

Emails pertaining to
Gateway Pacific Project
For December 2015

From: Mark Personius <MPersoni@co.whatcom.wa.us>
Sent: Friday, December 11, 2015 9:22 AM
To: Joe Rutan; Roland Middleton
Cc: Gary Davis; Tyler Schroeder; Jon Hutchings
Subject: FW: Rail Crossing Study Analysis Chapter
Attachments: AnalysisChapter.docx; Skagit Rail Crossing Study (2).pptx

FYI. Rail Crossing Study done for Skagit Council of Governments.

From: Shambaugh, John E. [<mailto:ShambaJ@wsdot.wa.gov>]
Sent: Thursday, October 29, 2015 7:35 AM
To: Carlson, Todd; Drye, Jay; Harrison, Todd; Swires, Dina
Cc: Koidal, Mike; Stacey, Tom F.; Sjostrom, Elizabeth
Subject: FW: Rail Crossing Study Analysis Chapter

For your review and consideration I have attached a document we received from SCOG regarding at-grade rail crossing. I have also attached the PowerPoint presentation that was sent our last week, which is referenced in the email below. Please let me know if you have any comments or questions and I will gather them up and forward them to SCOG.

John Shambaugh
WSDOT NW Region/Mount Baker Area
Skagit, Island, San Juan and Whatcom Counties
Phone: 360.757.5981

www.wsdot.wa.gov/Northwest/Baker

From: Gabe Philips [<mailto:gabep@scog.net>]
Sent: Wednesday, October 28, 2015 3:52 PM
To: Paul Randal-Grutter ; Mark Freiburger PE [mfreiburger@ci.sedro-woolley.wa.us]; Love, Mikael; Marv Pulst (marvp@burlingtonwa.gov); Shjarback, Eric; Shambaugh, John E.
Subject: Rail Crossing Study Analysis Chapter

Attached is the Analysis Chapter of the Skagit Rail Crossing Study. Parametrix presented the findings at last week's Transportation Policy Board meeting and there was a lot of interest from the Board members. Please let me know if you have any comments.

SCOG staff will be meeting with Parametrix next week to identify potential mitigation strategies. We expect the report to be complete by the end of November.

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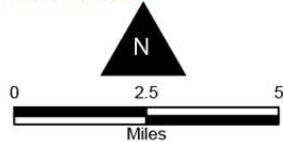
This section of the report summarizes the analysis of potential impacts from future train traffic growth that could occur at at-grade crossings in Skagit County. Existing transportation conditions at at-grade crossings were compared to expected future conditions when additional trains are operating. Analysts compared delay at crossings, impacts to emergency services, impacts to safety, and vehicle queuing.

At-Grade Crossings in Skagit County

A total of 56 at-grade crossings in Skagit County along BNSF's North-South Mainline, the Burlington-Anacortes Branch Line, and the Burlington-Sumas Branch Line were analyzed in this report (see Figure 1). Crossings occur on a variety of roadways, from relatively high traffic volume locations such as Kincaid Street in Downtown Mount Vernon and SR 538 (East College Way, Mount Vernon), to locations with lower traffic volumes such as Bow Hill Road north of Burlington.



Parametrix Date: 9/2/2015 Path: U:\PSOI\Projects\Clients\6427-Skagit Council of Govs\554-6427-001 Rail Crossing Study\99Svc\GIS\mapdocs\SkagitCo_RailCrossings.mxd



- At-Grade Rail Line Crossings in Skagit County
- BNSF Rail Line

**Figure 1:
At-Grade
Crossing Locations**
Skagit County
Washington

Figure 1 At-Grade Crossings in Skagit County

Anticipated Changes in Rail Traffic in Skagit County

The Washington State Department of Transportation (WSDOT) expects rail traffic in Washington State and in Skagit County to change in the future, as was reported in the Washington State Rail Plan (Washington Department of Transportation 2014). Economic and demographic growth will likely increase rail demand in the future, particularly for freight rail in and through Skagit County. Rail is increasingly being used as a mode of transport for freight for a number of reasons, including global sourcing fluctuations, fuel costs, labor availability, and highway congestion. WSDOT estimates that Washington's rail system will accommodate more than double the volume of cargo in 2040 when compared to 2010¹. Population growth and development, particularly along the I-5 corridor, has also led to a renewed focus to develop intercity passenger rail service. Although total ridership on the Amtrak Cascades route is expected to grow by approximately 40 percent by 2040, the majority of that growth is not expected to be in Skagit County. On the Amtrak Cascades segment between Seattle and Vancouver, B.C., total ridership is expected to grow by approximately 20 percent, compared to 52 percent growth between Seattle and Portland and 25 percent growth between Portland and Eugene (Cambridge Systematics 2013).

Impacts to Rail Capacity

If no system capacity or operational improvements are made in the future, growth in train traffic could impact rail operations through Skagit County. WSDOT reports that the North-South Mainline through Skagit County could reach 100 percent capacity by 2040 (2014). Over- or at-capacity rail lines could result in scheduling conflicts and service unreliability for passenger and freight trains. However, BNSF has stated that it will likely address key capacity issues as they emerge. As train traffic growth occurs, it will be important for the State, local jurisdictions and agencies, and BNSF to coordinate planning and operational improvements to manage capacity concerns in the system.

Currently, a capacity improvement is being constructed in Mount Vernon to improve reliability and scheduling of train movements on the North-South Mainline. The project includes a siding upgrade to allow freight trains to move out of the way of faster moving passenger trains. The siding upgrade begins near Hickox Road and terminates 0.6 miles to the north just after Pederson Lane. The project will allow earlier departures of southbound morning passenger trains and improve schedule reliability.

Gate-Down Time

Gate-down time is a measure of the duration of time that a railroad crossing gate is down while a train passes. Long periods of gate-down time have the potential to increase congestion and cause delays to traffic at or near at-grade crossings. The amount of gate-down time is dependent on the length and speed of individual trains and the total number of trains that pass through an at-grade crossing during the day.

Existing and expected future gate-down time at all at-grade crossings in Skagit County is summarized below.

¹ Commodity exports, such as coal and oil, are also expected to increase freight train traffic in Skagit County beyond the estimates included in the State Rail Plan. New proposals for export facilities (or expansion of existing facilities) in and near Skagit County, influenced by an excess of commodity production will likely contribute to future rail traffic in the county.

Existing Gate-Down Time

On the North-South Mainline, there are currently between 17 and 46 freight train crossings each day (BNSF 2015):

- South of Burlington, there are 22 daily freight train crossings at at-grade crossings on the mainline
- North of Burlington, there are 17 daily freight train crossings on the mainline
- Two crossings on the mainline in Burlington (Pease Road and Greenleaf Avenue) experience additional train crossings as a result of train building activities. These crossings have an additional 24 daily freight train crossing events; these events typically consist of short, one-car trains as they are being moved to build longer trains.

Crossings on the North-South Mainline along which the Amtrak Cascades route currently operates also experience four daily passenger rail trips (two northbound and two southbound), for a total of between 21 and 50 total daily train crossings.

On the Burlington-Sumas Branch Line, there are two daily freight train crossings. On the Burlington-Anacortes Branch Line, there are four daily freight train crossings at most at-grade crossings. Similar to the Mainline, there are two crossings (S Walnut Street and Spruce Street) in Burlington that experience an additional 24 daily train crossings due to train building. No passenger trains operate on the branch lines. Figure 2 shows the distribution of existing train crossing volumes in Skagit County.

It is important to note that the exact number of train crossings at at-grade crossings can vary each day, so the exact number of crossings on any given day fluctuates.

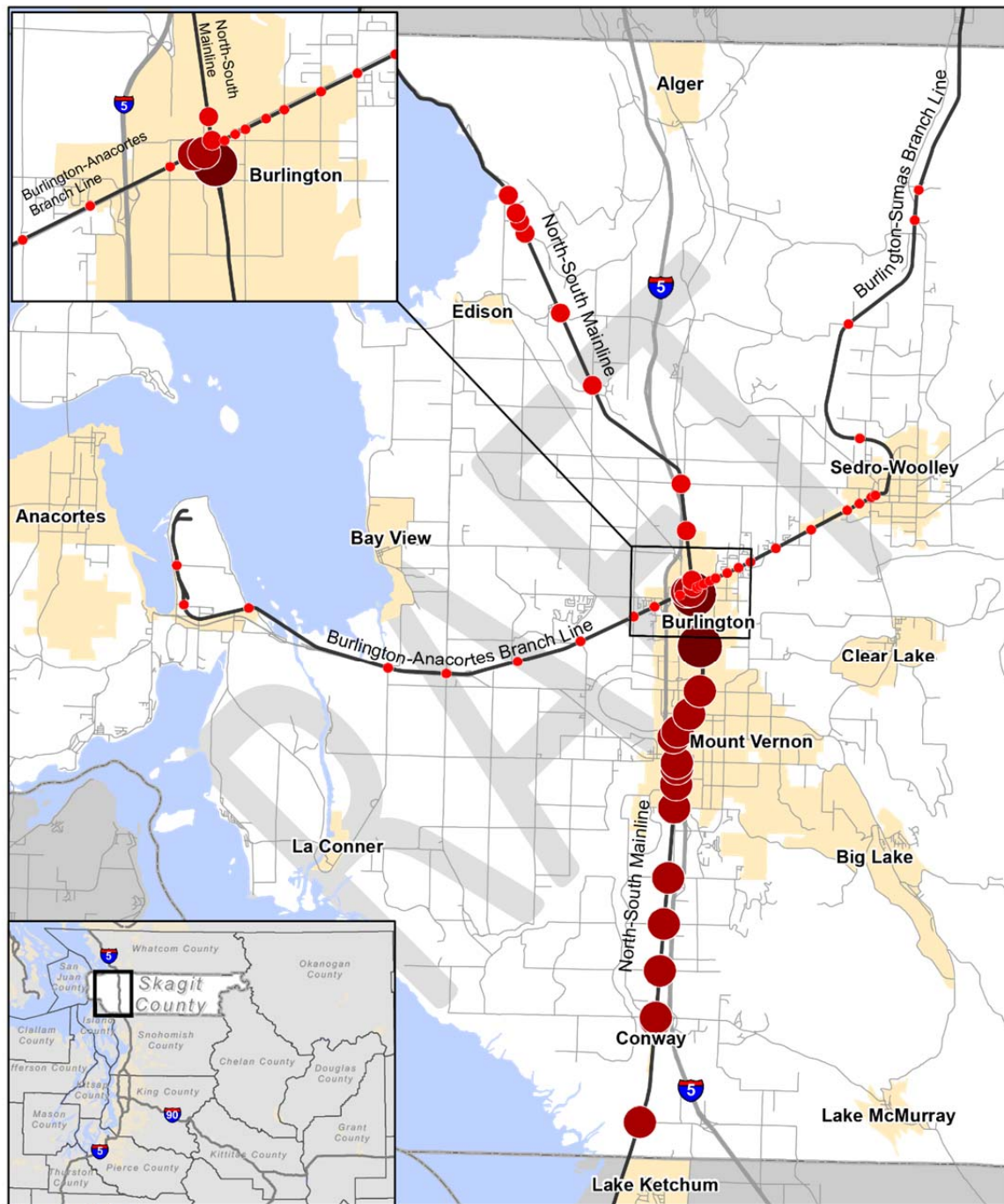


Figure 2 Existing Train Volumes at At-Grade Crossings

At all at-grade crossings in Skagit County, the variation in gate-down times range from approximately six minutes to one hour each day. Gate-down times by crossing and rail line are shown in Figures 3 through 5 (crossings on the North-South Mainline are listed from south to north and crossings on the Burlington-Sumas and Burlington-Anacortes branch lines are listed from west to east).

On the North-South Mainline, daily gate-down time ranges between approximately 33 and 60 minutes.

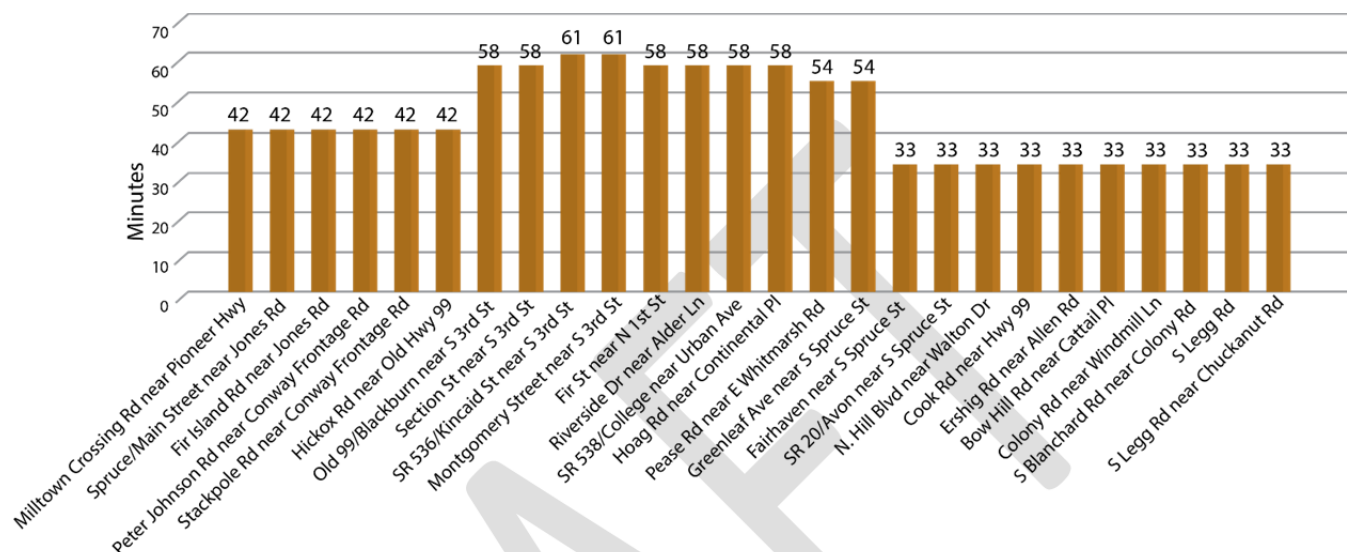


Figure 3 Existing Daily Gate-Down Time (minutes) on the North-South Mainline

Daily gate-down time at crossings in Mount Vernon is higher compared to other crossings because of slower allowable speeds at crossings. Also, Skagit Station is located directly adjacent to the Kincaid Street crossing and the Montgomery Street crossing; passenger train loading and unloading at the station creates more gate-down time at these crossings than through passenger trains at other crossings.

On the Burlington-Sumas Branch Line, there is between approximately 6 minutes and 20 minutes of gate-down time each day.

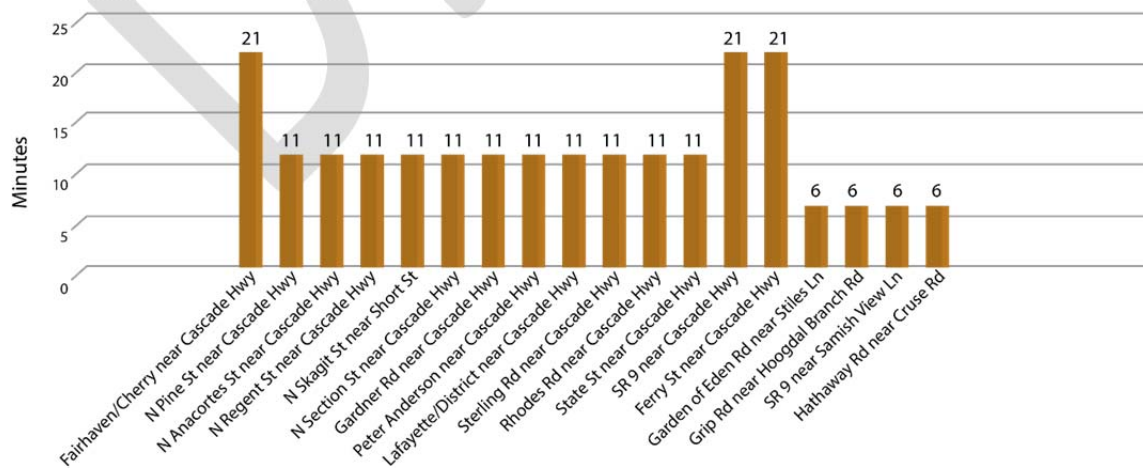


Figure 4 Existing Daily Gate-Down Time (minutes) on the Burlington-Sumas Branch Line

Gate down time is nearly double at three of the crossings (Fairhaven/Cherry, SR 9, and Ferry Street) compared to other crossings due to slower train speeds allowable at the crossing.

On the Burlington-Anacortes Branch Line, daily gate-down time ranges between approximately 42 minutes and 60 minutes. Gate down time is higher than other crossings at S Walnut Street and Spruce Street due to higher train volumes from train building activity.

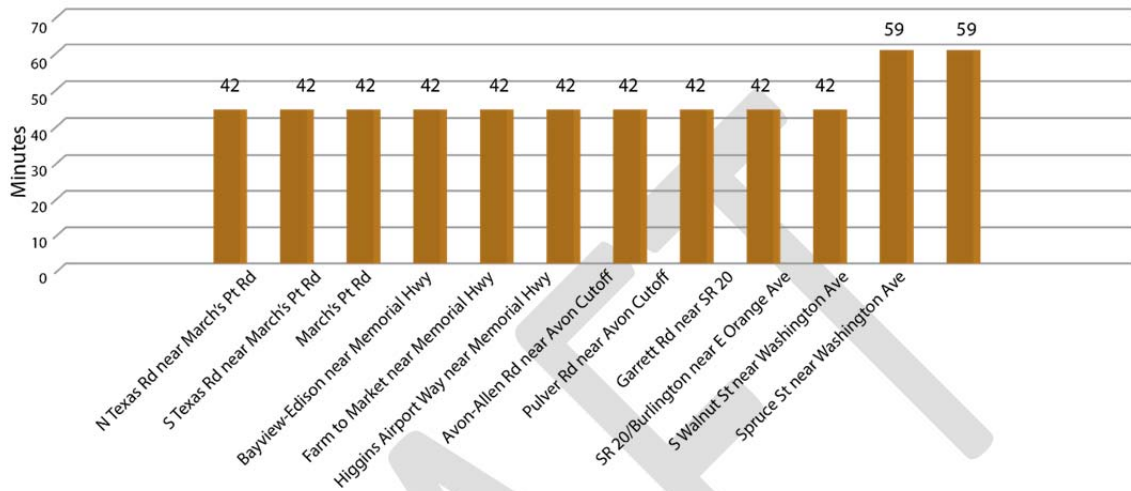


Figure 5 Existing Daily Gate-Down Time (minutes) on the Burlington-Anacortes Branch Line

Table 1 summarizes train volumes, allowable speeds at crossings, and daily gate-down time. Train crossings occur throughout the day, so the amount of gate-down time experienced for any one train crossing event would be a portion of the above mentioned total.

Table 1 Existing Train Volumes, Speed, and Gate-Down Time by Rail Line

USDOT Crossing Number	City	Cross Streets	Max Speed at Crossing	2015 Freight Train Volume	2015 Passenger Train Volume	2015 Daily Gate-Down Time
North-South Mainline (listed south to north)						
084727X	SC	Milltown Crossing Road near Pioneer Hwy	79	22	4	42
084733B	SC	Spruce/Main Street near Jones Rd	79	22	4	42
084734H	SC	Fir Island Rd near Jones Rd	79	22	4	42
084735P	SC	Peter Johnson Rd near Conway Frontage Rd	79	22	4	42
084736W	SC	Stackpole Rd near Conway Frontage Rd	79	22	4	42
084737D	SC	Hickox Rd near Old Hwy 99	79	22	4	42
084739S	Mount Vernon	Old 99/Blackburn near S 3rd St	50	22	4	58
084741T	Mount Vernon	Section St near S 3rd Street	50	22	4	58
084744N	Mount Vernon	SR 536 - Kincaid near S 3rd Street	50	22	4	61
084746C	Mount Vernon	Montgomery Street near S 3rd St	50	22	4	61
084753M	Mount Vernon	Fir St near N 1st St	50	22	4	58
084758W	Mount Vernon	Riverside Drive near Alder Ln	50	22	4	58
084759D	Mount Vernon	College - SR 538 near Urban Ave	50	22	4	58
084760X	Mount Vernon	Hoag Rd near Continental Pl	50	22	4	58
084763T	Burlington	Pease Rd near E Whitmarsh Rd	79	46	4	54
084764A	Burlington	Greenleaf Avenue near S Spruce St	79	46	4	54
084765G	Burlington	Fairhaven near S Spruce St	79	17	4	33
084766N	Burlington	SR 20 - Avon near S Spruce St	79	17	4	33

USDOT Crossing Number	City	Cross Streets	Max Speed at Crossing	2015 Freight Train Volume	2015 Passenger Train Volume	2015 Daily Gate-Down Time
077833N	Burlington	North Hill Blvd near Walton Dr	79	17	4	33
084775M	SC	Cook Rd near Hwy 99	79	17	4	33
084784L	SC	Ershig Rd near Allen Rd	79	17	4	33
084785T	SC	Bow Hill Rd near Cattail Pl	79	17	4	33
084787G	SC	Colony Rd near Windmill Ln	79	17	4	33
084788N	SC	S Blanchard Rd near Colony Rd	79	17	4	33
084789V	SC	S Legg Rd	79	17	4	33
084791W	SC	N Legg Rd near Chuckanut Dr	79	17	4	33
Burlington-Sumas Branch Line (listed west to east)						
092261C	Burlington	Fairhaven/Cherry near Cascade Hwy	10	2	0	21
092262J	Burlington	N Pine St near Cascade Hwy	20	2	0	11
092263R	Burlington	N Anacortes St near Cascade Hwy	20	2	0	11
092264X	Burlington	N Regent St near Avon Ave	20	2	0	11
092265E	Burlington	N Skagit St near Short St	20	2	0	11
092266L	Burlington	N Section St near Cascade Hwy	20	2	0	11
092267T	Burlington	Gardner Rd near Cascade Hwy	20	2	0	11
092269G	SC	Peter Anderson near Cascade Hwy	20	2	0	11
092270B	SC	Lafayette/District near Cascade Hwy	20	2	0	11
092273W	SC	Sterling Rd near Cascade Hwy	20	2	0	11
085005U	Sedro Woolley	Rhodes Rd near Cascade Hwy	20	2	0	11

