treatment, reuse, or discharge</li> </ul>
—	—	Ship Loading	<ul style="list-style-type: none"> <li>• Ship loading would be performed using a single electrical-powered traveling shiploader installed on Dock A</li> <li>• The shiploader would have an average capacity of 6,500 metric tons per hour</li> </ul>
		Shipping	<ul style="list-style-type: none"> <li>• Up to 15 ships per month (80% Panamax, 20% Handymax) would be loaded</li> </ul>
		Ship Bunkering Crew Supplies	<ul style="list-style-type: none"> <li>• These activities would not be allowed or provided for at the dock</li> </ul>

**Millennium Bulk Terminals—Longview**  
**Proposed Export Terminal Stages of Construction and Operations: Off-Site Alternative**

**TABLE 2. Continuation of Stage 1 Construction/Stage 1 Start-Up Operations: Off-Site Alternative**  
**Stage of Construction/Operations:** Stage 1b Construction and Start-Up Operations  
**Description:** Continuation of Stage 1 construction through completion of Stage 1 construction and start-up operations  
**Timing:** 0 – 3 years from the start of construction  
**Approximate Years:**<sup>1</sup> 2018 – 2021  
**Throughput Capacity:** 5 to 10 MMTY<sup>2</sup>

Stage 1b Construction		Start-Up Operations	
<u>Project Component</u>	<u>Activity</u>	<u>Project Component</u>	<u>Activity</u>
		Equipment	<ul style="list-style-type: none"> <li>• Equipment needed to maintain the facility would include               <ul style="list-style-type: none"> <li>○ wheel loaders</li> <li>○ cranes</li> <li>○ forklifts</li> <li>○ trucks</li> <li>○ welders</li> <li>○ pumps and other similar equipment</li> </ul> </li> </ul>

**Millennium Bulk Terminals—Longview**  
**Proposed Export Terminal Stages of Construction and Operations: Off-Site Alternative**

TABLE 3. Stage 2 Construction/Stage 1 Operations: Off-Site Alternative			
Stage of Construction/Operations: Stage 2 Construction/Increased Operations			
Description: Stage 2 Construction and increased operations through completion of Stage 2 construction			
Timing: 4 – 6 years from the start of construction			
Approximate Years: <sup>1</sup> 2022 – 2024			
Throughput Capacity: Up to 25 MMTPY <sup>2</sup>			
Stage 2 Construction		Increased Operations	
Project Component	Activity	Project Component	Activity
N/A	N/A	Number of Trains	Arrival of coal by rail: <ul style="list-style-type: none"> <li>Up to 25 MMTPY throughput capacity</li> <li>An average of 150 unit trains arriving and departing monthly</li> </ul>
N/A	N/A	Number of Vessels	Transfer of coal to ship: <ul style="list-style-type: none"> <li>Up to 25 MMTPY throughput capacity</li> <li>Total average of 40 ships loaded monthly (80% Panamax, 20% Handymax)</li> </ul>
Number of Construction Workers	<ul style="list-style-type: none"> <li>Approximately 300,000 construction labor hours would be required over an approximately 2 year duration, with a peak work force of 75-100 construction workers; total of 1,350 construction workers (combined number of workers for all construction activities associated with Stage 1 and Stage 2)</li> </ul>	Number of Employees	<ul style="list-style-type: none"> <li>115 employees required</li> </ul>
Construction Trips	<ul style="list-style-type: none"> <li>Construction trips are dependent on how material is imported during preloading activities (numbers below are combined for preloading activities during Stage 1 and Stage 2 Construction): <ul style="list-style-type: none"> <li>If all material is imported by truck: approximately 88,000 loaded truck trips over an approximate 5-year period with the majority of the truck trips occurring during the first 1 to 2 years (Stage 1).</li> <li>If all material is imported by rail: approximately 35,000 loaded railcars over an approximate 5-year period with the majority of the railcars received during the first 1 to 2 years (Stage 1)</li> <li>If all material is imported by barge: approximately 1,130 barge trips over an approximate 5-year period with the majority of the barge trips occurring during the first 1 to 2 years (Stage 1)</li> </ul> </li> <li><i>Additional vehicle information is currently not available</i></li> </ul>	N/A	—

<sup>1</sup> Assumes that construction begins 2018

<sup>2</sup> MMTPY = million metric tons per year

**Millennium Bulk Terminals—Longview**  
**Proposed Export Terminal Stages of Construction and Operations: Off-Site Alternative**