USDOT Crossing Number	City	Cross Streets	Max Speed at Crossing	2015 Freight Train Volume	2015 Passenger Train Volume	2015 Daily Gate-Down Time
085006B	Sedro Woolley	State St near Cascade Hwy	20	2	0	11
085007H	Sedro Woolley	SR 9 near Cascade Hwy	10	2	0	21
085008P	Sedro Woolley	Ferry St near Cascade Highway	10	2	0	21
085101W	SC	Garden of Eden near Stiles Ln	40	2	0	6
085103K	SC	Grip Rd near Hoogdal Branch Rd	40	2	0	6
085105Y	SC	SR 9 near Samish View Ln	40	2	0	6
085106F	SC	Hathaway Rd near Cruse Rd	40	2	0	6
Burlington-Anacortes Branch Line (listed west to east)						
084708T	SC	N Texas Rd near March's Pt Road	10	4	0	42
092232S	SC	S Texas Rd near March's Point Rd	10	4	0	42
092234F	SC	March's Pt Rd	10	4	0	42
092241R	SC	Bayview-Edison near Memorial Hwy	10	4	0	42
092242X	SC	Farm to Market near Memorial Hwy	10	4	0	42
092246A	SC	Higgins Airport Way near Memorial Hwy	10	4	0	42
092249V	SC	Avon-Allen Rd near Avon Cutoff	10	4	0	42
092252D	SC	Pulver Rd near Avon Cutoff	10	4	0	42
929012P	Burlington	Garrett Road near SR 20	10	4	0	42
092255Y	Burlington	SR20-Burlington near E Orange Ave	10	4	0	42
092259B	Burlington	S Walnut St near Washington Ave	10	28	0	59
092260V	Burlington	Spruce St near Washington Ave	10	28	0	59

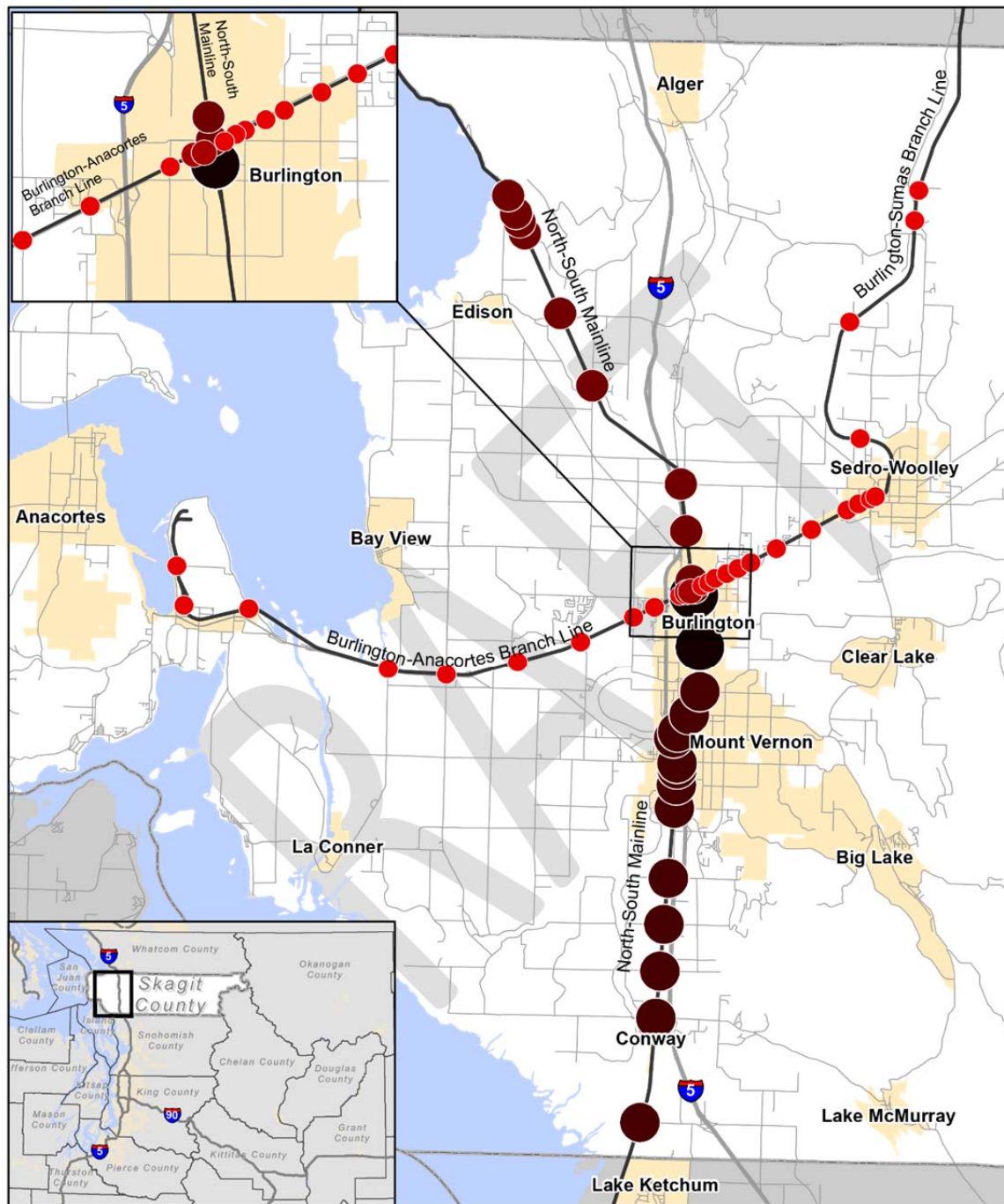
Future Gate-Down Time

WSDOT expects freight rail traffic in Skagit County to increase from existing conditions in the future, as described in the State Rail Plan (2014). WSDOT projections, plus additional commodity train projections not included in the WSDOT State Rail Plan, indicate that in 2040, daily freight train volumes at crossings

on the North-South Mainline in Skagit County will increase to between approximately 55 and 85 trains from the current 17 to 46 trains at crossings. The estimated 55 to 85 daily freight trains includes:

- The existing 17 to 46 daily trains,
- Ten future daily freight trains as included in the WSDOT State Rail Plan,
- An additional 24 commodity trains north of Burlington to 26 commodity trains south of Burlington (Gateway Pacific Terminal; Washington State Department of Ecology),
- Four daily passenger trains, similar to existing conditions.

On the Burlington-Anacortes Branch Line, an additional three trains are expected between Burlington and Anacortes. Four additional trains are expected on the Burlington-Sumas Branch Line. Figure 6 summarizes the distribution of future train volumes in the County.



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**Figure 6:
Future Train Volumes at
At-Grade Crossings**
Skagit County
Washington

Figure 6 Future (2040) Train Volumes at At-Grade Crossings

With the predicted freight and passenger train volumes in 2040, daily gate-down time at at-grade crossings in Skagit County would increase by between approximately 12 minutes and 1 hour 45 minutes. Figures 7 through 9 show the increases in gate-down time at crossings in Skagit County (crossings on the North-South Mainline are listed from south to north and crossings on the Burlington-Sumas and Burlington-Anacortes branch lines are listed from west to east).

On the North-South Mainline, daily gate-down time would increase by between approximately 135 and 210 percent depending on the location of the crossing. Total daily gate-down time on the North-South

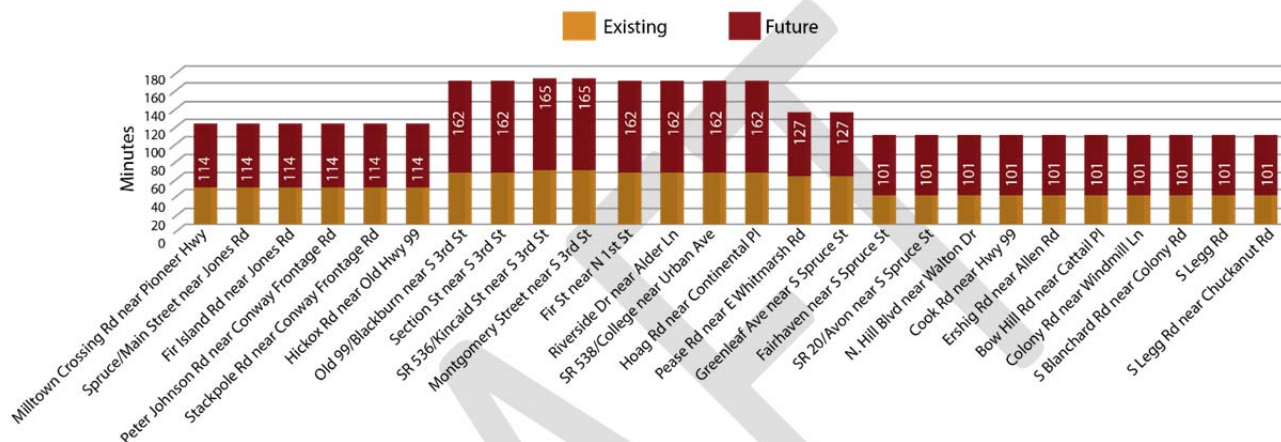


Figure 7 Future Daily Gate-Down Time (minutes) on the North-South Mainline

Mainline in 2040 would be between 1 hour 40 minutes and 2 hours and 45 minutes of delay.

On the Burlington-Sumas Branch Line, crossings would increase in daily gate-down time by 200 percent. Total daily gate-down time on the Burlington-Sumas Branch Line would be between approximately 18 minutes and one hour five minutes in 2040.

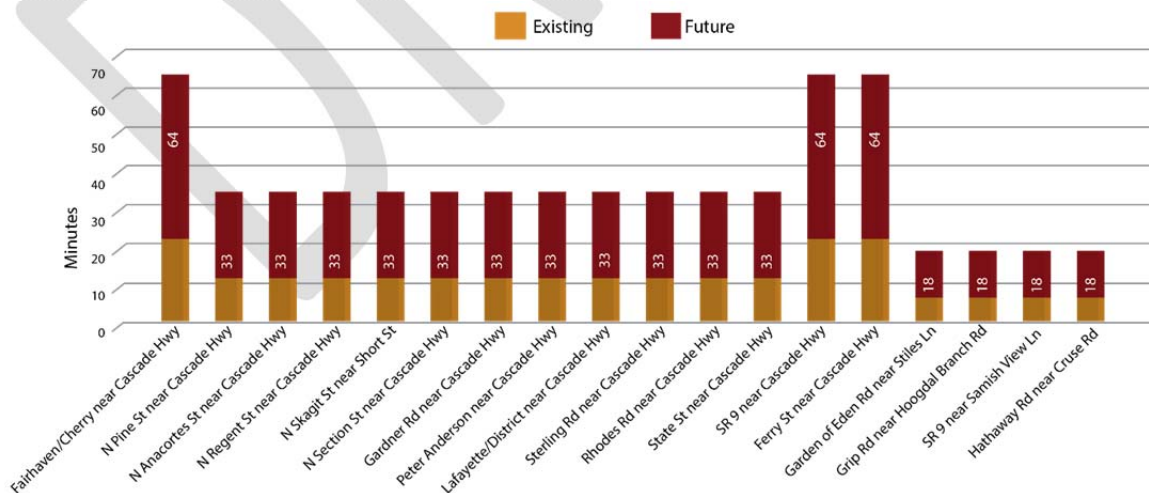


Figure 8 Future Daily Gate-Down Time (minutes) on the Burlington-Sumas Branch Line

Crossings on the Burlington-Anacortes Branch Line would increase by between approximately 60 and 85 percent. On the Burlington-Anacortes Branch Line, there would be approximately one hour 20 minutes to one hour 35 minutes of daily gate-down time.

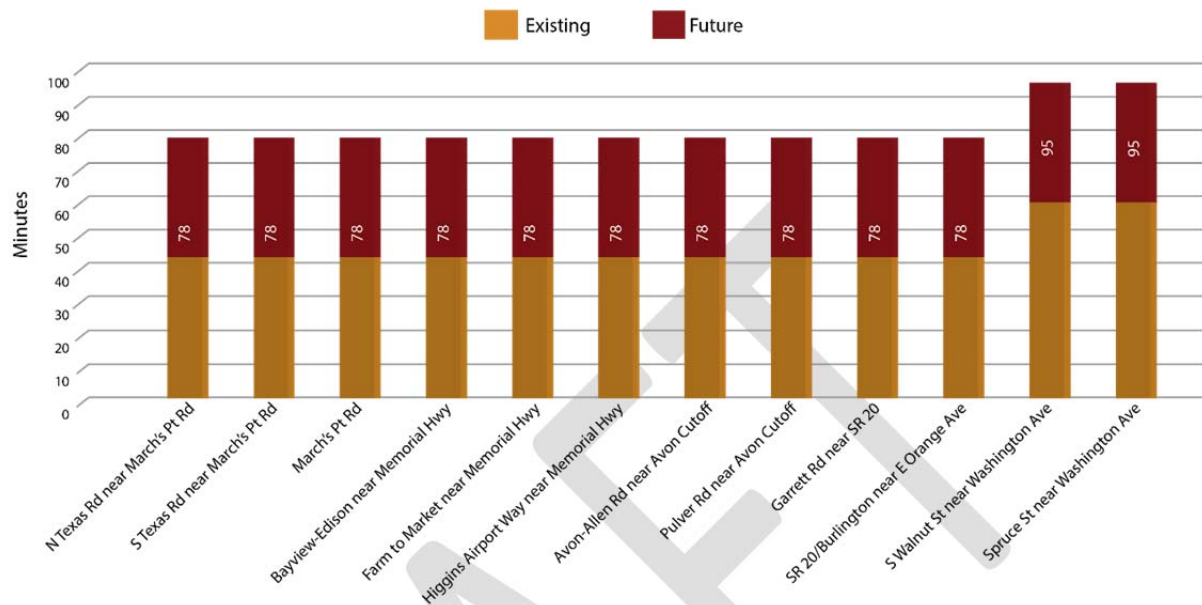


Figure 9 Future Daily Gate-Down Time (minutes) on the Burlington-Anacortes Branch Line

Table 2 summarizes train volumes and daily gate-down time in 2040. At-grade crossings on the North-South Mainline are expected to experience larger increases in daily gate-down time because of the number of expected future trains on this line.

Table 2 Future (2040) Train Volumes, Speed, and Gate-Down Time by Rail Line

USDOT Crossing Number	City	Cross Streets	Max Speed at Crossing	2040 Freight Train Volume	2040 Passenger Train Volume	2040 Daily Gate-Down Time
North-South Mainline (listed south to north)						
084727X	SC	Milltown Crossing Road near Pioneer Hwy	79	58	4	114
084733B	SC	Spruce/Main Street near Jones Rd	79	58	4	114
084734H	SC	Fir Island Rd near Jones Rd	79	58	4	114
084735P	SC	Peter Johnson Rd near Conway Frontage Rd	79	58	4	114
084736W	SC	Stackpole Rd near Conway Frontage Rd	79	58	4	114

USDOT Crossing Number	City	Cross Streets	Max Speed at Crossing	2040 Freight Train Volume	2040 Passenger Train Volume	2040 Daily Gate-Down Time
084737D	SC	Hickox Rd near Old Hwy 99	79	58	4	114
084739S	Mount Vernon	Old 99/Blackburn near S 3rd St	50	58	4	162
084741T	Mount Vernon	Section St near S 3rd Street	50	58	4	162
084744N	Mount Vernon	SR 536 - Kincaid near S 3rd Street	50	58	4	165
084746C	Mount Vernon	Montgomery Street near S 3rd St	50	58	4	165
084753M	Mount Vernon	Fir St near N 1st St	50	58	4	162
084758W	Mount Vernon	Riverside Drive near Alder Ln	50	58	4	162
084759D	Mount Vernon	College - SR 538 near Urban Ave	50	58	4	162
084760X	Mount Vernon	Hoag Rd near Continental Pl	50	58	4	162
084763T	Burlington	Pease Rd near E Whitmarsh Rd	79	82	4	127
084764A	Burlington	Greenleaf Avenue near S Spruce St	79	82	4	127
084765G	Burlington	Fairhaven near S Spruce St	79	51	4	101
084766N	Burlington	SR 20 - Avon near S Spruce St	79	51	4	101
077833N	Burlington	North Hill Blvd near Walton Dr	79	51	4	101
084775M	SC	Cook Rd near Hwy 99	79	51	4	101
084784L	SC	Ershig Rd near Allen Rd	79	51	4	101
084785T	SC	Bow Hill Rd near Cattail Pl	79	51	4	101
084787G	SC	Colony Rd near Windmill Ln	79	51	4	101
084788N	SC	S Blanchard Rd near Colony Rd	79	51	4	101

USDOT Crossing Number	City	Cross Streets	Max Speed at Crossing	2040 Freight Train Volume	2040 Passenger Train Volume	2040 Daily Gate-Down Time
084789V	SC	S Legg Rd	79	51	4	101
084791W	SC	N Legg Rd near Chuckanut Dr	79	51	4	101
Burlington-Sumas Branch Line (listed west to east)						
092261C	Burlington	Fairhaven/Cherry near Cascade Hwy	10	6	0	64
092262J	Burlington	N Pine St near Cascade Hwy	20	6	0	33
092263R	Burlington	N Anacortes St near Cascade Hwy	20	6	0	33
092264X	Burlington	N Regent St near Avon Ave	20	6	0	33
092265E	Burlington	N Skagit St near Short St	20	6	0	33
092266L	Burlington	N Section St near Cascade Hwy	20	6	0	33
092267T	Burlington	Gardner Rd near Cascade Hwy	20	6	0	33
092269G	SC	Peter Anderson near Cascade Hwy	20	6	0	33
092270B	SC	Lafayette/District near Cascade Hwy	20	6	0	33
092273W	SC	Sterling Rd near Cascade Hwy	20	6	0	33
085005U	Sedro Woolley	Rhodes Rd near Cascade Hwy	20	6	0	33
085006B	Sedro Woolley	State St near Cascade Hwy	20	6	0	33
085007H	Sedro Woolley	SR 9 near Cascade Hwy	10	6	0	64
085008P	Sedro Woolley	Ferry St near Cascade Highway	10	6	0	64
085101W	SC	Garden of Eden near Stiles Ln	40	6	0	18
085103K	SC	Grip Rd near Hoogdal Branch Rd	40	6	0	18
085105Y	SC	SR 9 near Samish View Ln	40	6	0	18
085106F	SC	Hathaway Rd near Cruse Rd	40	6	0	18

USDOT Crossing Number	City	Cross Streets	Max Speed at Crossing	2040 Freight Train Volume	2040 Passenger Train Volume	2040 Daily Gate-Down Time
Burlington-Anacortes Branch Line (listed west to east)						
084708T	SC	N Texas Rd near March's Pt Road	10	7	0	78
092232S	SC	S Texas Rd near March's Point Rd	10	7	0	78
092234F	SC	March's Pt Rd	10	7	0	78
092241R	SC	Bayview-Edison near Memorial Hwy	10	7	0	78
092242X	SC	Farm to Market near Memorial Hwy	10	7	0	78
092246A	SC	Higgins Airport Way near Memorial Hwy	10	7	0	78
092249V	SC	Avon-Allen Rd near Avon Cutoff	10	7	0	78
092252D	SC	Pulver Rd near Avon Cutoff	10	7	0	78
929012P	Burlington	Garrett Road near SR 20	10	7	0	78
092255Y	Burlington	SR20-Burlington near E Orange Ave	10	7	0	78
092259B	Burlington	S Walnut St near Washington Ave	10	31	0	95
092260V	Burlington	Spruce St near Washington Ave	10	31	0	95

Emergency Services

Increased gate-down time, or crossing blockage, could result in longer average response times for emergency vehicles. During a crossing event, fire and medical emergency vehicles responding to an emergency may be delayed more frequently during crossing events at an at-grade crossing. At-grade crossings in areas that have poor network redundancy could disproportionately impact emergency response times when future trains are operating. Network redundancy is the presence of alternate routes around an at-grade crossing within a half-mile of the crossing; network redundancy can be reduced if all of the nearby alternate routes are on streets that also have at-grade crossings blocked during the same crossing event.

With additional trains in the future, emergency response vehicles could experience additional crossing delays of between 1 minute 45 seconds and 13 minutes per train crossing event. Analysts evaluated potential impacts to emergency service delivery by assessing network redundancy within a half-mile of at-grade crossings in Skagit County. The evaluation categorized each at-grade crossing based on the impact on emergency service response times using the following definitions:

- *High Impact:* At-grade crossings that have poor network redundancy within a half-mile radius, or no alternate routes around the at-grade crossing, would be rated as a high impact. At-grade

crossings that may have nearby alternate routes but routes are located on streets with other at-grade crossings were also rated poor since these crossings could also be blocked during a train crossing event. Emergency service providers would likely be impacted by delay from additional train traffic. Emergency responders would have to wait for crossings to clear during a train event and would not be able to take an alternate route.

- *Moderate Impact:* At-grade crossings that have moderate network redundancy within a half-mile radius, or only one alternate route around the at-grade crossing, would be rated as a moderate impact. Emergency service providers could use an alternate route to avoid the blocked crossing but would have limited alternate routes. If the alternate route was congested or less direct, emergency service providers would likely experience some delay from additional train traffic.
- *Low Impact:* At-grade crossings that have good network redundancy within a half-mile radius, or multiple alternate routes around the at-grade crossing, would be rated as a low impact. Emergency service providers could use multiple alternate routes to avoid the blocked crossing. This would allow responders to choose the most direct and/or least congested route around the crossing. Responders would likely experience little delay from additional train traffic.

Of the 56 at-grade crossings in Skagit County, six would have a moderate impact from future train traffic on emergency response services. The following crossings each have a grade-separated crossing within a half-mile, which could allow emergency vehicles to bypass the at-grade crossing during a crossing event:

- Ferry Street near Cascade Highway
- S Texas Road near March's Point Road
- N Legg Road near Chuckanut Drive
- Cook Road near Highway 99
- Montgomery Street near S 3rd St
- SR 536 /Kincaid near S 3rd Street

The remaining 50 crossings would have a high impact to emergency service delivery because no alternate routes around a blocked at-grade crossing currently exist. The majority of crossings in Skagit County are located in areas where there are few parallel connections and/or a lack of grade-separated crossings.

Impacts to Safety

With increased train crossings in the future, the potential for accidents at and near at-grade crossings could increase absent safety improvements. Although collisions with trains are often due to motorists or pedestrians disregarding safety precautions at crossings, increased train crossing events could result in additional incidents near crossings due to traffic congestion. Table 3 summarizes the 3-year collision history at and within 250 feet of at-grade crossings in Skagit County that have had at least one collision.

Table 3 Collisions at and within 250 feet of At-Grade Crossings in Skagit County

USDOT Crossing Number	Cross Streets	2015 Average Daily Traffic Volumes	2015 Train Volume (Freight and Passenger)	3-Year Collision History (2012-2014)	Accidents per Million Entering Vehicles	Accidents per Thousand Entering Trains
North-South Mainline (listed south to north)						
084727X	Milltown Crossing Road near Pioneer Hwy	20	26	4	152.2	0.14
084733B	Spruce/Main Street near Jones Rd	570	26	1	1.6	0.04
084739S	Old 99/Blackburn near S 3rd St	4,470	26	5	1.0	0.18
084741T	Section St near S 3rd Street	3,290	26	2	0.6	0.07
084744N	SR 536 - Kincaid near S 3rd Street	21,400	26	23	1.0	0.81
084746C	Montgomery Street near S 3rd St	1,360	26	3	2.0	0.11
084753M	Fir St near N 1st St	7,570	26	2	0.2	0.07
084758W	Riverside Drive near Alder Ln	20,310	26	13	0.6	0.46
084759D	College - SR 538 near Urban Ave	23,280	26	13	0.5	0.46
084760X	Hoag Rd near Continental Pl	14,440	26	1	0.1	0.04
084763T	Pease Rd near E Whitmarsh Rd	3,210	50	6	1.7	0.11
084764A	Greenleaf Avenue near S Spruce St	3,990	50	1	0.2	0.02
084765G	Fairhaven near S Spruce St	7,900	21	9	1.0	0.39
084766N	SR 20 - Avon near S Spruce St	14,940	21	24	1.5	1.04
084775M	Cook Rd near Hwy 99	12,470	21	23	1.7	1.00
084787G	Colony Rd near Windmill Ln	470	21	1	1.9	0.04
Burlington-Sumas Branch Line (listed west to east)						
092261C	Fairhaven/Cherry near Cascade Hwy	11,590	2	3	0.2	1.37

USDOT Crossing Number	Cross Streets	2015 Average Daily Traffic Volumes	2015 Train Volume (Freight and Passenger)	3-Year Collision History (2012-2014)	Accidents per Million Entering Vehicles	Accidents per Thousand Entering Trains
092262J	N Pine St near Cascade Hwy	820	2	4	4.5	1.83
092263R	N Anacortes St near Cascade Hwy	1,790	2	1	0.5	0.46
092264X	N Regent St near Avon Ave	600	2	4	6.1	1.83
092265E	N Skagit St near Short St	1,490	2	1	0.6	0.46
092266L	N Section St near Cascade Hwy	820	2	5	5.6	2.28
092267T	Gardner Rd near Cascade Hwy	1,400	2	6	3.9	2.74
092269G	Peter Anderson near Cascade Hwy	640	2	2	2.8	0.91
092273W	Sterling Rd near Cascade Hwy	1,610	2	7	4.0	3.20
085005U	Rhodes Rd near Cascade Hwy	730	2	13	16.3	5.94
085006B	State St near Cascade Hwy	660	2	26	36.3	11.87

Burlington-Anacortes Branch Line (listed west to east)

092234F	March's Pt Rd	280	4	1	3.2	0.23
092241R	Bayview-Edison near Memorial Hwy	1,430	4	13	8.3	2.97
092242X	Farm to Market near Memorial Hwy	4,290	4	9	1.9	2.05
092246A	Higgins Airport Way near Memorial Hwy	2,000	4	5	2.3	1.14
092249V	Avon-Allen Rd near Avon Cutoff	2,040	4	14	6.3	3.20
092252D	Pulver Rd near Avon Cutoff	1,270	4	6	4.3	1.37
929012P	Garrett Road near SR 20	-	4	30	N/A	6.85
092259B	S Walnut St near Washington Ave	830	28	1	1.1	0.03

Crossings that have a higher collision history could be prioritized for safety improvements near the crossing to help mitigate any impacts from additional gate-down time.

Vehicle Queuing

This section summarizes the queue analysis completed for high volume intersections during the PM peak. Crossings that have the potential to create operational issues at nearby intersections are also highlighted in this section.

Methodology

Vehicle queueing at at-grade crossings is another measure used to determine impacts to the transportation system from increased future train traffic at at-grade crossings. Analysts completed a queue analysis for at-grade crossings on streets that are expected to have an average daily traffic (ADT) volume of 5,000 or more vehicles in 2040, which include the following 18 crossings:

- Fir Island Road near Jones Road Skagit County
- Old 99/Blackburn near S 3rd Street Mount Vernon
- SR 536/Kincaid near S 3rd Street Mount Vernon
- Fir Street near N 1st Street Mount Vernon
- Riverside Drive near Alder Lane Mount Vernon
- SR 538/College near Urban Avenue Mount Vernon
- Hoag Road near Continental Place Mount Vernon
- Greenleaf Avenue near S Spruce Street Burlington
- Fairhaven near S Spruce Street Burlington
- SR 20/Avon near S Spruce Street Burlington
- Cook Road near Highway 99 Skagit County
- SR 9 near Cascade Highway Sedro-Woolley
- Ferry Street near Cascade Highway Sedro-Woolley
- Farm to Market near Memorial Highway Skagit County
- Higgins Airport Way near Memorial Highway Skagit County
- SR20/Burlington near E Orange Avenue Burlington
- Spruce Street near Washington Avenue Burlington
- Fairhaven/Cherry near Cascade Highway Burlington

To determine the anticipated maximum impact to the roadway network, analysts performed the queue length analysis using PM peak hour traffic volumes. Traffic volumes are higher during the PM peak hour than any other time of day, so rail crossing events that occur during the PM peak hour result in the longest queues compared to any other time of day. Because freight train crossing events create longer periods of gate-down time than passenger trains or train-building activities, the queue length analysis was completed for freight train crossing events. Also, passenger trains are not currently operating through Skagit County during the PM peak hour. Freight trains are longer than passenger trains, which results in longer periods of gate-down time and a more substantial impact on the roadway network.

Analysts determined the anticipated maximum queue length during the PM peak hour and noted locations where queues at a crossing are expected to extend into upstream intersections. Analysts also noted locations where queues at a nearby intersection could have the potential to extend through an at-grade crossing.

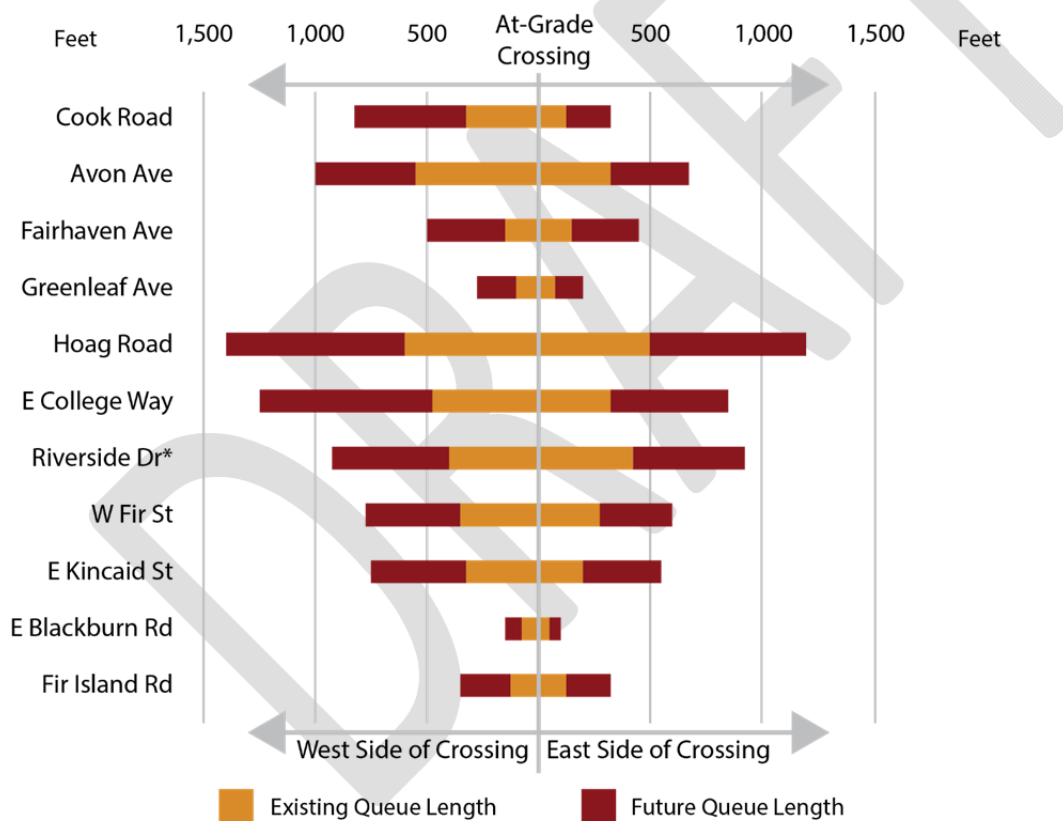
Queue lengths were determined by assuming a freight train arrives at a crossing sometime during the PM peak hour. The PM peak hour volume was used to calculate how many vehicles would arrive at the crossing when the gates were down, and how long it would take for vehicles to dissipate once the train passes and the gates are open to traffic again. The maximum queue would typically occur a short time after the gates open to vehicle traffic again.

Queue lengths were calculated with existing year 2015 traffic volumes and future year 2040 traffic volumes at each crossing. Vehicle queue lengths at at-grade crossings vary depending on the number of lanes, the length of gate-down time during a crossing event, and the approaching vehicle volume.

Vehicle queues and congestion at crossings can become problematic when vehicle queues at a crossing back into nearby upstream intersections, causing congestion to ripple through the surrounding transportation network. Crossing events can also cause queues to form at nearby intersections downstream of the crossing. If a platoon of vehicles forms while stopped at a crossing during a train crossing event, and a downstream intersection does not have enough capacity to serve the platoon of vehicles, a queue will form at the intersection. This can potentially cause vehicles to be backed up into the rail crossing even after the crossing event and could take several signal cycles to dissipate.

Queue Lengths

Figure 10 illustrates the existing and future anticipated maximum queue lengths east and west of the crossings on the North-South Mainline during the PM peak hour.



**NOTE: THE RIVERSIDE DRIVE CROSSING IS ORIENTED NORTHEAST/SOUTHWEST; THE QUEUES AT THE CROSSING OCCUR ON THE NORTH AND SOUTH APPROACHES TO THE CROSSING*

Figure 10 Existing (2015) and Future (2040) Queue Lengths on the North-South Mainline

The maximum queue lengths on the North-South Mainline are expected to be between approximately 80 and 230 percent longer in 2040 than they are today. The increase in queue lengths is a result of

increased traffic volume on the roadways and longer periods of gate-down time due to increased and longer freight trains.

Traffic volumes are generally higher on the eastbound approaches than on the westbound approaches during the PM peak hour, so the queues on the eastbound approaches to the crossings are longer than the queues on the westbound approaches.

Figures 11 and 12 illustrate the existing and future anticipated maximum queue lengths that occur at the crossings on the Burlington-Sumas Branch Line during the PM peak hour.

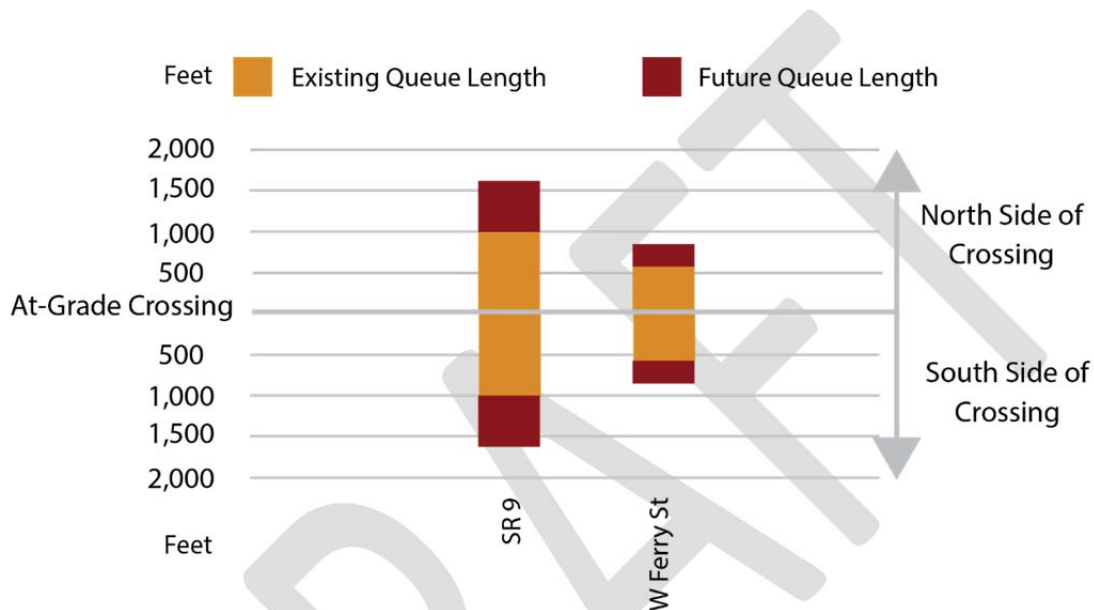


Figure 11 Existing (2015) and Future (2040) Queue Lengths on the Burlington-Sumas Branch Line (east-west portion of the line)

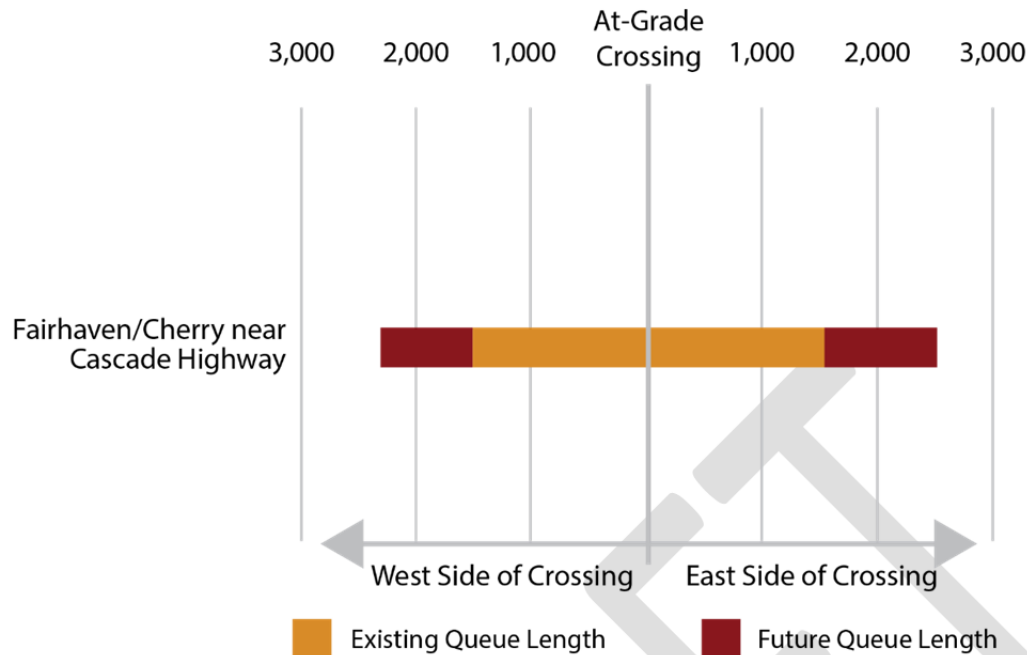


Figure 12 Existing (2015) and Future (2040) Queue Lengths on the Burlington-Sumas Branch Line (north-south portion of the line)

The maximum queue lengths on the Burlington-Sumas Branch Line are expected to be between 50 and 70 percent longer in 2040 than they are today. Similar to crossings on the Mainline, the increase in queue lengths is a result of increased traffic volume on the roadways, and longer periods of gate-down time due to increased freight train traffic.

Traffic volumes approaching either sides of crossings on the Burlington-Sumas Branch Line are generally similar, so the queue lengths are similar.

Figure 13 illustrates the existing and future anticipated maximum queue lengths that occur at the crossings on the Burlington-Anacortes Branch Line during the PM peak hour.

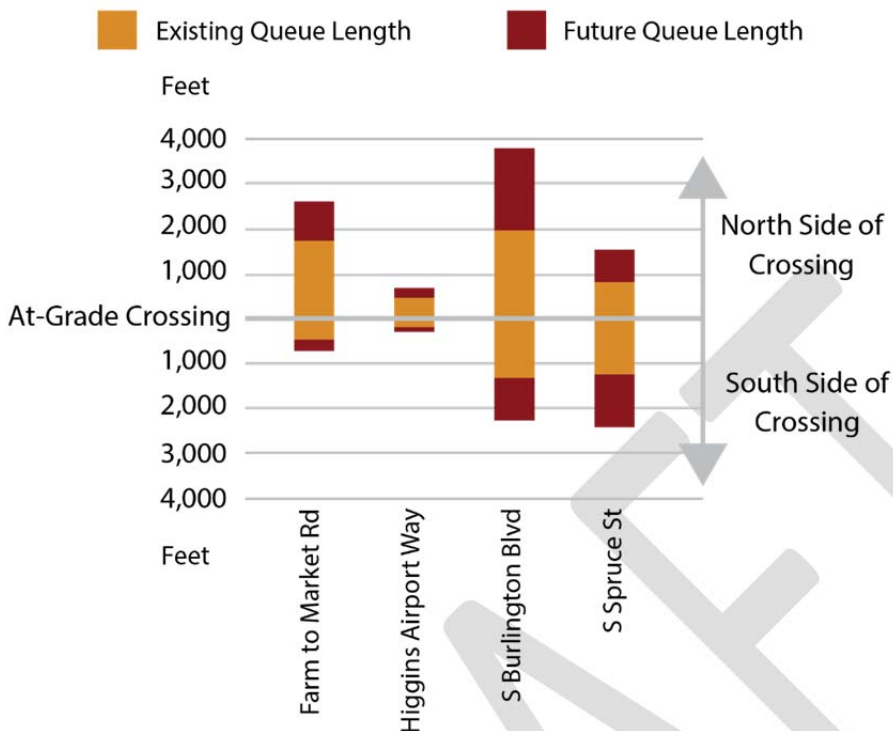


Figure 13 Existing (2015) and Future (2040) Queue Lengths on the Burlington-Anacortes Branch Line

The maximum queue lengths on the Burlington-Anacortes Branch Line are expected to be between 50 and 95 percent longer in 2040 than they are today. This is because of increased traffic volume on the roadways, and longer periods of gate-down time due to increased and longer freight train traffic. The percent increase in maximum queue lengths is also expected to be higher on the Burlington-Anacortes Branch Line than on the Burlington-Sumas Branch Line because train lengths are expected to be longer.

Generally, southbound volumes at crossings on the Burlington-Anacortes Branch Line are higher than northbound volumes, which results in longer queues on the southbound approaches. However, at the Spruce Street crossing, the northbound volume is higher than the southbound volume during the PM peak hour. This results in longer queues at the northbound approach at S Spruce Street.

Adjacent Intersection Impacts

This section documents locations where queues at a rail crossing have the potential to impact operations at upstream intersections, and vice versa. Table 4 lists intersections and at-grade crossings that may be impacted by queuing.

Table 4 Impacted Intersections from Queues during Rail Crossing Events

At-Grade Crossing	Intersection	Queuing at Adjacent At-Grade Rail Crossing Impacts Nearby Intersection		Queuing at Adjacent Intersection Impacts Nearby At-Grade Rail Crossing	
		Existing Conditions (2015)	Future Conditions (2040)	Existing Conditions (2015)	Future Conditions (2040)
North-South Mainline (listed south to north)					
SR 536/Kincaid St near S 3 rd St	E Kincaid St and S 3 rd Street	X	X	X	X
	E Kincaid St and I-5 Southbound Ramps		X	X	X
Fir/Cameron St near N 1 st Street; Riverside Dr near Alder Ln	Riverside Drive/N 4 th Street and W Fir Street		X		X
SR 538/College near Urban Ave	E College Way and Urban Ave	X	X		X
	E College Way and Continental Place				X
Hoag Rd near Continental Pl	Hoag Road/Martin Road and N Laventure Rd				X
Fairhaven near S Spruce St	E Fairhaven and S Spruce Street*		X		X
Cook Rd near Highway 99	Cook Road and Old Highway 99	X	X		
Burlington-Sumas Branch Line (listed west to east)					
Fairhaven/Cherry near Cascade Hwy	E Fairhaven Ave and S Anacortes Street*	X	X		X
State Street near Cascade Highway	SR 9 and W State St	X	X	X	X
Burlington-Anacortes Branch Line (listed west to east)					
Farm to Market near Memorial Hwy	Memorial Highway and Farm to Market Road	X	X		
Higgins Airport Way near Memorial Hwy	Memorial Highway and Higgins Airport Way	X	X		
SR20-Burlington near E Orange Ave	S Burlington Blvd and W Fairhaven Ave	X	X		X

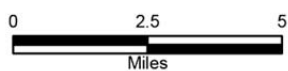
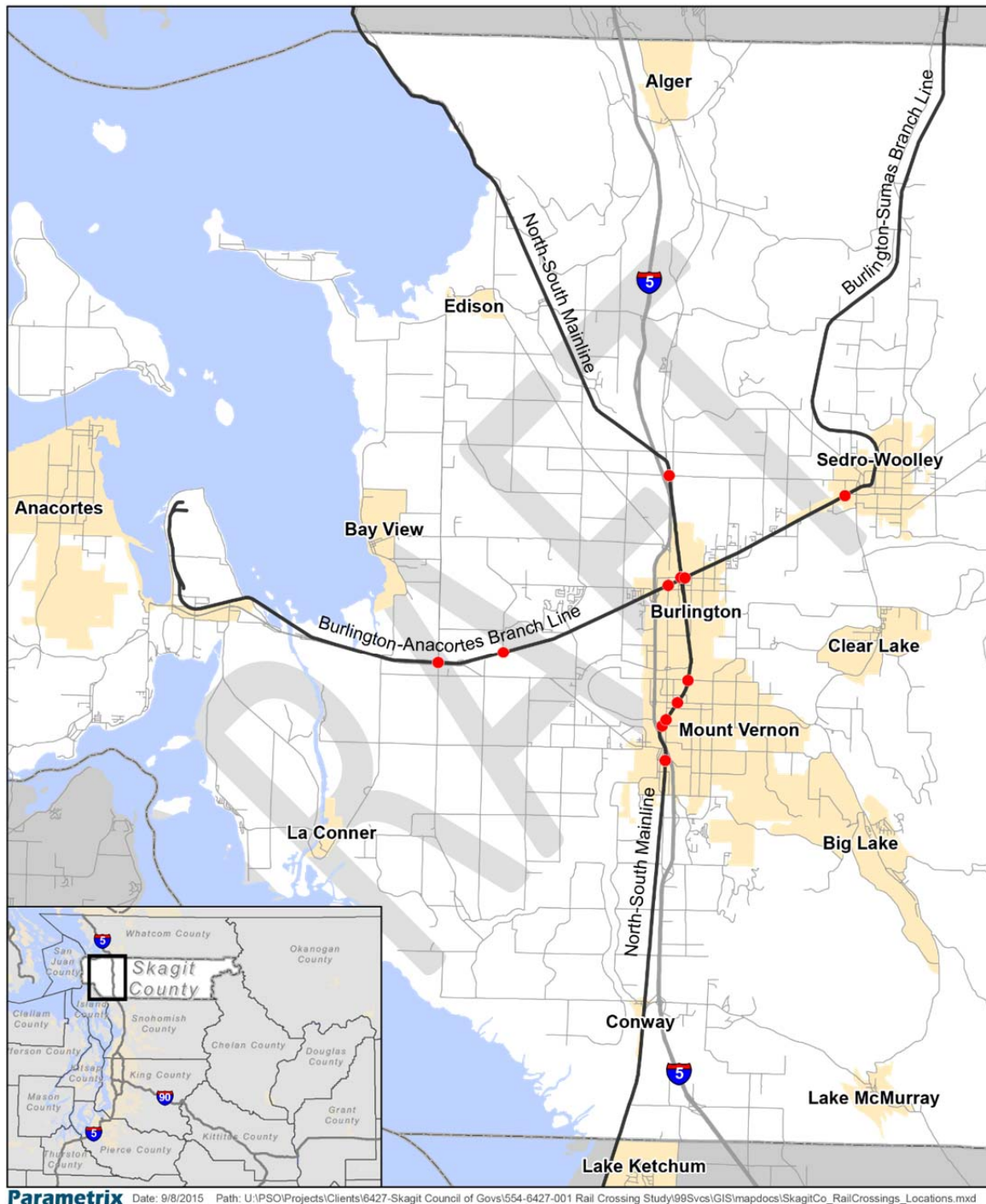
At-Grade Crossing	Intersection	Queuing at Adjacent At-Grade Rail Crossing Impacts Nearby Intersection		Queuing at Adjacent Intersection Impacts Nearby At-Grade Rail Crossing	
		Existing Conditions (2015)	Future Conditions (2040)	Existing Conditions (2015)	Future Conditions (2040)
	S Burlington Blvd and E Rio Vista Ave	X	X		X

Note: All intersections are signalized except for E Fairhaven and S Spruce Street, and E Fairhaven and S Anacortes St, which are all way stops.