**TABLE 3. Stage 2 Construction/Stage 1 Operations: Off-Site Alternative**  
**Stage of Construction/Operations:** Stage 2 Construction/Increased Operations  
**Description:** Stage 2 Construction and increased operations through completion of Stage 2 construction  
**Timing:** 4 – 6 years from the start of construction  
**Approximate Years:**<sup>1</sup> 2022 – 2024  
**Throughput Capacity:** Up to 25 MMTPY<sup>2</sup>

Stage 2 Construction		Increased Operations	
Project Component	Activity	Project Component	Activity
Construction Staging	<ul style="list-style-type: none"> <li>• Associated stockpile pads (preloading for remaining 2 of 4 berms/stockpile pads)</li> <li>• Any of the remaining eight rail storage tracks for train parking that were not constructed as part of Stage 1</li> <li>• Two additional stackers</li> <li>• Two additional reclaimers</li> <li>• Conveyors</li> <li>• One additional shiploader on Dock B</li> <li>• Equipment necessary to add 19 MMTPY and bring the nominal total throughput up to 44 MMTPY</li> </ul>	Rail Cars/Trains	<ul style="list-style-type: none"> <li>• Inbound and outbound trains would be stored on site on up to eight available storage tracks</li> <li>• Rail car unloading operations would use the operating track and rail cars would be unloaded using the tandem rotary unloader</li> <li>• An average of 150 unit trains arriving and departing monthly</li> </ul>
Preloading	<ul style="list-style-type: none"> <li>• Remaining 2 of 4 berms/stockpile areas would be preloaded during Stage 2 construction</li> <li>• Existing soil conditions would be strengthened to improve load bearing capacity</li> <li>• Preload material would be imported and wick drains would be installed for ground improvement for the stockyard area</li> <li>• Preload material would be placed in a pile approximately 35-ft high covering the area of the berm and adjacent stockpile pad(s)</li> <li>• The preload process would be repeated at each berm and stockpile location until soil consolidation is achieved across the complete stockyard</li> <li>• Excess preload material would be used on site, stockpiled, or removed from the site</li> <li>• Approximately 2.1 million cubic yards of preload material would be imported (Stage 1 and 2)</li> <li>• Approximately 2.5 million cubic yards of material would be moved around the project area (Stage 1 and 2)</li> </ul>	Rail Car Unloading	<ul style="list-style-type: none"> <li>• Rail cars would be unloaded by an electrical-powered tandem rotary unloader</li> <li>• The terminal would include a mechanical positioner to index the unit into the rotary unloader</li> <li>• Coal would be transferred to the stackers via conveyors</li> </ul>

**Millennium Bulk Terminals—Longview**  
**Proposed Export Terminal Stages of Construction and Operations: Off-Site Alternative**

**TABLE 3. Stage 2 Construction/Stage 1 Operations: Off-Site Alternative**  
**Stage of Construction/Operations:** Stage 2 Construction/Increased Operations  
**Description:** Stage 2 Construction and increased operations through completion of Stage 2 construction  
**Timing:** 4 – 6 years from the start of construction  
**Approximate Years:**<sup>1</sup> 2022 – 2024  
**Throughput Capacity:** Up to 25 MMTPY<sup>2</sup>

Stage 2 Construction		Increased Operations	
Project Component	Activity	Project Component	Activity
Construction/Installation of Export Terminal Equipment	Coal would not be stockpiled during any stage of construction. Would include the installation of additional facilities and equipment not installed during Stage 1 construction: <ul style="list-style-type: none"> <li>• The remaining rail storage tracks (total of eight rail storage tracks)</li> <li>• The remaining 2 berms for stackers and reclaimers (total of 5 berms after Stages 1 and 2 construction is complete)</li> <li>• Two stackers (total of up to 4 stackers after Stages 1 and 2 construction are complete)</li> <li>• Two reclaimers (total of up to 4 reclaimers after Stages 1 and 2 construction are complete)</li> <li>• Conveyors, buffer bin, and transfer towers, including approximately 26,200 lineal feet of conveyors, of which approximately 17,900 lineal feet would be open conveyors and approximately 8,300 lineal feet would be enclosed</li> <li>• One shiploader on Dock B</li> <li>• Support structures, electrical transformers, switchgear and equipment, buildings, process control equipment, etc.</li> </ul>	Conveyor Systems	<ul style="list-style-type: none"> <li>• Conveyors would transport coal from rail unloading to the stockyard and from the stockyard to the shiploader</li> <li>• Conveyors would be enclosed except where required to feed onto or reclaim from stockpiles or onto the shiploaders</li> <li>• Rail car unloading and shiploading would at times occur both independently and simultaneously</li> <li>• Conveyors would operate for approximately 45% of the available time</li> <li>• Conveyor drives are electrically powered</li> </ul>
		Stockpiling	<ul style="list-style-type: none"> <li>• Two electrical-powered traveling stackers would stockpile coal at an average rate of 7,500 tonnes per hour onto 2 longitudinal stockpiles with an estimated total storage capacity of 750,000 tonnes</li> </ul>
		Reclaiming	<ul style="list-style-type: none"> <li>• Two electrical-powered traveling bucket wheel reclaimers, each with an average rate of 6,500 tonnes per hour, would transfer coal from the stockpile to the shiploading system</li> </ul>
		Ship Loading	<ul style="list-style-type: none"> <li>• Would use the shiploader installed for startup operations on Dock A only</li> </ul>
		Shipping	<ul style="list-style-type: none"> <li>• Total average of 40 ships per month (80% Panamax, 20% Handymax) would be loaded</li> </ul>