Figure 14 shows the locations of at-grade crossings that could impact or be impacted by vehicle queuing. The majority of these crossings are located on the North-South Mainline south of Burlington.

When queues from a rail crossing extend into adjacent intersections, congestion and delay could increase on some or all movements through the intersection depending on the intersection configuration. There is also the potential for vehicles to pull into the intersection and block other movements while waiting for the queue from the rail crossing to dissipate.

When queues from adjacent intersections extend into the rail crossing, it is possible for vehicles to be unable to clear the crossing before a train crossing event.



- BNSF Rail Line
- At Grade Crossing Location

Figure 14:
At-Grade Crossings that
Impact or are Impacted by
Queuing

Skagit County
Washington

Figure 14 At-Grade Crossings that Impact or are Impacted by Queuing

Key Crossings

Crossings that could be disproportionately impacted by increased train traffic in the future were identified for a more in-depth analysis, including identification of preliminary mitigation strategies to improve safety or reduce delay. Analysts rated crossing characteristics on a scale of 1 to 5, with crossings that have a high impact, or lower performance, ranked lower.

The factors that were used to describe the total impacts included:

1. Maximum daily train volumes (freight and passenger) in 2040
2. Daily gate-down time in 2040
3. Average daily traffic volumes in 2040
4. Roadway freight truck percentages
5. Marginal increase in daily gate-down time in 2040 from existing conditions
6. Marginal percent increase in daily gate-down time in 2040 from existing conditions
7. Impact to emergency services
8. Accident history

Analysts scored the performance for each crossing by summing the rating score (1 through 5) for the crossing characteristics 3 through 8. Each of the rated characteristics were equally weighted.

Table 5 summarizes the performance ratings for all of the at-grade crossings in Skagit County. There were 12 crossings identified as key crossings based on their performance. Crossings that had a performance score of 20 or less, had a projected average daily traffic volume of 15,000 or more in 2040, or were identified by key stakeholders were selected as key crossings. This included the following crossings (shown on Figure 15):

- Old 99/Blackburn Road near S 3rd Street Mount Vernon
- SR 536/Kincaid near S 3rd Street Mount Vernon
- Fir Street near 1st Street Mount Vernon
- Riverside Drive near Alder Lane Mount Vernon
- SR 538/College near Urban Avenue Mount Vernon
- Hoag Road near Continental Pl Mount Vernon
- Fairhaven near S Spruce St Burlington
- SR 20/ Avon near S Spruce Street Burlington
- Cook Road near Highway 99 Skagit County
- Fairhaven/Cherry Street near Cascade Highway Burlington
- State St near Cascade Highway Sedro-Woolley
- SR 9 near SR 20 Sedro-Woolley
- Ferry Street near SR 20 Sedro-Woolley
- SR 20/Burlington near E Orange Avenue Burlington

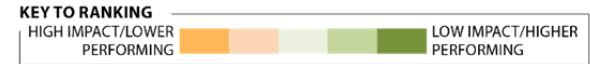


Table 5 At-Grade Crossing Performance Summary

USDOT Crossing Number	City	Cross Streets	2040 Maximum Daily Train Volumes (Freight and Passenger)	2040 Daily Gate-Down Time (min)	2040 Average Daily Traffic Volume	Freight Truck %	2040 Marginal Increase in Daily Gate-Down Time from Existing (min)	2040 Marginal Percent Increase in Gate Down-Time From Existing	Impact to Emergency Services	3-Year Accident History	Accidents per Million Entering Vehicles	Accidents per Thousand Entering Trains	Score
North-South Mainline (shown south to north)													
084727X	SC	Milltown Crossing Road near Pioneer Hwy	62	114	30	0%	72	174%	High	4	152.2	0.14	23
084733B	SC	Spruce/Main Street near Jones Rd	62	114	710	20%	72	174%	High	1	1.6	0.04	22
084734H	SC	Fir Island Rd near Jones Rd	62	114	7,870	15%	72	174%	High	None	0.0	0.00	23
084735P	SC	Peter Johnson Rd near Conway Frontage Rd	62	114	120	5%	72	174%	High	None	0.0	0.00	27
084736W	SC	Stackpole Rd near Conway Frontage Rd	62	114	320	5%	72	174%	High	None	0.0	0.00	27
084737D	SC	Hickox Rd near Old Hwy 99	62	114	620	5%	72	174%	High	None	0.0	0.00	27

084739S	Mount Vernon	Old 99/Blackburn near S 3rd St	62	162	63,701	3%	104	179%	High	5	1.0	0.18	19
084741T	Mount Vernon	Section St near S 3rd Street	62	162	4,700	5%	104	179%	High	2	0.6	0.07	22
084744N	Mount Vernon	SR 536 - Kincaid near S 3rd Street	62	165	30,520	4%	104	170%	Moderate	23	1.0	0.81	18
084746C	Mount Vernon	Montgomery Street near S 3rd St	62	165	1,950	10%	104	179%	Moderate	3	2.0	0.11	24
084753M	Mount Vernon	Fir St near N 1st St	62	162	10,800	8%	104	179%	High	2	0.2	0.07	20
084758W	Mount Vernon	Riverside Drive near Alder Ln	62	162	28,960	5%	104	179%	High	13	0.6	0.46	17
084759D	Mount Vernon	College - SR 538 near Urban Ave	62	162	33,210	7%	104	179%	High	13	0.5	0.46	17
084760X	Mount Vernon	Hoag Rd near Continental Pl	62	162	20,590	3%	104	179%	High	1	0.1	0.04	21
084763T	Burlington	Pease Rd near E Whitmarsh Rd	86	127	4,520	15%	72	134%	High	6	1.7	0.11	22
084764A	Burlington	Greenleaf Avenue near S Spruce St	86	127	5,620	9%	72	134%	High	1	0.2	0.02	22
084765G	Burlington	Fairhaven near S Spruce St	55	101	11,130	8%	68	209%	High	9	1.0	0.39	20
084766N	Burlington	SR 20 - Avon near S Spruce St	55	101	21,050	6%	68	209%	High	24	1.5	1.04	17
077833N	Burlington	North Hill Blvd near Walton Dr	55	101	1,450	2%	68	209%	High	None	0.0	0.00	28
084775M	SC	Cook Rd near Hwy 99	55	101	17,570	12%	68	209%	Moderate	23	1.7	1.00	18

084784L	SC	Ershig Rd near Allen Rd	55	101	850	10%	68	209%	High	None	0.0	0.00	26
084785T	SC	Bow Hill Rd near Cattail Pl	55	101	1,670	10%	68	209%	High	None	0.0	0.00	26
084787G	SC	Colony Rd near Windmill Ln	55	101	580	12%	68	209%	High	1	1.9	0.04	23
084788N	SC	S Blanchard Rd near Colony Rd	55	101	40	0%	68	209%	High	None	0.0	0.00	26
084789V	SC	S Legg Rd	55	101	290	5%	68	209%	High	None	0.0	0.00	27
084791W	SC	N Legg Rd near Chuckanut Dr	55	101	240	5%	68	209%	Moderate	None	0.0	0.00	29

Burlington-Sumas Branch Line (shown west to east)

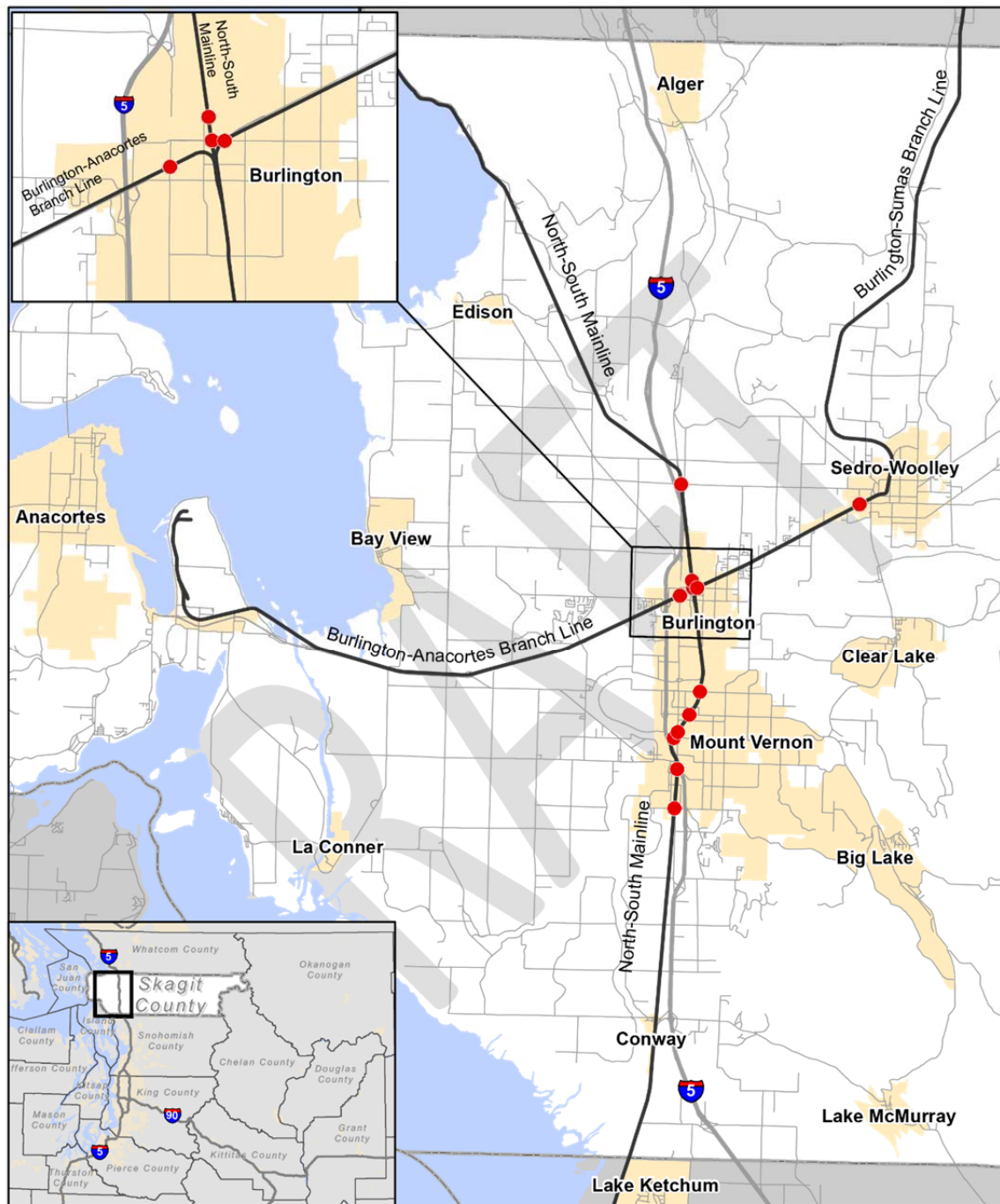
092261C	Burlington	Fairhaven/Cherry near Cascade Hwy	6	64	16,330	10%	42	200%	High	3	0.2	1.37	20
092262J	Burlington	N Pine St near Cascade Hwy	6	33	1,160	10%	22	200%	High	4	4.5	1.83	23
092263R	Burlington	N Anacortes St near Cascade Hwy	6	33	2,520	10%	22	200%	High	1	0.5	0.46	24
092264X	Burlington	N Regent St near Avon Ave	6	33	840	10%	22	200%	High	4	6.1	1.83	23
092265E	Burlington	N Skagit St near Short St	6	33	2,100	10%	22	200%	High	1	0.6	0.46	25
092266L	Burlington	N Section St near Cascade Hwy	6	33	1,160	10%	22	200%	High	5	5.6	2.28	23
092267T	Burlington	Gardner Rd near Cascade Hwy	6	33	1,980	10%	22	200%	High	6	3.9	2.74	23
092269G	SC	Peter Anderson near Cascade Hwy	6	33	910	10%	22	200%	High	2	2.8	0.91	24
092270B	SC	Lafayette/District near Cascade Hwy	6	33	750	10%	22	200%	High	None	0.0	0.00	27

092273W	SC	Sterling Rd near Cascade Hwy	6	33	2,270	10%	22	200%	High	7	4.0	3.20	22
085005U	Sedro Woolley	Rhodes Rd near Cascade Hwy	6	33	1,070	10%	22	200%	High	13	16.3	5.94	21
085006B	Sedro Woolley	State St near Cascade Hwy	6	33	960	1%	22	200%	High	26	36.3	11.87	19
085007H	Sedro Woolley	SR 9 near Cascade Hwy	6	64	7,260	6%	42	200%	High	None	0.0	0.00	26
085008P	Sedro Woolley	Ferry St near Cascade Highway	6	64	11,950	8%	42	200%	Moderate	None	0.0	0.00	27
085101W	SC	Garden of Eden near Stiles Ln	6	18	1,500	8%	12	200%	High	None	0.0	0.00	29
085103K	SC	Grip Rd near Hoogdal Branch Rd	6	18	670	8%	12	200%	High	None	0.0	0.00	29
085105Y	SC	SR 9 near Samish View Ln	6	18	2,760	10%	12	200%	High	None	0.0	0.00	28
085106F	SC	Hathaway Rd near Cruse Rd	6	18	150	8%	12	200%	High	None	0.0	0.00	29

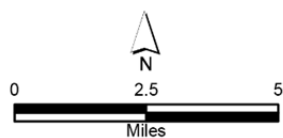
Burlington-Anacortes Branch Line (shown west to east)

084708T	SC	N Texas Rd near March's Pt Road	7	53	360	10%	36	84%	High	None	0.0	0.00	29
092232S	SC	S Texas Rd near March's Point Rd	7	53	2,130	10%	36	84%	Moderate	None	0.0	0.00	31
092234F	SC	March's Pt Rd	7	53	390	10%	36	84%	High	1	3.2	0.23	25
092241R	SC	Bayview-Edison near Memorial Hwy	7	53	1,760	10%	36	84%	High	13	8.3	2.97	22

092242X	SC	Farm to Market near Memorial Hwy	7	53	5,270	12%	36	84%	High	9	1.9	2.05	22
092246A	SC	Higgins Airport Way near Memorial Hwy	7	53	2,450	5%	36	84%	High	5	2.3	1.14	25
092249V	SC	Avon-Allen Rd near Avon Cutoff	7	53	2,880	10%	36	84%	High	14	6.3	3.20	21
092252D	SC	Pulver Rd near Avon Cutoff	7	53	1,790	10%	36	84%	High	6	4.3	1.37	24
929012P	Burlington	Garrett Road near SR 20	7	53	N/A	N/A	36	84%	High	30	N/A	6.85	21
092255Y	Burlington	SR20-Burlington near E Orange Ave	7	53	19,888	10%	36	84%	High	None	0.0	0.00	26
092259B	Burlington	S Walnut St near Washington Ave	31	69	1,170	10%	36	61%	High	1	1.1	0.03	27
092260V	Burlington	Spruce St near Washington Ave	31	69	7,900	10%	36	61%	High	None	0.0	0.00	27



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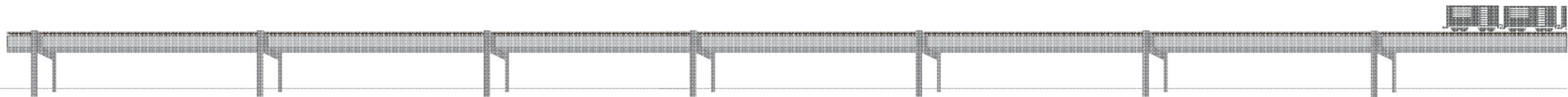


- Key At-Grade Rail Line Crossings in Skagit County
- BNSF Rail Line

Figure 15 Key At-Grade Crossing Locations

Skagit County Rail Crossing Study

Skagit Council of Governments
Transportation Policy Board Meeting
October 21, 2015



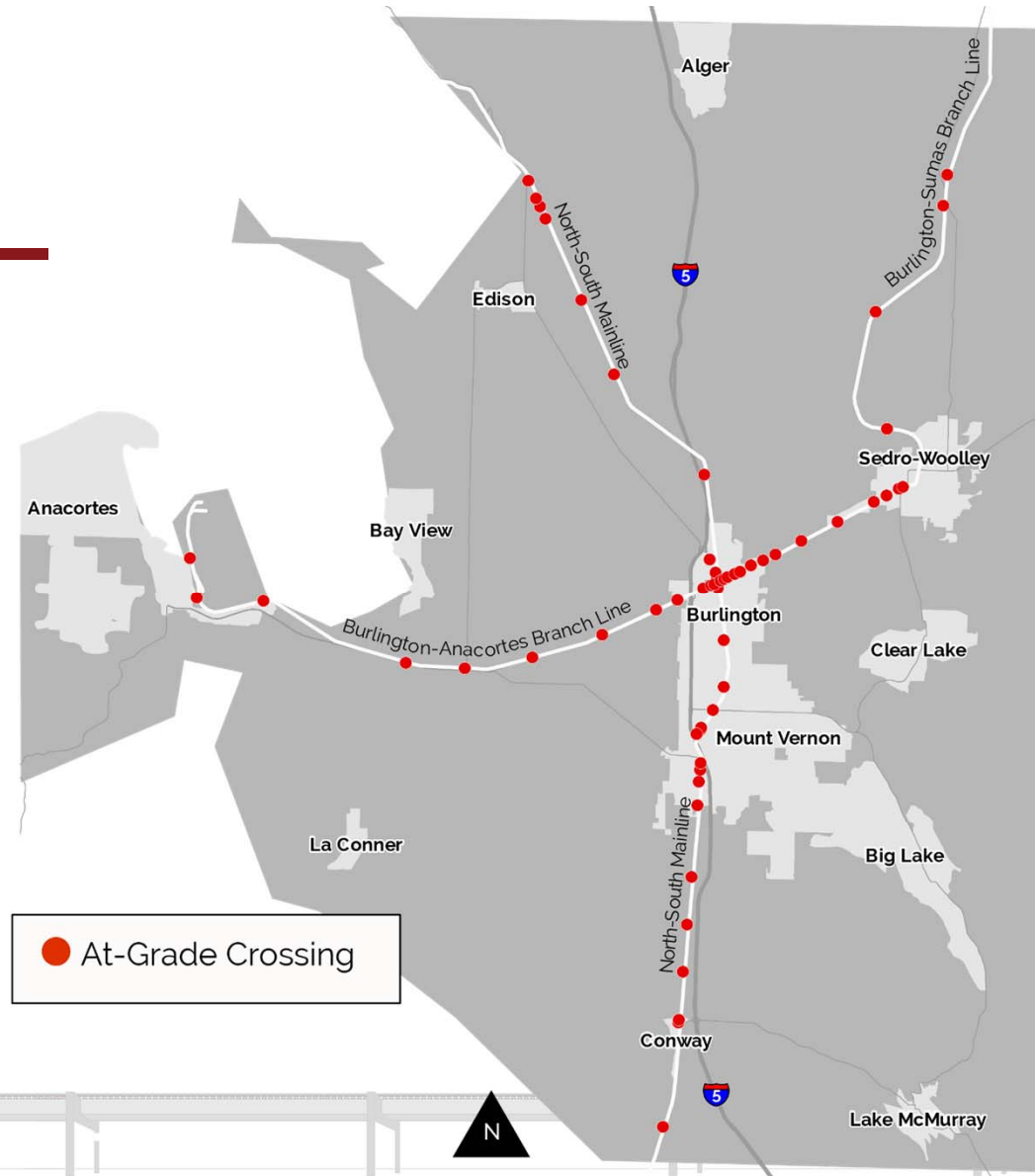
Agenda

- Study Purpose
- Existing Rail Operations and Gate-Down Time
- Future Rail Operations and Gate-Down Time
- Impacts to Emergency Services
- Impacts to Safety
- Vehicle Queueing
- Key Crossings
- Potential Mitigation Strategies



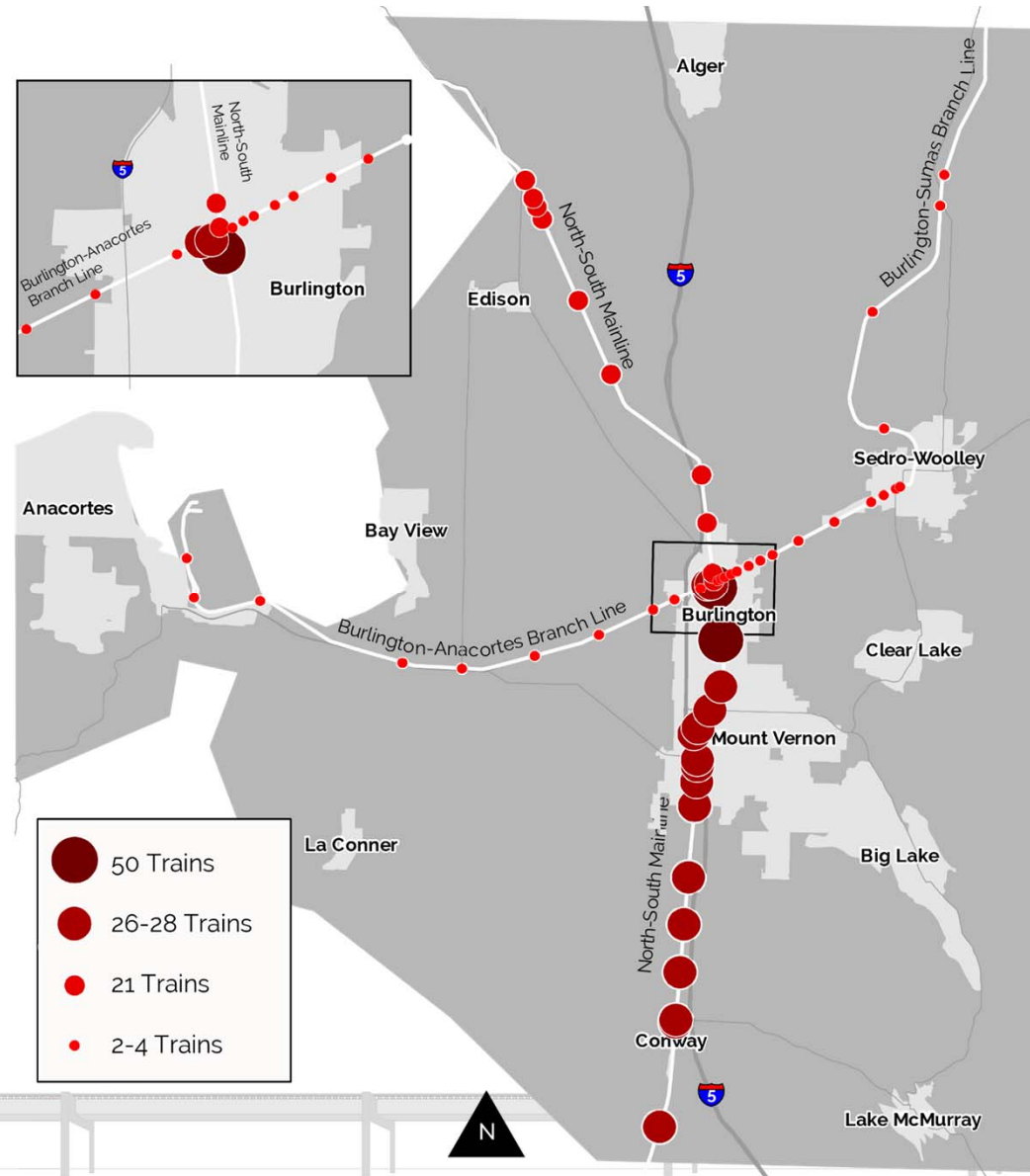
Study Purpose

- Evaluate the transportation impacts to local roads from increased future train traffic at at-grade crossings in Skagit County
- 56 total at-grade crossings
 - 26 N-S Mainline
 - 18 Burlington Sumas Branch
 - 14 Burlington Anacortes Branch



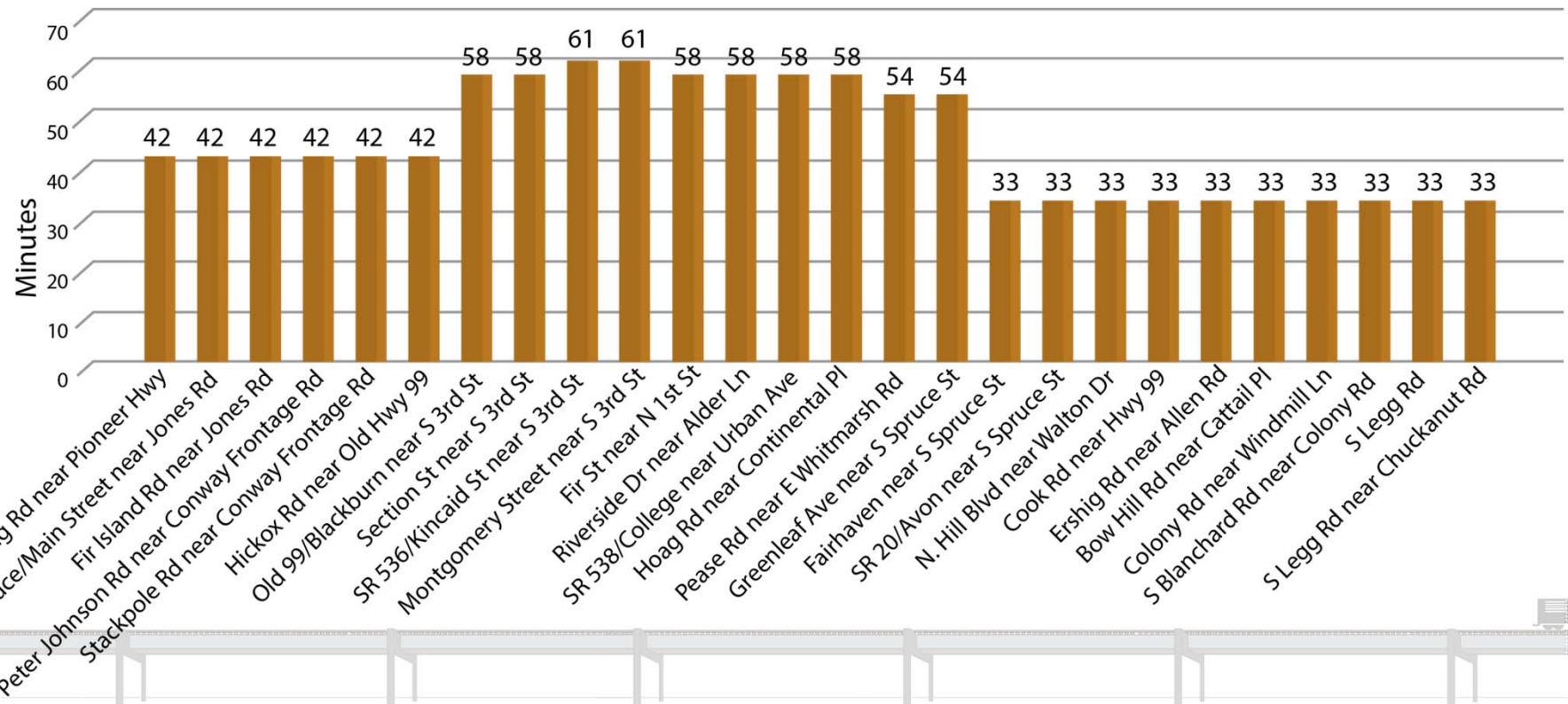
Existing Rail Operations

- Volumes highest at Pease Road and Greenleaf Avenue because of train building activities



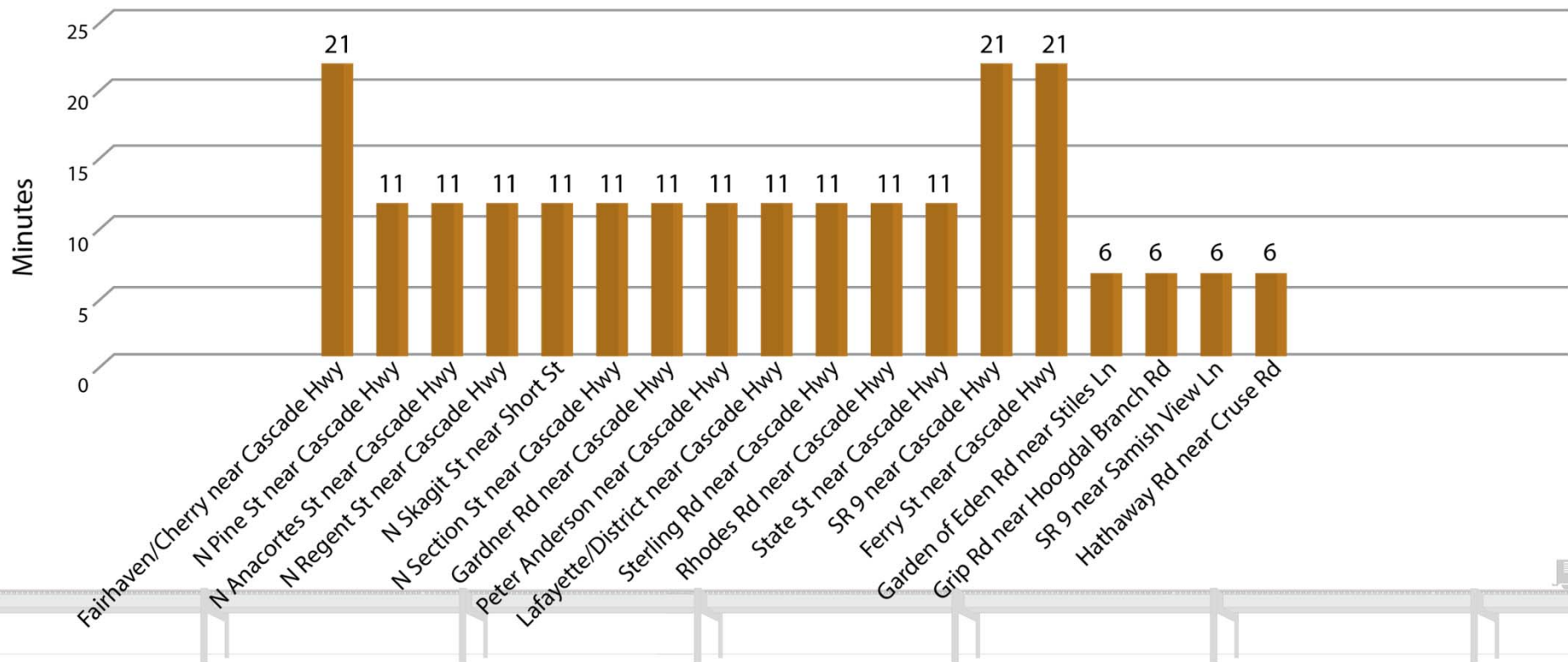
Existing Gate-Down Times

North-South Mainline



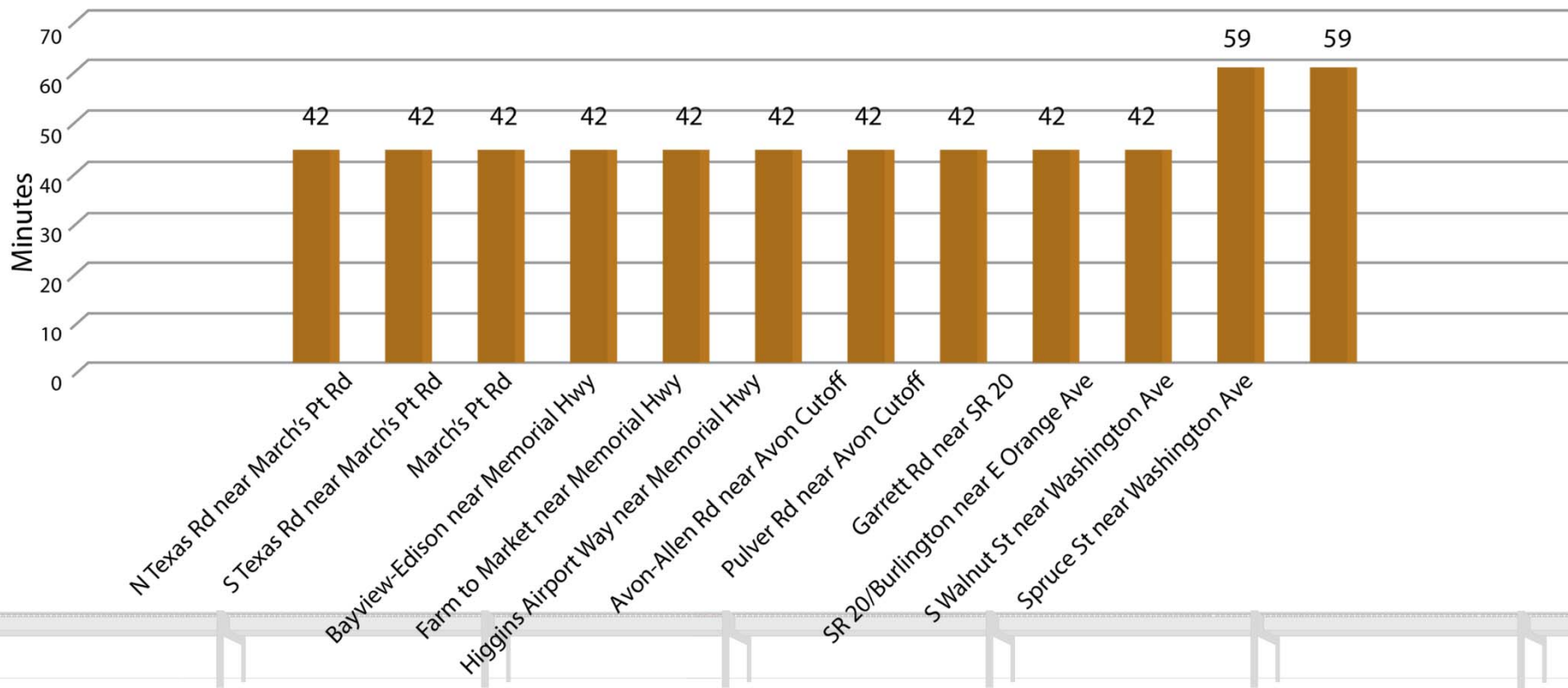
Existing Gate-Down Times

Burlington-Sumas Branch Line



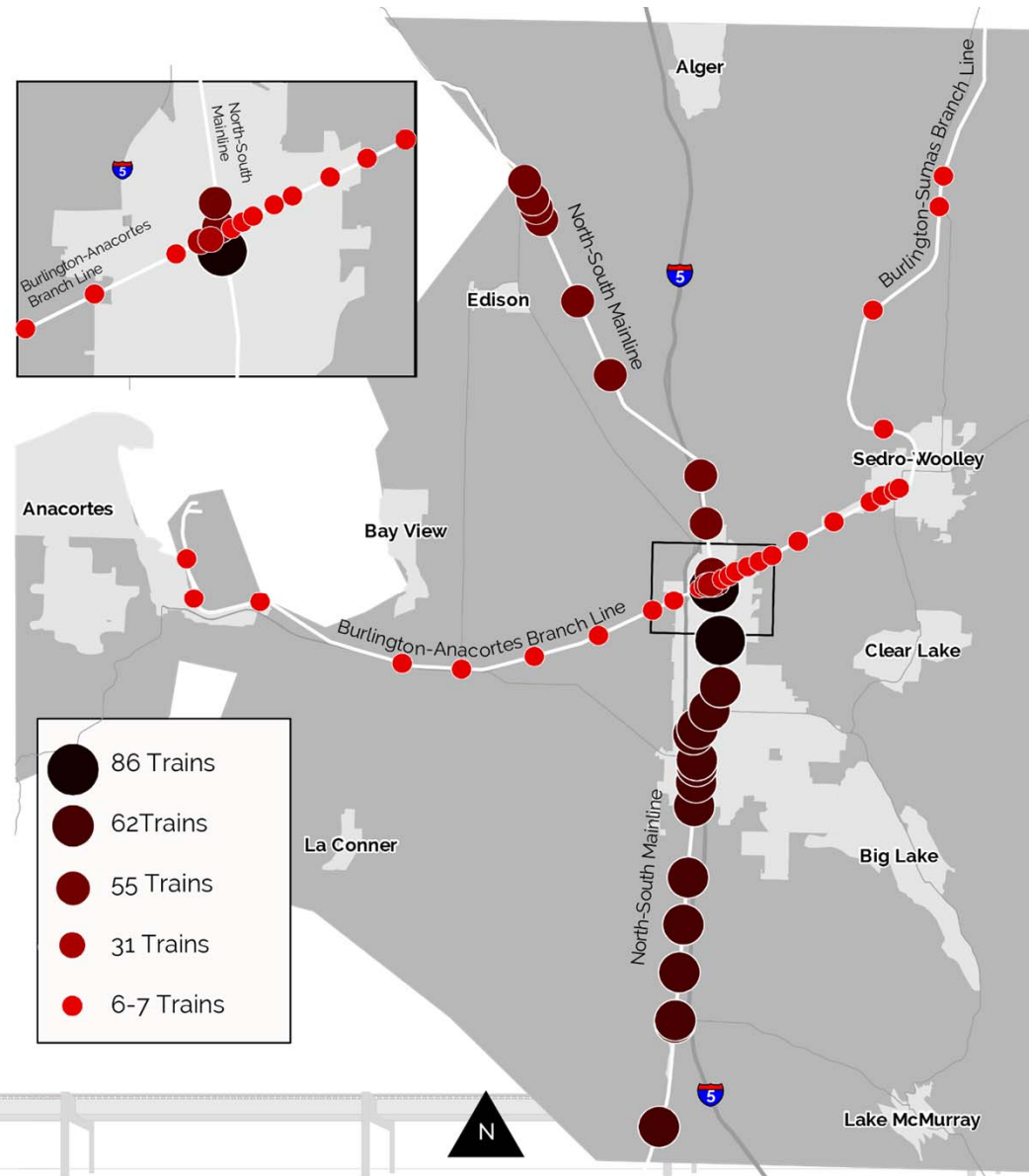
Existing Gate-Down Times

Burlington-Anacortes Branch Line



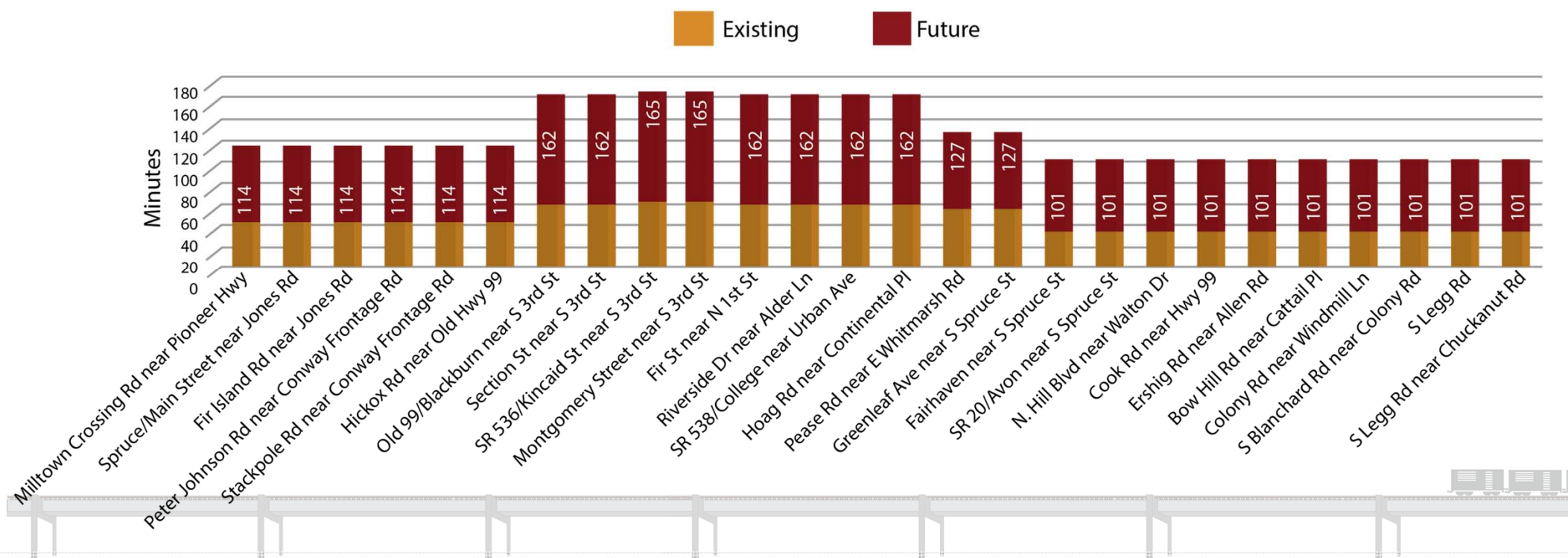
Future Rail Operations

- Volumes remain highest at Pease Road and Greenleaf Avenue because of train building activities
- Train volumes also high south of Burlington on the North-South mainline
- Trains are expected to be longer in 2040