**Millennium Bulk Terminals—Longview**  
**Proposed Export Terminal Stages of Construction and Operations: Off-Site Alternative**

**TABLE 3. Stage 2 Construction/Stage 1 Operations: Off-Site Alternative**  
**Stage of Construction/Operations:** Stage 2 Construction/Increased Operations  
**Description:** Stage 2 Construction and increased operations through completion of Stage 2 construction  
**Timing:** 4 – 6 years from the start of construction  
**Approximate Years:**<sup>1</sup> 2022 – 2024  
**Throughput Capacity:** Up to 25 MMTPY<sup>2</sup>

Stage 2 Construction		Increased Operations	
Project Component	Activity	Project Component	Activity
		Equipment	<ul style="list-style-type: none"> <li>• Equipment needed to maintain the terminal would include               <ul style="list-style-type: none"> <li>○ wheel loaders</li> <li>○ dozers</li> <li>○ cranes</li> <li>○ forklifts</li> <li>○ trucks</li> <li>○ welders</li> <li>○ pumps, and other similar equipment</li> </ul> </li> </ul>

**Millennium Bulk Terminals—Longview**  
**Proposed Export Terminal Stages of Construction and Operations: Off-Site Alternative**

**TABLE 4. Construction Complete/Stage 2 Operations (Full Build-Out Operations): Off-Site Alternative**  
**Stage of Construction/Operations:** Full Build-Out Operations  
**Description:** Construction complete and full build-out operations  
**Timing:** 6+ years from the start of construction  
**Approximate Years:**<sup>1</sup> 2024+  
**Throughput Capacity:** Up to 44 MMTPY<sup>2</sup>

<b>Full Build-Out Operations</b>	
<u>Project Component</u>	<u>Activity</u>
Number of Trains	Arrival of coal by rail: <ul style="list-style-type: none"> <li>• Up to 44 MMTPY throughput capacity</li> <li>• Average of 240 unit trains arriving and departing monthly</li> </ul>
Number of Vessels	Transfer of coal to ship: <ul style="list-style-type: none"> <li>• Up to 44 MMTPY throughput capacity</li> <li>• Total average of 70 ships loaded monthly (80% Panamax, 20% Handymax)</li> </ul>
Number of Employees	<ul style="list-style-type: none"> <li>• 135 employees</li> </ul>
Rail Loop	<ul style="list-style-type: none"> <li>• Arrival and departure tracks, with 1 operating turnaround track</li> <li>• Eight storage tracks would allow trains to travel directly onto the site from the new spur rail line</li> <li>• Two rail cars at unloading station inside an enclosed facility; both would be rotated at the same time for discharge of material</li> <li>• Hopper to feed coal onto conveyor 2 at a nominal rate of 7,500 tonnes per hour</li> </ul>
Stockyard	<ul style="list-style-type: none"> <li>• Four parallel stockpile pads (hold approximately 1,500,000 tonnes of coal) and 5 berms, located inside the rail loop</li> <li>• Stockyard would cover an area of approximately 75 acres</li> <li>• Served by up to 4 rail mounted stackers and up to 4 bucket wheel reclaimers, each with associated conveyors</li> <li>• Pads vary in length from 2,200 feet to 2,500 feet and hold from 360,000 tonnes to 400,000 tonnes each</li> <li>• Coal would be stacked up to a height of approximately 85 feet above the pads</li> <li>• Stockyard would be graded to allow water to drain and be collected for treatment and reuse</li> </ul>
Conveyors, Transfer Towers, and Buffer Bins	<ul style="list-style-type: none"> <li>• Conveyors would transport coal from railcar unloading to the stockpile and stockpile to the shiploader</li> <li>• Conveyors would be enclosed except where required to feed to or receive from stacking, reclaiming, or shiploading equipment</li> <li>• Stockyard and ship loading conveyors would be open</li> <li>• Buffer bins would provide storage capacity during the shiploading process</li> <li>• Once unloaded, coal would be stockpiled or loaded directly onto ships</li> <li>• Stockpiled coal is reclaimed for shiploading</li> </ul>
Docks A and B	<ul style="list-style-type: none"> <li>• For the Off-Site Alternative, there would be two docks, identified as "Dock A" and "Dock B"</li> <li>• The Off-Site Alternative Docks A and B would together be approximately 2,202 feet in length by 90 feet in width, except where Dock A joins the trestle and is slightly wider (128 ft in width).</li> <li>• Dredging would be required to provide berthing access</li> </ul>
Trestle	<ul style="list-style-type: none"> <li>• Extends approximately 638 feet from shore, at approximately a 56° angle to the shore downstream of the dock</li> <li>• Measures 24 feet in width for approximately 588 feet, and 51 feet in width for the final 150 feet</li> </ul>
Shiploaders	<ul style="list-style-type: none"> <li>• Each dock would be served by its own shiploader to load ships at the 2 docks</li> </ul>
Rail Cars/Trains	<ul style="list-style-type: none"> <li>• Total of 8 storage tracks and 1 operating track</li> </ul>