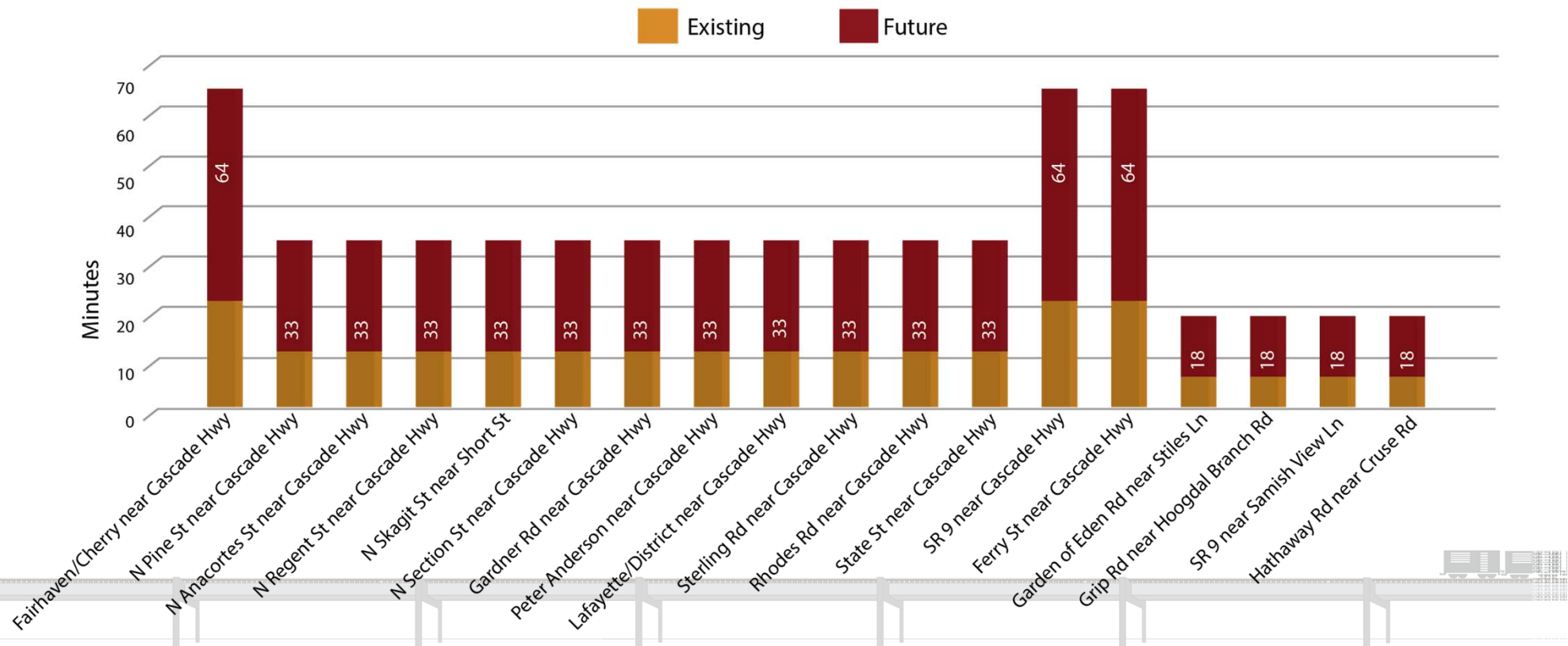
Future Gate-Down Times

North-South Mainline



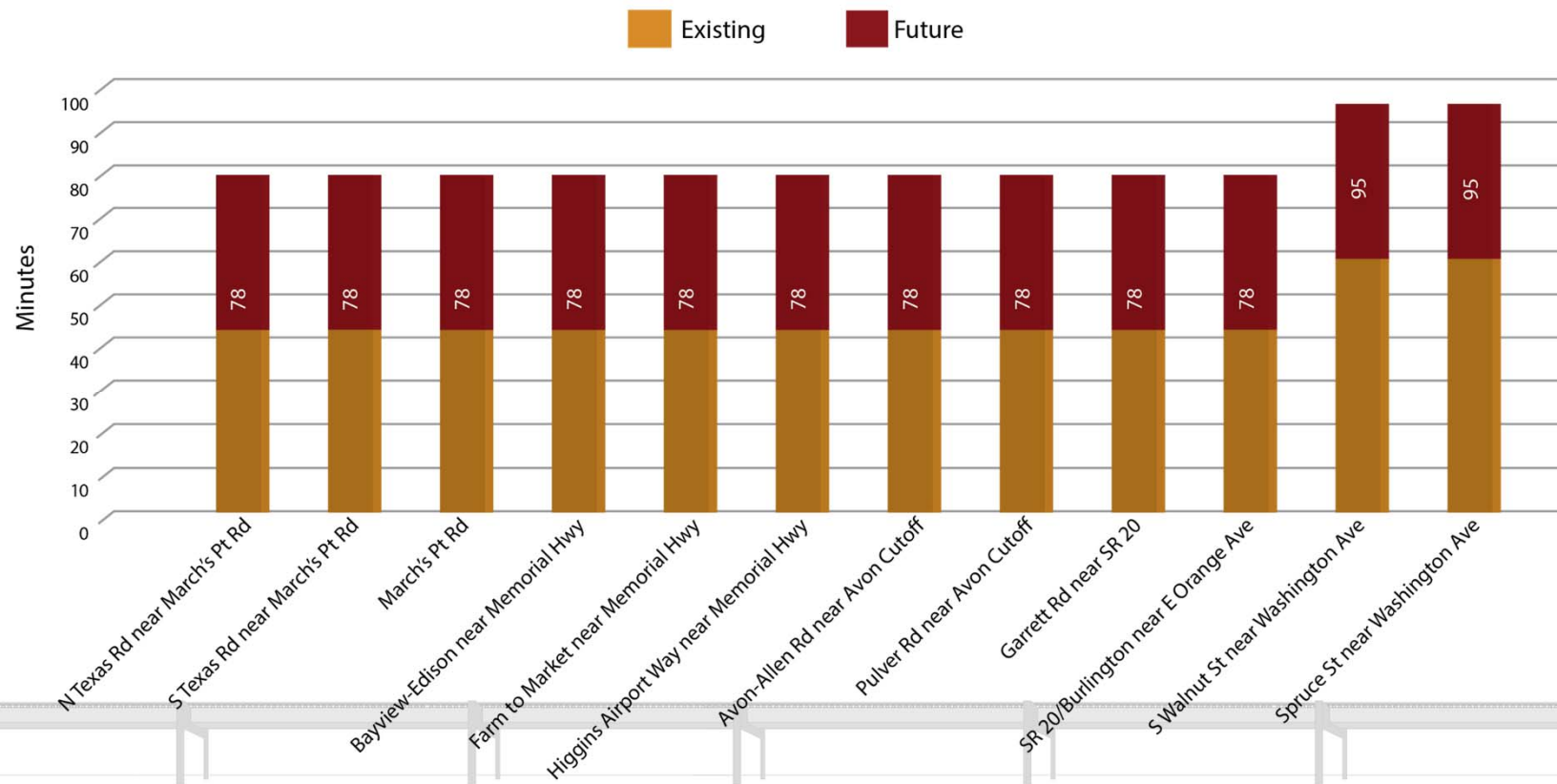
Future Gate-Down Times

Burlington-Sumas Branch Line



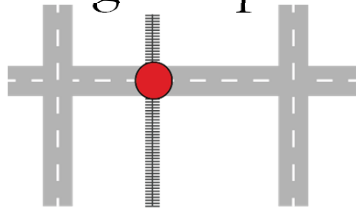
Existing Gate-Down Times

Burlington-Anacortes Branch Line

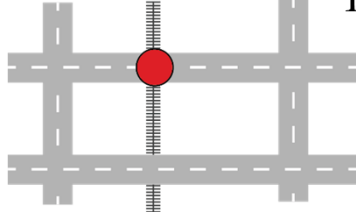


Impacts to Emergency Services

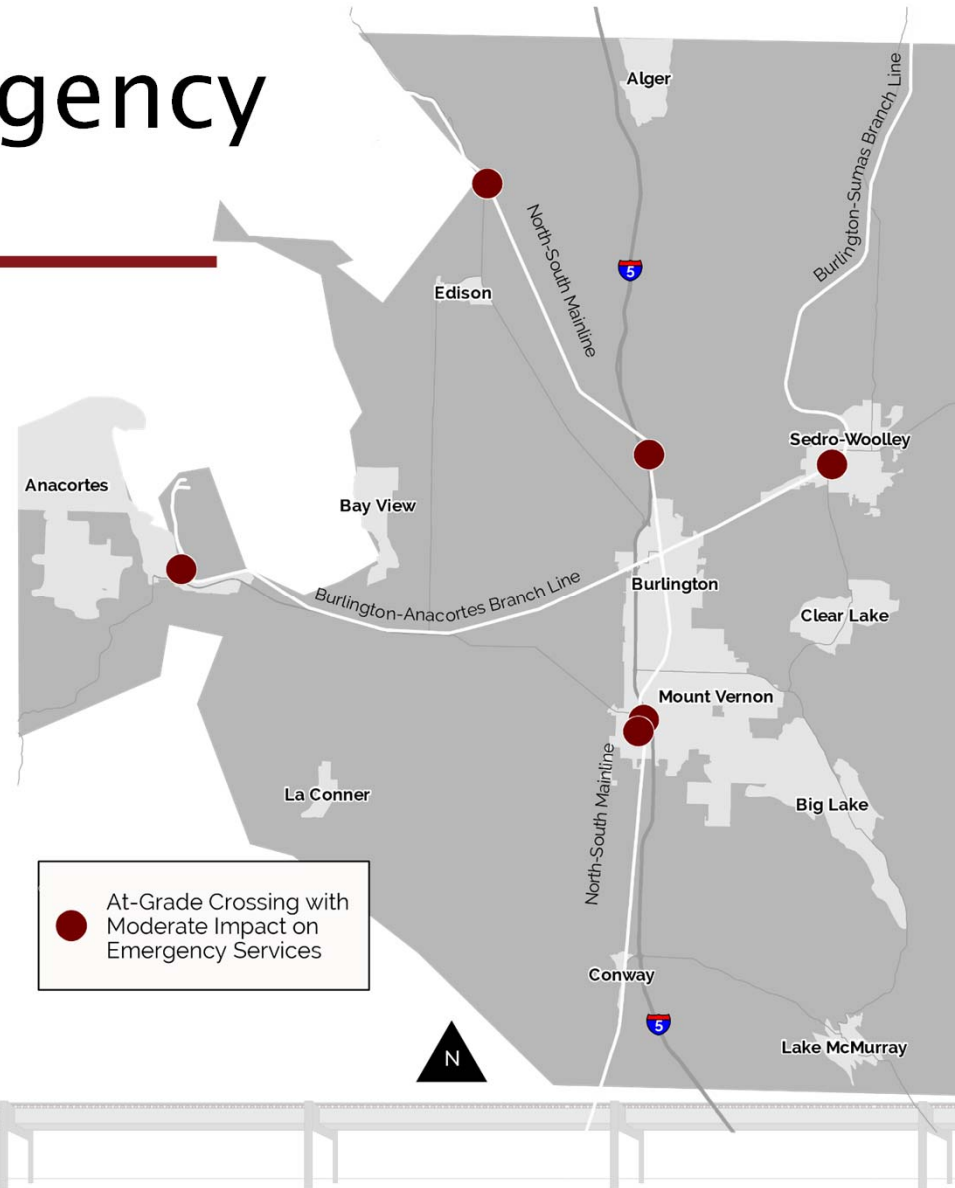
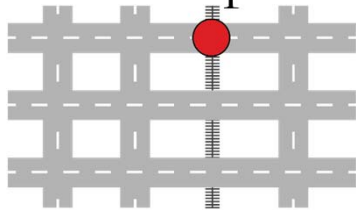
- High Impact



- Moderate Impact



- Low Impact



Impacts to Safety

- 3 year collision history Jan 2012- Dec 2014
- Accidents per million entering vehicles
- Accidents per thousand entering trains
- Crossings with higher collision history could be prioritized for safety improvements

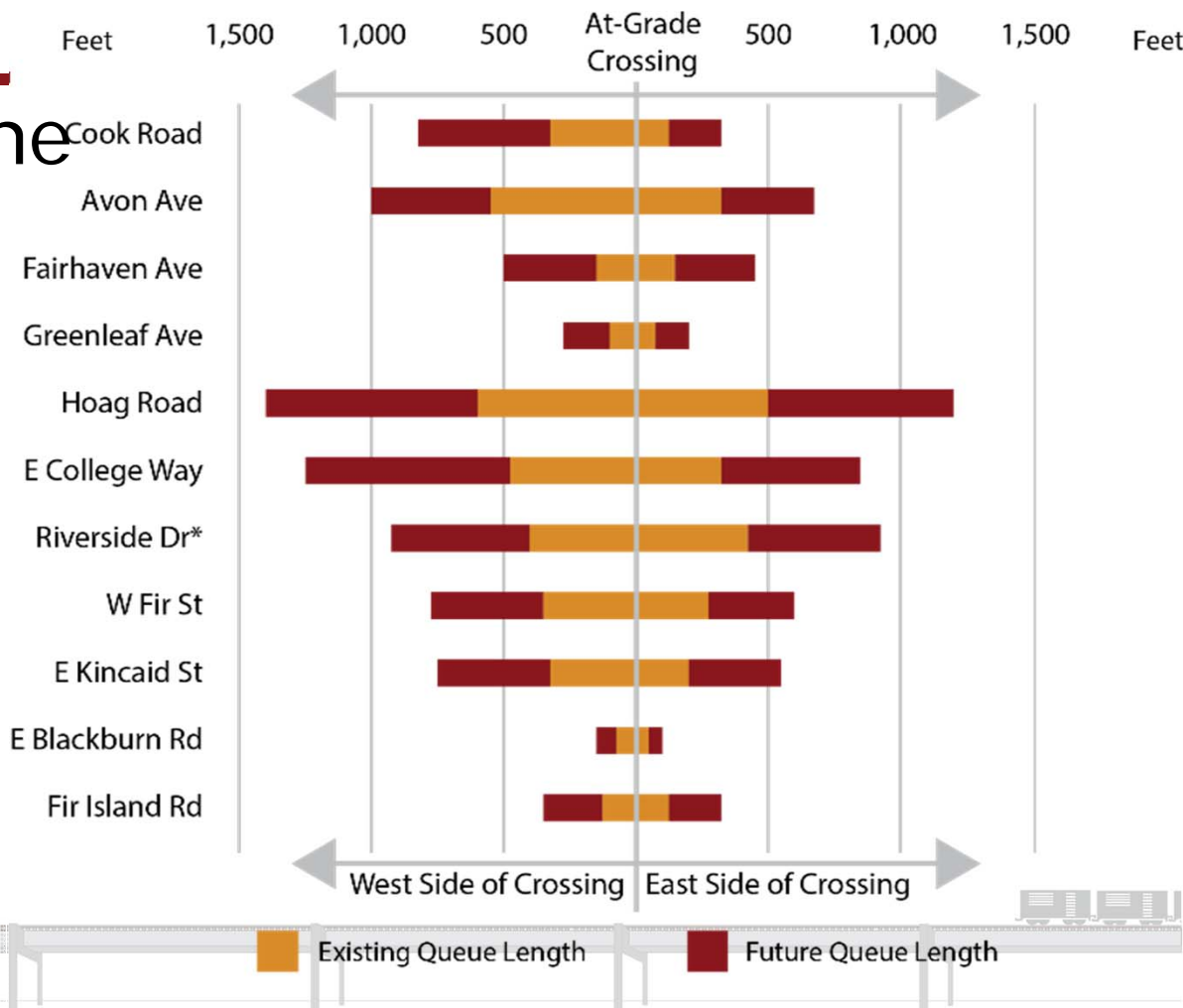


Vehicle Queuing

North-South Mainline

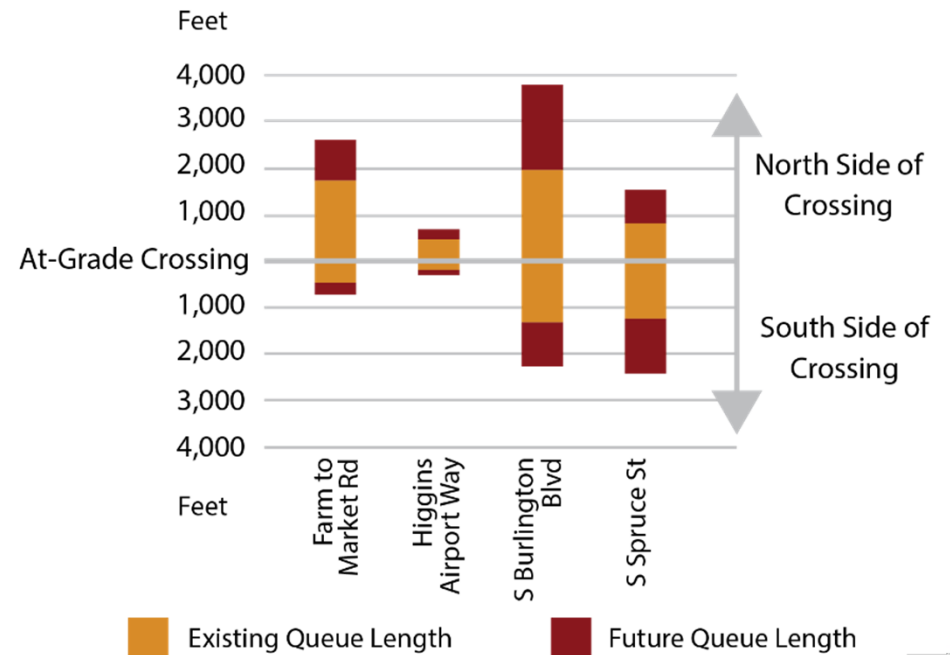
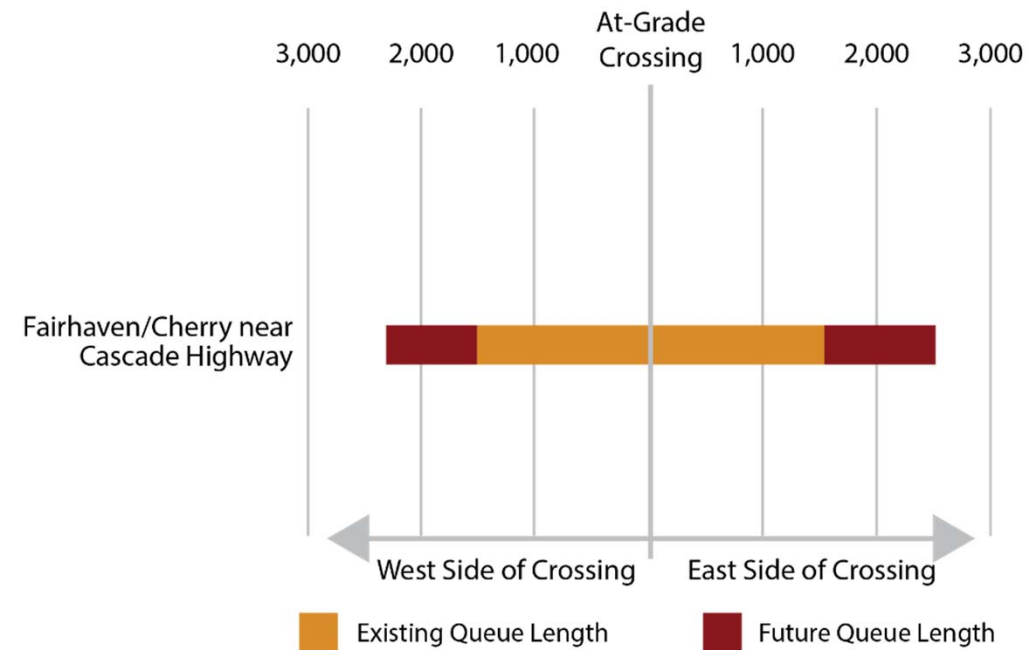
- Crossings with over 5,000 ADT in 2040

**NOTE: THE RIVERSIDE DRIVE CROSSING IS ORIENTED NORTHEAST/SOUTHWEST; THE QUEUES AT THE CROSSING OCCUR ON THE NORTH AND SOUTH APPROACHES TO THE CROSSING*



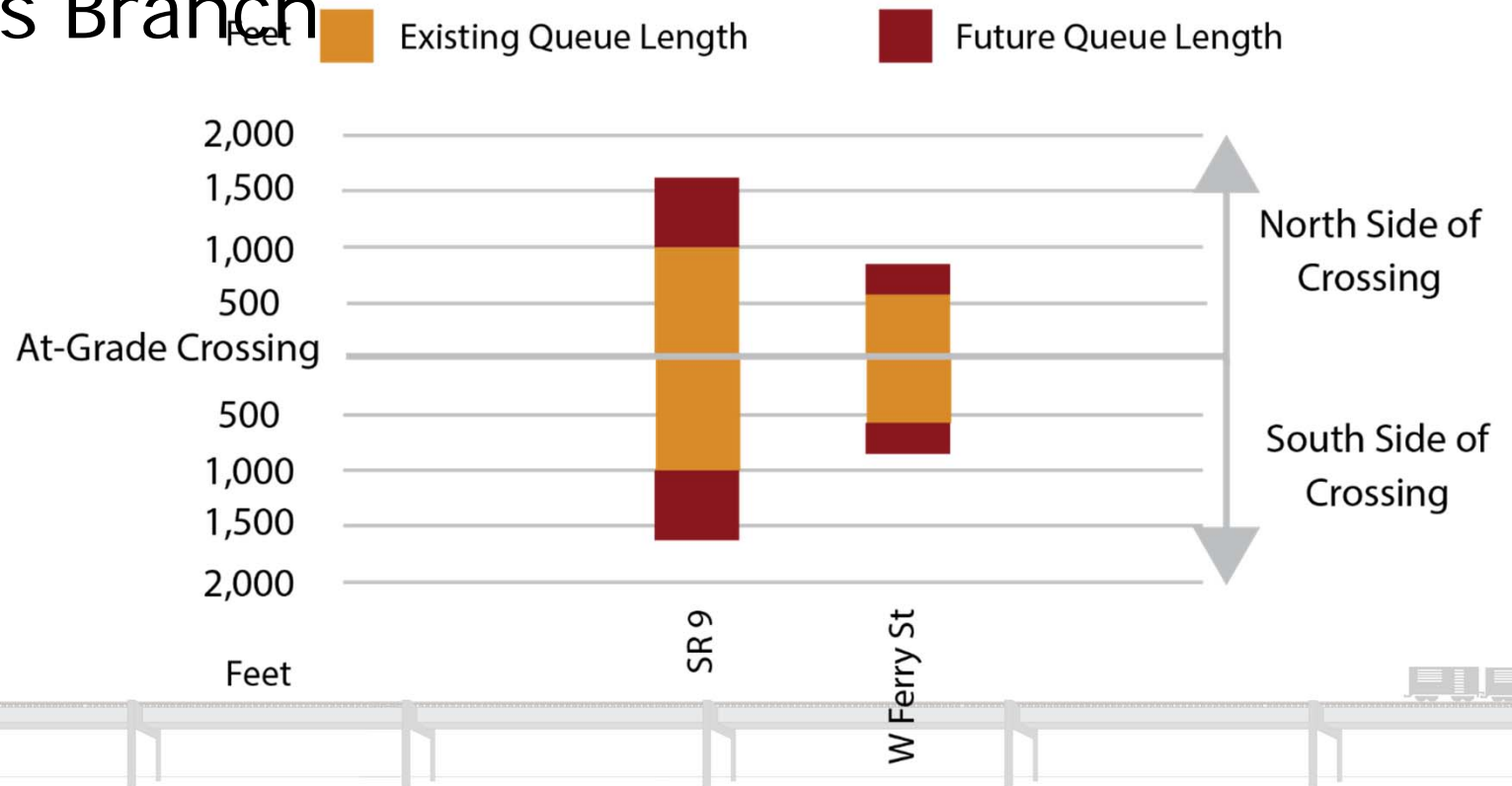
Vehicle Queuing

Burlington-Sumas Branch Line



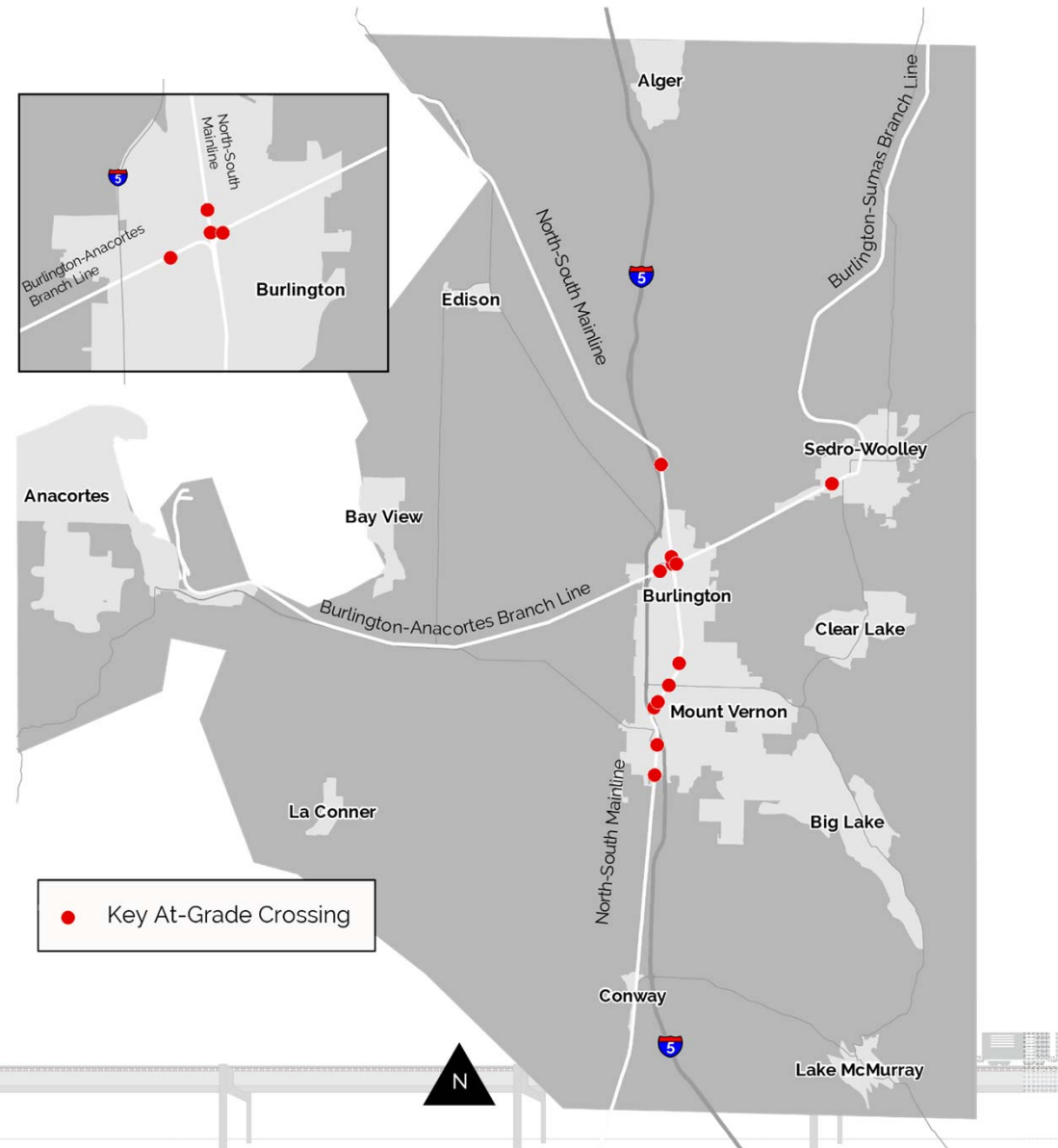
Vehicle Queuing

Burlington- Anacortes Branch Line



Key Crossings

- Maximum daily train volumes (freight and passenger) in 2040
- Daily gate-down time in 2040
- Average daily traffic volumes in 2040
- Roadway freight truck percentages
- Increase in daily gate-down time existing to 2040
- Percent Increase in daily gate-down time existing to 2040
- Impact to emergency services
- Accident history



Key Crossings

KEY TO RANKING

HIGH IMPACT/LOWER
PERFORMING



LOW IMPACT/HIGHER
PERFORMING

USDOT Crossing Number	City	Cross Streets	2040 Maximum Daily Train Volumes (Freight and Passenger)	2040 Daily Gate-Down Time (min)	2040 Average Daily Traffic Volume	Freight Truck %	2040 Marginal Increase in Daily Gate- Down Time from Existing (min)	2040 Marginal Percent Increase in Gate Down- Time From Existing	Impact to Emergency Services	3-Year Accident History	Accidents per Million Entering Vehicles	Accidents per Thousand Entering Trains	Score
North-South Mainline (shown south to north)													
084727X	SC	Milltown Crossing Road near Pioneer Hwy	62	114	30	0%	72	174%	High	4	152.2	0.14	23
084733B	SC	Spruce/Main Street near Jones Rd	62	114	710	20%	72	174%	High	1	1.6	0.04	22
084734H	SC	Fir Island Rd near Jones Rd	62	114	7,870	15%	72	174%	High	None	0.0	0.00	23
084735P	SC	Peter Johnson Rd near Conway Frontage Rd	62	114	120	5%	72	174%	High	None	0.0	0.00	27
084736W	SC	Stackpole Rd near Conway Frontage Rd	62	114	320	5%	72	174%	High	None	0.0	0.00	27
084737D	SC	Hickox Rd near Old Hwy 99	62	114	620	5%	72	174%	High	None	0.0	0.00	27
084739S	Mount Vernon	Old 99/Blackburn near S 3rd St	62	162	63,701	3%	104	179%	High	5	1.0	0.18	19

Key Crossings

- Old 99/Blackburn Road near S 3rd Street
- SR 536/Kincaid near S 3rd Street
- Fir Street near 1st Street
- Riverside Drive near Alder Lane
- SR 538/College near Urban Avenue
- Hoag Road near Continental Pl
- Fairhaven near S Spruce St
- SR 20/ Avon near S Spruce Street
- Cook Road near Highway 99
- Fairhaven/Cherry Street near Cascade Highway
- State St near Cascade Highway
- SR 20/Burlington near E Orange Avenue



Potential Mitigation Strategies

- Grade separated crossings
- Crossing closures/consolidation
- Train scheduling
- ITS
- Signal timing adjustments
- Crossing upgrades/improvements
 - Pedestrian gates
 - Electronic message signs
 - New signals
 - Lighting



Questions



From: Greg Stern MD <GStern@co.whatcom.wa.us>
Sent: Monday, December 14, 2015 12:55 AM
To: Letitia Wheeler
Cc: Tyler Schroeder; John Wolpers
Subject: GPT HIA

During our meeting with Drs. Krieger and Phillips of NewFields last Friday, we talked about approaches to assessing indirect health effects of the proposed projects. I offered to email my thoughts on these effects, from our early discussions on the potential health impacts of the projects, prior to contracting for the HIA. You said that email to the HIA Team must go through you.

Chronic diseases are one of the categories of health effects within the HIA proposal. In addition to exposure to toxins, the health effects of other factors may be significant: the health effects of sleep disturbance and of stress-related disorders, and the health impact of noise, vibration, and economic changes in communities or neighborhoods that could result from the terminal project and transport of product.

How will increases or decreases in economic status of neighborhoods positively or negatively impact the health status of the affected communities? Traffic effects should address not only potential delays in access to emergency services (police, fire, EMS), but on the impact of anticipated traffic delays at rail-crossings on transportation patterns and of those changes on the economic status of the affected community. If these patterns result in reduced use of affected businesses or barriers to convenient access to services and social networks, can the health potential impacts (stress-related illness, depression, anxiety, domestic violence, chronic disease related to worsening diet or access to safe physical activity) be measured or extrapolated from prior studies on the impact of new freeways on established neighborhoods? Can changes in employment patterns be correlated with these same health effects?

Although we can use the weekly phone updates with the HIA Team to discuss appropriate data sources and analysis, it may work better to have time other than the full team updates for this discussion.

Greg Stern, MD, Health Officer
Whatcom County Health Department
509 Girard Street | Bellingham WA 98225
360-778-6000 Main | 360-778-6001 Fax
360-778-6008 Direct
360-815-3276 Mobile
gstern@co.whatcom.wa.us | website: www.whatcomcounty.us/health

Leading the community in promoting health and preventing disease
Public Health: Always Working for a Safer and Healthier Whatcom County

Information sent via the Internet may be subject to disclosure under the Public Records Act. Whatcom County cannot guarantee that e-mail messages will remain private.

From: Denise Smith <DMSmith@co.whatcom.wa.us>
Sent: Tuesday, December 08, 2015 12:19 PM
To: Tyler Schroeder
Subject: GPT Letter
Attachments: ltr-from-earthjustice-re-nepa-sepa-gpt-20151203.pdf

Attached is a letter that came in the mail regarding GPT.
This will go on the website today.
Denise

Denise Massey Smith
Administrative Assistant
Whatcom County Planning and Development Services
5280 Northwest Drive
Bellingham, WA 98226
360-778-5906

Disclaimer: The information contained in all correspondence with a government entity may be disclosable to third party requesters under the Public Records Act.

From: Denise Smith <DMSmith@co.whatcom.wa.us>
Sent: Friday, December 11, 2015 10:28 AM
To: Darla Smith; Harriet Bouwman; Heidi Forbes; Linda Marley; Dana Brown-Davis; Tyler Schroeder; Ryan Ericson
Subject: GPT Staff Hours

Hello everyone!

Please ensure your staff has entered their December 2015 hours for GPT Billing by the end of the day Friday, December 18th. I will be processing the totals on Monday, December 21st.

Thanks

Denise

Denise Massey Smith

Administrative Assistant

Whatcom County Planning and Development Services

5280 Northwest Drive

Bellingham, WA 98226

360-778-5906

Disclaimer: The information contained in all correspondence with a government entity may be disclosable to third party requesters under the Public Records Act.



ALASKA CALIFORNIA FLORIDA MID-PACIFIC NORTHEAST NORTHERN ROCKIES
NORTHWEST ROCKY MOUNTAIN WASHINGTON, D.C. INTERNATIONAL

December 3, 2015

RECEIVED
DEC 07 2015
Whatcom County P&DS

Col. John G. Buck
U.S. Army Corps of Engineers
Seattle District
P.O. Box 3755
Seattle, WA 98124-3755

Josh Baldi, Regional Director
Department of Ecology
Northwest Regional Office
3190 160th Avenue S.E.
Bellevue, WA 98008

Tyler R. Schroeder
Planning Supervisor
Whatcom County Planning and Development
Services
5280 Northwest Drive
Bellingham, WA 98225

Sally Toteff, Regional Director
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

E. Elaine Placido, Director
Cowlitz County Building and Planning
207 Fourth Avenue N.
Kelso, WA 98626

Re: NEPA and SEPA Processes for Gateway Pacific and Millennium Bulk Terminals
Coal Ports

Dear Col. Buck, Mr. Baldi, Ms. Toteff, Mr. Schroeder and Ms. Placido:

I am writing on behalf of Climate Solutions, Sierra Club, Friends of the Columbia Gorge, Columbia Riverkeeper, Oregon Physicians for Social Responsibility, and Association of Northwest Steelheaders.

As you know, the U.S. Army Corps of Engineers and Washington Department of Ecology are cooperating to develop draft environmental impact statements for two projects of considerable public concern: the Gateway Pacific coal terminal at Cherry Point, and the Millennium Bulk terminal in Longview. We understand that the draft EISs are currently under development with projected completion dates in mid-to-late 2016.

We are writing to ensure that your agencies are fully aware, and that the EISs for both projects consider, the results of a study published last week regarding the air quality impacts of transporting large volumes of coal in open rail cars, as both proponents propose to do.

Specifically, a team of scientists led by Dr. Dan Jaffe, professor of Atmospheric and Environmental Chemistry at the University of Washington, carried out a study of pollution emitted from coal trains and freight trains in the Columbia River Gorge National Scenic Area. The study examined emissions of diesel particulate matter and coal dust from 293 freight trains and 74 coal trains during a two-month period. The results show that coal trains emit nearly twice the amount of fine-particle pollution called PM 2.5 compared to other kinds of trains. Moreover, videos of some coal trains revealed large black plumes of coal dust blowing from the uncovered coal cars.


Increased levels of fine particulate matter are associated with a number of adverse health outcomes including: increased cancer rates, respiratory and cardiac disease, and neurodevelopmental disorders. The most vulnerable populations are the elderly, pregnant women, children, and people with existing disease. The coal dust emissions of fine particles, as well as the larger particles, likely pollute our waterways as well as our air, and the EIS should consider these impacts.

The University of Washington study was released in a peer-reviewed article in *Atmospheric Pollution Research*. A copy of it is attached to this letter.

The study confirms what many citizens have told you during the scoping process for these projects: that coal trains are a cause of considerable localized pollution and represent a nuisance and a health hazard. Currently, a federal judge in Seattle is overseeing a lawsuit over BNSF's continued discharge of coal dust and particles into the Columbia River, Puget Sound and other waterways.

Please include the Jaffe study in the administrative record for both the SEPA and NEPA processes for both projects, and give it thorough consideration as you assess whether these projects meet regulatory standards and are in the public interest. Thank you for your consideration of this important matter.

Sincerely,



Jan Hasselman

Encl.



Original article

Diesel particulate matter and coal dust from trains in the Columbia River Gorge, Washington State, USA

Daniel Jaffe^{a, b}, Justin Putz^a, Greg Hof^a, Gordon Hof^c, Jonathan Hee^a, Dee Ann Lommers-Johnson^a, Francisco Gabela^a, Juliane L. Fry^d, Benjamin Ayres^d, Makoto Kelp^d, Madison Minsk^e

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doi:10.1016/j.apr.2015.04.004

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Abstract

We examined the emissions of diesel particulate matter (DPM) and coal dust from trains in the Columbia River Gorge (CRG) in Washington State by measuring PM_{10} , $PM_{2.5}$, CO_2 , and black carbon (BC) during the summer of 2014. We also used video cameras to identify the train type and speed.

During the two-month period, we identified 293 freight trains and 74 coal trains that gave a $PM_{2.5}$ enhancement of more than $3.0 \mu g/m^3$. We found an average $PM_{2.5}$ enhancements of 8.8 and $16.7 \mu g/m^3$, respectively, for freight and coal trains. For most freight trains (52%), and a smaller fraction of coal trains (11%), we found a good correlation between $PM_{2.5}$ and CO_2 . Using this correlation, we calculated a mean DPM emission factor (EF) of 1.2 gm/kg fuel consumed, with an uncertainty of 20%.

For four coal trains, the videos revealed large plumes of coal dust emanating from the uncovered coal cars. These trains also had the highest peak $PM_{2.5}$ concentrations recorded during our study ($53\text{--}232 \mu g/m^3$). Trains with visible coal dust were observed for 5.4% of all coal trains, but 10.3% when the effective wind speed was greater than 90 km/h. We also found that nearly all coal trains emit coal dust based on (1) statistically higher $PM_{2.5}$ enhancements from coal trains compared to freight trains; (2) the fact that most coal trains showed a weak correlation between $PM_{2.5}$ and CO_2 , whereas most freight trains showed a strong relationship; (3) a statistically lower BC/ $PM_{2.5}$ enhancement ratio for coal trains compared to freight trains; and (4) a statistically lower $PM_{10}/PM_{2.5}$ enhancement ratio for coal trains compared to freight trains. Our results demonstrate that, on average, passage of a diesel powered open-top coal train result in nearly twice as much respirable $PM_{2.5}$ compared to passage of a diesel-powered freight train.

Keywords

Diesel particulate matter; Coal dust; Air pollution from trains; Air pollution from rail

Peer review under responsibility of Turkish National Committee for Air Pollution Research and Control.

Corresponding author. University of Washington Bothell, School of STEM, Bothell, WA, USA.

**Diesel Particulate Matter and Coal Dust from Trains in the Columbia River Gorge,
Washington State, USA**

Daniel Jaffe^{1,2*}, Justin Putz¹, Greg Hof¹, Gordon Hof³, Jonathan Hee¹, Dee Ann Lommers-
Johnson¹, Francisco Gabela¹, Juliane L. Fry⁴, Benjamin Ayres⁴, Makoto Kelp⁴ and Madison
Minsk⁵

¹University of Washington Bothell, School of STEM, Bothell, WA USA

²University of Washington Seattle, Department of Atmospheric Sciences, Seattle, WA USA

³Gumbo Software Incorporated, Seattle, WA USA

⁴Reed College, Department of Chemistry, Portland, OR USA

⁵Tesla STEM High School, Redmond, WA USA

Abstract

We examined the emissions of diesel particulate matter (DPM) and coal dust from trains in the Columbia River Gorge (CRG) in Washington State by measuring PM₁, PM_{2.5}, CO₂, and black carbon (BC) during the summer of 2014. We also used video cameras to identify the train type and speed.

During the two-month period, we identified 293 freight trains and 74 coal trains that gave a PM_{2.5} enhancement of more than 3.0 µg/m³. We found an average PM_{2.5} enhancements of 8.8 and 16.7 µg/m³, respectively, for freight and coal trains. For most freight trains (52%), and a smaller fraction of coal trains (11%), we found a good correlation between PM_{2.5} and CO₂. Using this correlation, we calculated a mean DPM emission factor (EF) of 1.2 gm/kg fuel consumed, with an uncertainty of 20%.

For four coal trains, the videos revealed large plumes of coal dust emanating from the uncovered coal cars. These trains also had the highest peak $PM_{2.5}$ concentrations recorded during our study (53–232 $\mu g/m^3$). Trains with visible coal dust were observed for 5.4% of all coal trains, but 10.3% when the effective wind speed was greater than 90 km/h. We also found that nearly all coal trains emit coal dust based on (1) statistically higher $PM_{2.5}$ enhancements from coal trains compared to freight trains; (2) the fact that most coal trains showed a weak correlation between $PM_{2.5}$ and CO_2 , whereas most freight trains showed a strong relationship; (3) a statistically lower BC/ $PM_{2.5}$ enhancement ratio for coal trains compared to freight trains; and (4) a statistically lower $PM_{10}/PM_{2.5}$ enhancement ratio for coal trains compared to freight trains. Our results demonstrate that, on average, passage of a diesel powered open-top coal train result in nearly twice as much respirable $PM_{2.5}$ compared to passage of a diesel-powered freight train.

Keywords

Diesel particulate matter, coal dust, air pollution from trains, air pollution from rail.

1. Introduction

Rail locomotives powered by diesel fuel travel through the Columbia River Gorge National Scenic Area as well as many urban areas in Washington State. Evaluating the air quality impacts from rail traffic for people living near rail lines is hampered by a lack of data. Several plans that would expand coal shipments by rail through Washington and Oregon to coastal ports for export to Asia have been proposed. New export facilities have been proposed for Longview and Bellingham, Washington. One proposed port near Bellingham would have the capacity to ship up to 54 million metric tons of coal annually (WA DOE, 2013).

The U.S. Department of Health and Human Services states that diesel particulate matter (DPM) is “reasonably anticipated to be a human carcinogen” (U.S. DHHS, 2014). The World Health Organization also categorizes DPM as “carcinogenic to humans” (WHO, 2012). In urban areas, including Seattle, the most significant “air toxic” is DPM, contributing over 80% of the cancer risk for air toxics (Keill and Maykut, 2003; PSCAA, 2005). DPM sources consist of rail locomotives, ships and diesel trucks, both on road and off road. Average DPM concentrations for the Seattle area are 1.4–1.9 $\mu\text{g}/\text{m}^3$, based on monitoring and a chemical mass balance model (Keill and Maykut, 2003; Maykut et al., 2003). These DPM concentrations make up 15–20% of the mass of total particulate matter with diameters less than 2.5 μm ($\text{PM}_{2.5}$).

Emission standards for new and remanufactured locomotives, developed by the U.S. Environmental Protection Agency (EPA) (40 CFR part 1033) have decreased steadily over the past several decades. For diesel locomotives various standards apply based on the date of manufacture: Tier 0, 1973–2001; Tier 1, 2002–2004; Tier 2, 2005–2010; Tier 3, 2011–2014; and Tier 4, after 2015 (U.S. EPA, 2013). Tier 4 locomotives must comply with a PM_{10} standard of 0.03 g/bhp-hr, which is about 0.19 g of PM_{10} per kg of fuel consumed (U.S. EPA, 2009).

Previous studies looked at rail yards as air pollutant sources. They determined that the primary source of $\text{PM}_{2.5}$ at these sites was diesel fuel combustion. One study investigated the impact of DPM emissions on $\text{PM}_{2.5}$ concentrations at an Atlanta area rail yard (Galvis et al., 2013). Using measurements collected upwind and downwind of the rail yard, they found the average “neighborhood” contribution to $\text{PM}_{2.5}$ was 1.7 $\mu\text{g}/\text{m}^3$. The emission factors (EFs) per kg of diesel fuel burned were calculated to be 0.4–2.3 grams DPM. The EFs were not determined from individual train measurements but were calculated using three different methods, each based on differing assumptions. Two studies of a Roseville, California, rail yard also found

significant enhancements in $PM_{2.5}$ from the yard. Using measurements from upwind and downwind, Cahill et al. (2011) found an average $PM_{2.5}$ enhancement of $4.6 \mu g/m^3$, and Campbell and Fujita (2006) found even larger contributions ($7.2\text{--}12.2 \mu g/m^3$). Cahill et al. (2011) also demonstrated that particles with diameters below $1 \mu m$ are the major contributor to $PM_{2.5}$ aerosol mass from diesel exhaust. Abbasi et al. (2013) studied concentrations in the interior of trains and close to rail lines and found significantly elevated $PM_{2.5}$ and PM_{10} concentrations, particularly in stations that were underground. Gehrig et al. (2007) looked at electric trains in Switzerland and examined the influence of dust from these trains on PM_{10} concentrations. Several studies investigated the EFs of on-road diesel trucks and buses (Jamriska et al., 2004; Zhu et al., 2005; Cheng et al., 2006; Park et al., 2011; Dallmann et al., 2012), but we have found no similar studies on diesel rail.

Trains that carry coal in uncovered rail cars may also release coal dust, in addition to DPM, into the atmosphere. The BNSF railway requires that a surfactant be applied over the top of coal being transported by rail (see BNSF Railway, 2013). However, we are unaware of any studies reported in the scientific literature that evaluate the efficacy of this or the impact of coal dust on air quality. By examining the PM by train type, we can examine whether there is respirable coal dust ($PM_{2.5}$) as part of the emissions from coal trains. We will also examine the particle size distribution because combustion-related particles and coal dust, which is mechanically generated, are associated with particles of different sizes (Seinfeld, 1986).

A substantial amount (44–60%) of the diesel engine $PM_{2.5}$ mass is black carbon (BC) (Bond et al., 2004; Kirchstetter and Novakov, 2007; Ramanathan and Carmichael, 2008). Because radiative forcing due to BC is the major light-absorbing species in atmospheric aerosol, it is significant both globally and regionally (Jacobson, 2001; Ramanathan and Carmichael,

2008). In addition, because of BC's surface properties, it is possible for polyaromatic hydrocarbons (PAHs) and other semi-volatile compounds to be adsorbed and transported by BC (Dachs and Eisenreich, 2000). Health organizations are also taking a hard look at BC because of its contribution to the harmful effects caused by $PM_{2.5}$, including cardiopulmonary and respiratory disease (Jansen et al., 2005; Janssen et al., 2011; U.S. EPA, 2012).

Because of the lack of information on $PM_{2.5}$ concentrations and the exposure to humans from diesel trains, the debate over coal dust and the scarcity of information on diesel train EFs, we sought to measure these air quality effects by answering the following questions:

1. What are the DPM emission factors for locomotives in Washington State and how do these compare with published values?
2. Do open-top coal-carrying trains emit respirable coal dust ($PM_{2.5}$) into the air? If so, can we quantify the emissions?

To address these questions we measured PM_{10} , $PM_{2.5}$, CO_2 , black carbon and meteorology at a location in the Columbia River Gorge next to the rail line. Because we wanted to quantify DPM and coal dust exposure and quantify the EFs from each train, we collected measurements every 10 seconds in order to identify the air quality impacts of individual trains. In a previous study, we measured a similar suite of parameters in 2013 at a site in Seattle, Washington, and (very briefly) at a site in the Columbia River Gorge (Jaffe et al., 2014). In the previous study, we quantified DPM emission factors from diesel trains, evaluated the neighborhood scale exposure to $PM_{2.5}$ from trains and found evidence that suggested emissions of coal dust, based on particle size. In the present analysis, we report new data taken in 2014 that more clearly identifies and quantifies the emissions of DPM and coal dust from coal-carrying trains.

2. Experimental

Measurements were made at a site between the towns of Lyle and Dallesport, Washington, in the Columbia River Gorge (approximately 45.7°N, 121.2°W) between June 7–August 10, 2014. The instruments were housed in a weather-proof enclosure, located about 10 meters above and 20 meters northeast of the rail line. Two video cameras were used; one took video of the trains at a 90° angle to the rail line, and one viewed the trains arriving/departing to the northwest. The rail line travels along the north side of the Columbia River. There were no roads between our site and the river. Our measurement site was approximately 200 meters southwest of Washington Route 14, a state highway with light traffic. The measurement location used in 2014 was in the same general location, but about 300 meters away, from the site we used for our 2013 measurements (Jaffe et al., 2014). At this site the rail line is almost completely flat; there is a maximum grade of 1 meter per km in the next few km in either direction.