<sup>1</sup> Assumes that construction begins 2018

<sup>2</sup> MMTPY = million metric tons per year

**Millennium Bulk Terminals—Longview**  
**Proposed Export Terminal Stages of Construction and Operations: Off-Site Alternative**

**TABLE 4. Construction Complete/Stage 2 Operations (Full Build-Out Operations): Off-Site Alternative**

**Stage of Construction/Operations:** Full Build-Out Operations

**Description:** Construction complete and full build-out operations

**Timing:** 6+ years from the start of construction

**Approximate Years:**<sup>1</sup> 2024+

**Throughput Capacity:** Up to 44 MMTPY<sup>2</sup>

**Full Build-Out Operations**

Project Component	Activity
	<ul style="list-style-type: none"> <li>• The 1 operating track installed as part of start-up operations would service full build-out operations</li> <li>• 90 additional unit trains per month, increasing the overall number of trains to an average of 240 unit trains arriving and departing monthly</li> </ul>
Rail Car Unloading	<ul style="list-style-type: none"> <li>• The Stage 1 tandem rotary unloader would service full build-out operations</li> <li>• No additional unloading equipment would be required</li> <li>• The rapid discharge (bottom) tandem railcar unloader installed for Stage 1 Start-Up Operations would remain operable and be used during maintenance of the tandem rotary unloader</li> </ul>
Conveyor Systems	<ul style="list-style-type: none"> <li>• Conveyors would transport coal from railcar unloading area to the stockyard, and from the stockyard to the shiploader</li> <li>• Conveyors would be enclosed except where required to feed onto or reclaim from stockpiles or onto the shiploaders</li> <li>• When unloading rail cars, the conveyors from rail car unloading to the stockyard would operate</li> <li>• When loading ships, the conveyors from the stockyard to the shiploaders would operate</li> <li>• Rail car unloading and ship loading would at times occur both independently and simultaneously</li> <li>• Conveyors would operate approximately 80% of the time</li> </ul>
Stockpiling	<ul style="list-style-type: none"> <li>• Total of up to 4 stackers</li> <li>• Each stacker would stockpile coal at an average rate of 7,500 tonnes per hour onto 2 additional longitudinal stockpiles with a total storage capacity of up to 1.5 million tonnes</li> </ul>
Reclaiming	<ul style="list-style-type: none"> <li>• Total of up to 4 reclaimers</li> <li>• Each would reclaim coal from the stockpile to the ship loading system, with an average capacity of 6,500 metric tons per hour</li> </ul>
Ship Loading (Docks A and B)	<ul style="list-style-type: none"> <li>• Total of two traveling shiploaders, one on each dock</li> <li>• Each shiploader would have an average rated capacity of 6,500 metric tons per hour</li> </ul>
Shipping	<ul style="list-style-type: none"> <li>• Up to 30 additional ships, for a total average of 70 ships per month (80% Panamax, 20% Handymax) would be loaded</li> </ul>
Ship Bunkering and Crew Supplies	<ul style="list-style-type: none"> <li>• These activities would not be allowed or provided for at the dock</li> </ul>
Mobile Equipment/Operation Labor Force	<ul style="list-style-type: none"> <li>• Equipment needed to maintain the terminal would include: <ul style="list-style-type: none"> <li>○ wheel loaders</li> <li>○ dozers</li> <li>○ cranes</li> <li>○ forklifts</li> <li>○ trucks</li> <li>○ welders</li> <li>○ pumps, and other similar equipment</li> </ul> </li> </ul>