We used a DustTrak DRX Aerosol Monitor (Model #8533, TSI, Inc., Shoreview, MN) to measure size-segregated PM. The DustTrak reports 4 size fractions of PM mass concentrations: PM₁, PM_{2.5}, PM₁₀ and TSP. The instrument uses aerosol scattering to calculate its measurements. Therefore, its measurements are not the same as mass-based measurements (Wang et al., 2009). The DustTrak is calibrated against Arizona road dust (ISO 12103-1) by the manufacturer and so will not correctly reflect the mass concentration for other types of aerosol. This is specifically the case for diesel PM because of the particle size (Park et al., 2011). Obtaining accurate measurements with the DustTrak requires comparing its measurements with a mass-based measurement (Moosmuller et al., 2001). The DustTrak has been used to quickly measure several PM size fractions and determine EFs of individual vehicles in several previous studies (e.g., Park et al., 2011; Dallmann et al., 2012), but usually after using a mass-based method to calibrate the

response factor (Jamriska et al., 2004; Zhu et al., 2005; Cheng et al., 2006; Jaffe et al 2013). In our study, the DustTrak was calibrated against two mass-based measurements—a Tapered Element Oscillating Microbalance (TEOM) and the EPA Federal Reference Method at a routine air quality monitoring station in Seattle, Washington (details below).

The DustTrak inlet was stainless steel tubing (4.8 mm i.d.) facing downward from a height of approximately 2 meters above ground level. The flow rate through the inlet was 3.0 liters per minute. With these conditions, the flow was laminar. To estimate the particle sampling efficiency, we used the methodology and program provided by von der Weiden et al. (2009). The wind speeds during train sampling in the CRG varied between 1–11 meters per second (mps), with an average of 4.5 mps during the sampling period. For particles less than 2.5 μm aerodynamic diameter, we calculated greater than 90% particle transmissions at all wind speeds up to 15 mps. For particles between 3–10 μm aerodynamic diameter, the inlet sampling efficiency would be much less than 1.0 and vary with wind speed (von der Weiden et al., 2009). For this reason, we used only the $\text{PM}_{2.5}$ and PM_{10} data in this analysis.

We measured CO_2 using a Licor-820 (Licor, Inc., Lincoln, NE) with a small vacuum pump for sampling. The inlet was a 4.8 mm i.d. stainless steel tube (38 mm long) connected to PFA tubing. We zeroed the instrument using CO_2 -free air and calibrated it with a 395 ppmv standard from Airgas, Inc. We calibrated the instrument both before and after the deployment; the instrument response varied by less than 1 ppmv between these calibrations. We used DAQFactory on a PC to record data from the DustTrak, the Licor-820 (CO_2 , cell temperature and pressure) and the meteorological station. We recorded 10-second averages for PM and CO_2 data.

To identify trains and quantify their speeds, we used two Night Owl cameras (Model CAM-MZ420-425M) that were equipped with infrared (IR) night vision. The cameras were motion activated and operated with iSpy open source camera security software. However, even with the IR capability of the cameras, we were unable to identify the type of trains at night. We considered using an auxiliary light to view the trains at night; however, this was rejected as the Columbia River Gorge is classified as a National Scenic Area, which limits lighting options. Only trains that could positively be identified as freight or coal were used in this analysis, so this excluded all trains passing our site in full darkness.

BC was measured using an aethalometer (Magee Scientific model AE22). BC data were collected at one-minute time resolution at 370 nm and 880 nm. BC loading was determined using infrared attenuation data at 880 nm alone, because at 370 nm, other organic compounds may contribute interference (Wang et al., 2011). The aethalometer determines raw BC concentration (BC_0 , ng/m^3) from measured attenuation values (ATN , m^{-1}) via

$$BC_0 = 10^9 \times ATN / \sigma \quad (1)$$

where σ is the calibrated cross-section ($16.6 m^2/g$ at 880 nm). As in our previous study (Jaffe et al., 2014), we applied a correction to the BC_0 concentrations to account for diminishing transmission as a function of BC loading. Transmission (Tr) is calculated from each attenuation value:

$$Tr = e^{-ATN/100} \quad (2)$$

Following Kirchstetter and Novakov (2007), we calculated the corrected BC mass loading (BC_{corr} , ng/m^3) as:

$$BC_{corr} = BC_0 / (0.88 \times Tr + 0.12) \quad (3)$$

The DPM EFs are calculated for each passing train in units of DPM emitted per kg of diesel fuel burned using:

$$EF (PM_{2.5}) = \frac{\Delta PM_{2.5}}{\Delta CO_2} \times CF \times W_c \quad (4)$$

where the $\Delta PM_{2.5}/\Delta CO_2$ or “enhancement ratio” is calculated from the Reduced Major Axis (RMA) regression slopes of the 10-second CO_2 and $PM_{2.5}$ data for each passing train, in units of $\mu g/m^3$ per ppmv. CF is a conversion factor to convert CO_2 concentrations in ppm to $\mu g C/m^3$ units using the ideal gas law at 1 atm and 25°C (1 ppmv $CO_2 = 490.7 \mu g C/m^3$). W_c is the mass fraction of carbon in diesel fuel (870 g C/kg fuel) (Lloyd's Register, 1995; Cooper, 2003), which yields overall units on the EF of g $PM_{2.5}/kg$ fuel consumed. Yanowitz et al. (2000) showed that over 95% of diesel fuel carbon is released as CO_2 .

Enhancement ratios ($\Delta PM_{2.5}/\Delta CO_2$ and $\Delta PM_1/\Delta PM_{2.5}$) were calculated from the 10-second data using the RMA regression method, which considers errors in both the x and y variables (Ayers, 2001; Cantrell, 2008). Absolute enhancements were calculated by subtracting out the PM, BC and CO_2 maximums during train passage from the background concentration measured prior to each trains passage. The RMA regression parameters were calculated for each train passage using a program written in Java utilizing Apache Commons Mathematics Library 3.3. The program first looked for a $PM_{2.5}$ enhancement of at least $3 \mu g/m^3$ over the median value from the past 17 minutes (100, 10-second data points). The accuracy of the Java program to calculate PM and CO_2 enhancements and the RMA regression parameters were manually verified for approximately 20% of the peaks. All times in this manuscript are given in Pacific Daylight Time (PDT).

3. Results

3.1 Calibration of the DustTrak

We compared the DustTrak PM_{2.5} concentrations with a TEOM and the filter-based Federal Reference Method (FRM) at a routine air quality monitoring site in Seattle, Washington (Beacon Hill), operated by the Puget Sound Clean Air Agency (PSCAA). Comparison data were obtained between April 30–May 20, 2014. TEOM data were continuous and reported on an hourly basis, the filter-based FRM measurements were for 24 hours and conducted every third day only. At this site, the TEOM is a Thermo Fisher Scientific Model 1400AB with 8500C Filter Dynamic Measurement System (FDMS) with the Very Sharp Cut Cyclone (VSCC™) modification (U.S. EPA, 2014). This configuration is designated by the EPA as a Federally Equivalent Method (FEM) for PM_{2.5}. The inlet and flow configuration used for the DustTrak at the Beacon Hill site were identical to the configuration used in the Columbia River Gorge.

We found a very good correlations between the TEOM PM_{2.5}, the FRM and the DustTrak's reported PM_{2.5}. Table 1 shows the regression parameters.

The 95% confidence interval in the slope for the DustTrak-TEOM comparison is +/- 4.5%, whereas it is +/- 32% for the DustTrak-FRM comparison due to the very small sample size. In both cases, the intercepts are insignificantly different from zero (95% confidence interval overlaps zero). Because of this, we corrected all of the DustTrak PM data using the TEOM slope of 0.5577. This slope is 22% greater than the one reported by Jamriska et al. (2004), who reported a slope of 0.458. It also is approximately 14% greater than our earlier DustTrak comparison at a different site, where we reported a slope of 0.491 (Jaffe et al., 2014). These differences may be attributable to different aerosol types at these sites. Given these differences, we estimated the uncertainty in the corrected DustTrak PM₁ and PM_{2.5} values to be ±20%.

3.2 Overview of observations on train emissions in the Columbia River Gorge

As each train passed our observation site, we may detect a peak in PM and CO₂, but this depended on the wind direction and wind speed. If the winds were from the north to northeast directions, our sensors recorded minor peaks only, or no peaks at all, in PM and CO₂. We found that small PM events had a lower correlation between the various parameters. For this reason, we screened out small peaks where the maximum $\Delta\text{PM}_{2.5}$ (enhancement above background) was $< 3 \mu\text{g}/\text{m}^3$. If a peak larger than this value was detected and the video confirmed a simultaneous train passage, then we included this peak in our analysis. We included only freight and coal-carrying trains, since these were the dominant types that we observed in the Columbia River Gorge. Trains that carried mixed loads (e.g., freight plus coal), sand or other unidentifiable or uncovered cargo were not included in this analysis. We also observed very few passenger trains during the daytime hours, in contrast to our previous study in Seattle (Jaffe et al., 2014).

During this study, we observed 367 events with $\Delta\text{PM}_{2.5} > 3 \mu\text{g}/\text{m}^3$ that were identified by the video cameras as either freight or coal. We refer to each train passage with a detectable PM peak and verified by the video as a “train event.” Table 2 shows a summary of the 367 train events, including number and average peak PM₁ and PM_{2.5} enhancement values (over background). The peak PM₁ and PM_{2.5} enhancements (10-second) from coal trains are about double the enhancements seen from freight trains. In addition, there are three extreme events with PM_{2.5} enhancements greater than $75 \mu\text{g}/\text{m}^3$ that were seen only for the coal trains. The differences between the peak PM enhancements for coal and freight trains are statistically significant ($P < .001$). The statistically significant difference remains even if these extreme events are excluded from the analysis. For all train events, there is an excellent relationship between the

PM₁ and PM_{2.5} data, although the fraction of PM₁/PM_{2.5} varies by train type. This is discussed in section 3.5 below.

However, only some train events showed a good correlation between PM_{2.5} and CO₂.

Figure 1 shows an example of a freight train that passed our site on July 10, 2014. In this case, the PM_{2.5} enhancement is 24 µg/m³, the CO₂ enhancement is 39 ppmv and the two are very well correlated, indicating that the dominant source of PM is diesel exhaust. Figure 2 shows an example of a coal-carrying train that passed by on July 18, 2014. For this example, the peak PM_{2.5} concentration is more than 6 times the peak shown previously for the freight train, while the CO₂ enhancement is much smaller. In addition, the CO₂ peaks occurred at the start and end of the train passage due to locomotives at the beginning and end of this train, which is typical of the very long coal trains. The height of the CO₂ peak shows no obvious relationship with train type and likely varies mainly with meteorology, which influences the degree to which the combustion exhaust gases reach the measurement site. For the coal train (Figure 2), the dominant source of PM is not diesel exhaust but coal dust. This was confirmed by the video (discussed below). It should be noted that DPM was probably present but is not apparent in the data due to the much larger coal dust peak. In this case, because the PM concentrations were not correlated to CO₂, we were not able to calculate a DPM emission factor. For this reason, we did not include train events in the DPM EF calculation if the PM_{2.5}-CO₂ R² is less than 0.5. We also excluded train events that had very small CO₂ enhancements ($\Delta\text{CO}_2 < 2$ ppmv), as these had erratic behavior.

3.3 DPM emission factors

The $\Delta PM_{2.5}/\Delta CO_2$ was used to derive the DPM emission factors. The average $\Delta PM_{2.5}/\Delta CO_2$ slope for all train events was found to be $6.56 \mu g/m^3$ per ppmv, but this included many trains with a very poor correlation between $PM_{2.5}$ and CO_2 . For the DPM emission factor calculation, we restricted our analysis to only those cases with an R^2 for the $PM_{2.5} - CO_2$ relationship of 0.5 or greater and a CO_2 enhancement of at least 2 ppmv. Table 2 shows the number of each train type that was used for the DPM analysis and statistics on the $PM_{2.5} - CO_2$ slope.

The data in Table 2 show that while most freight trains were included in this analysis, the majority of coal trains were not included. This is due to the fact that most of the coal train events show a poor correlation between $PM_{2.5}$ and CO_2 (see Figure 2). One coal train that would otherwise have been included in the DPM calculation had a $PM_{2.5} - CO_2$ slope of 12.0, more than 10x the mean value, and had visible coal dust in the video. Thus the large amount of $PM_{2.5}$ in this case cannot be attributed solely to DPM. This train event was not included in the DPM analysis. With this exclusion, the mean and median slopes for freight and coal trains are rather similar. Using equation 4, we find that the mean and median DPM EFs from our study are 1.2 and 0.99 g/kg fuel consumed, with an overall uncertainty of 20%. Our previous observations in the Pacific Northwest (Jaffe et al., 2014) found an average EF for diesel locomotives of 0.94 g/kg.

Diesel EFs for locomotives have been previously reported from several measurement campaigns. Kean et al. (2000) reported locomotive emission factors of between 1.8–2.1 g/kg using the EPA “NONROAD” model. A 2009 report (U.S. EPA, 2009) estimated that average locomotives EFs are declining about 5% per year, with a 2014 value of 0.98 g/kg. A study by Sierra Research in 2004 (Sierra Research, 2004) forecast a much slower decrease in the EFs of diesel locomotives, compared to U.S. EPA (2009), and for 2014 projected 1.4 g/kg. Our average

measured EF is consistent with those cited in the above literature for the 2014 time frame, within the respective uncertainties.

3.4 Black carbon

We obtained simultaneous BC and $PM_{2.5}$ data on 294 of the trains. Table 3 reports the observed BC/ $PM_{2.5}$ and $PM_1/PM_{2.5}$ enhancement ratios (discussed in section 3.5)

These data show that, on average, 43% of the $PM_{2.5}$ was BC for all trains. In our previous study using similar data from 2013 (Jaffe et al., 2014), we found that the BC/ PM_1 fraction was 52%, with most of those observations on freight trains. Our new data in 2014 indicates a significant difference ($P < .001$) in the average BC/ $PM_{2.5}$ fraction for freight (0.47) and coal trains (0.29). Previous studies have found values that are similar to our freight train values for the BC/ PM fraction. A study by Hildemann et al. (1991) found that 55% of diesel emissions were BC, and Watson et al. (1994) reported 45%. An Atlanta study (Galvis et al., 2013) found that diesel trains had BC to $PM_{2.5}$ ratios of 47–52%. The significant difference in the BC/ $PM_{2.5}$ between coal and freight trains, shown in Table 3, indicates a significant coal dust component in the PM from the coal trains.

We assume that the coal dust has the same composition as the coal being shipped. This coal, from the Powder River Basin of Wyoming and Montana, has a relatively low carbon content compared to other coal types (ca 50% C), with the remainder of the mass made up of moisture and minerals, such as silicates, iron oxides and calcium oxide (NETL, 2012). While the low carbon content is partly responsible for the low BC/ $PM_{2.5}$ fraction, shown in Table 3, our data suggest that other factors may also be involved. This could include a change in the mass absorption cross section for coal dust, as compared to diesel exhaust, which might reflect the

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4 impact of the coal mineral content, the organic matter composition or the size distribution of the
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6 particles.
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11 3.5 PM₁/PM_{2.5} fraction

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14 The DustTrak calculates concentrations of PM in four size ranges, but due to the inlet
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16 sampling efficiency (discussed in section 2) we considered only data for PM₁ and PM_{2.5}. Table 3
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18 gives the statistical parameters on the PM₁/PM_{2.5} enhancement ratio. Coal trains showed a larger
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20 mass fraction of particles above 1 μm aerodynamic diameter, and this difference is statistically
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22 significant. This reflects the significant contribution of coal dust to the PM_{2.5} concentrations
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24 during the passage of the coal trains.
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31 3.6 Influence of coal dust on PM_{2.5} concentrations

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33 In four cases, the videos revealed visible coal dust from the open-top coal trains. These
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35 visible coal dust plumes were seen in the four train events with the highest peak PM_{2.5}
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37 concentrations (Table 4). We call these four train events with the highest PM_{2.5} and visible coal
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39 dust “super-dusters.” Two of the “super-duster” videos have been archived as part of the
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41 supplemental materials for this paper (8/7/2014 and 7/27/2014). Figure 3 shows still images
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43 obtained from the video before and after train passage for the “super duster” on 8/7/2014, along
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45 with the measured PM_{2.5} concentrations. We found that 4 out of 74 coal trains, or 5.4%, were
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47 classified as “super dusters” during our study.
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53 A number of factors could be important in explaining the coal dust emissions of PM_{2.5}
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55 from coal trains. These include quality of the surfactant application or factors that may disturb
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57 the coal/surfactant surface, such as high train speeds, exposure to high winds or rough handling
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during transport. While we have no information on upstream conditions, our data do allow us to examine the influence that train and local wind speed may have played on dust emissions. To do this, we calculated train speeds for each coal train from the videos. We also calculated the vector component of the winds in the direction opposite to the trains' travel. The sum of train speed plus vector wind speed represents the true wind speed across the open-top coal trains. We refer to this as the effective wind speed. During our study, the average train speed was 71.3 km/h and the average vector wind speed was 14.9 km/h.

Figure 4 shows the effective wind speed versus peak $PM_{2.5}$ for each coal train event. The four "super dusters" are shown as large red squares. While no simple relationship emerges from this analysis, the data do suggest that "super dusters" are more likely to occur when the effective wind speed is greater than 80–90 km/h. Above 90 km/h, the fraction of "super dusters" is 10.3% (3 out of 29 trains), compared to 5.4% at all wind speeds. Thus we can view wind speed as one factor that increases the risk of high-level coal dust exposure. However, the fact that many coal trains with effective wind speeds greater than 90 km/h are not "super dusters" indicates that other factors, such as quality of the surfactant applied to the coal surface, must also be important.

4. Conclusions

We measured PM_1 , $PM_{2.5}$, BC and CO_2 during 367 train passages (train events) in the Columbia River Gorge. From the data, we calculated a DPM EF average of 1.2 g/kg fuel consumed ($\pm 20\%$) on 163 of those train events that show a good correlation between $PM_{2.5}$ and CO_2 (mostly freight trains). Our data indicate that nearly all open-top coal trains release coal dust, which contributes to enhanced $PM_{2.5}$ in the Columbia River Gorge. In four train events, that we call "super-dusters," the coal dust emissions led to visible dust plumes and the highest $PM_{2.5}$

concentrations observed in our study. But nearly all coal trains generate some degree of coal dust ($PM_{2.5}$) based on the following evidence:

1. Statistically higher peak $PM_{2.5}$ concentrations during passage of coal trains compared to freight trains. The peak $PM_{2.5}$ enhancements during a coal train passage are nearly double, on average, compared to the value during a freight train passage (Table 2);
2. The fact that most freight trains (52%) show a good correlation between $PM_{2.5}$ and CO_2 , whereas very few coal trains (15%) show this relationship (Table 2);
3. The $BC/PM_{2.5}$ enhancement ratio is statistically higher for freight trains compared to coal trains (Table 3);
4. The $PM_1/PM_{2.5}$ enhancement ratio is statistically higher during passage of freight trains compared to coal trains (Table 3).

These four results demonstrate statistically significant differences between freight and coal trains, even if the four super-dusters are excluded from the statistical analysis.

Because our focus was on air quality, we measured the respirable size fractions of PM. Thus it is not possible to relate our observations to any data on bulk loss of coal during transport, since most of this loss will occur as much larger size particles. Because most coal train events show a poor correlation between $PM_{2.5}$ and CO_2 , it is not possible to rigorously derive a fuel-based emission factor for the coal dust. Nonetheless, our data provide some guidance to anyone wishing to calculate total $PM_{2.5}$ emissions from the railway sector. Since the peak $PM_{2.5}$ values for coal trains are nearly double those for freight trains, it is reasonable to conclude that the total $PM_{2.5}$ emissions from coal trains are approximately double those of freight trains. This would imply that the coal train $PM_{2.5}$ emissions consist of approximately half DPM and half coal dust.

Though all coal trains appear to generate some degree of dust, the “super-dusters” generate visible plumes and the highest concentrations of $PM_{2.5}$. “Super-dusters” represent 5.4% of all coal trains but 10.3% when the effective wind speed is greater than 90 km/h. This indicates that wind is one factor contributing to the coal dust emissions, but it is not the only explanatory factor.

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Figure captions

Figure 1. $PM_{2.5}$ and CO_2 during passage of a freight train on 7/10/2014 at 12:29 PDT. The two values show a good correlation with an R^2 of 0.98 and a slope of $0.61 \mu g/m^3$ per ppmv.

Figure 2. $PM_{2.5}$ and CO_2 during passage of a coal train on 7/18/2014 at 4:56 PDT. The two parameters show no correlation during this time period. The train was observed to have locomotives in the front and rear, giving rise to the CO_2 peaks at the beginning and end of this time period.

Figure 3. Images captured from the video camera before and after coal train passage on 8/7/2014 at 17:28 PDT. The full video of this train passage is archived as part of the supplemental materials for this paper. The camera looks to the west, downriver in the Columbia River Gorge. The coal train is visible in the right image and was moving from left to right.

Figure 4. Peak $PM_{2.5}$ enhancement for each coal train passage versus effective wind speed over the top of the train. The effective wind speed is calculated as the train speed plus the vector component of the wind at 180° to the train's movement. The four "super dusters" are shown as large red squares.

Figure 1

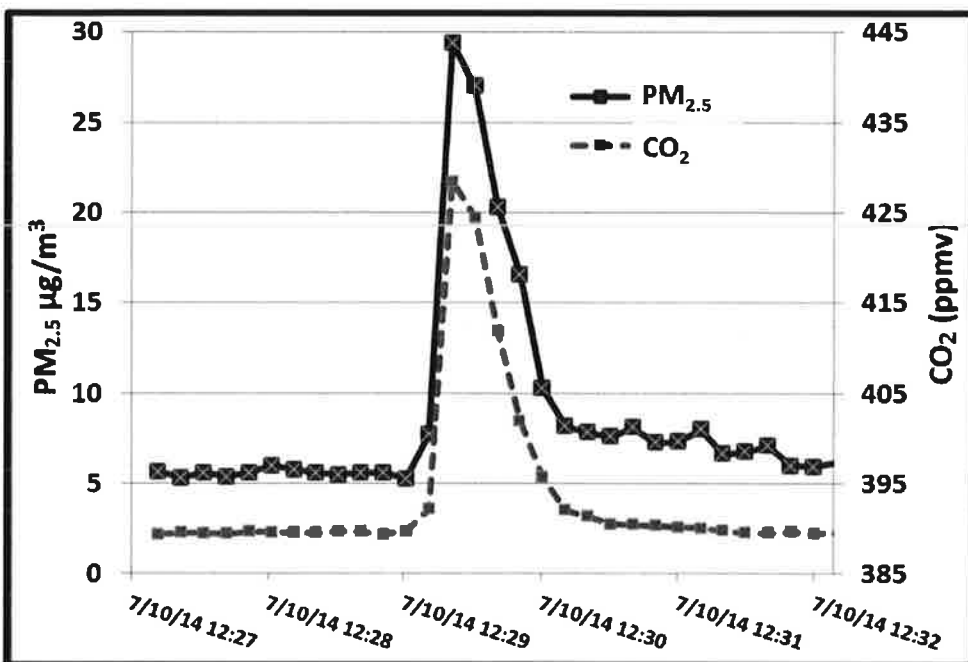


Figure 2

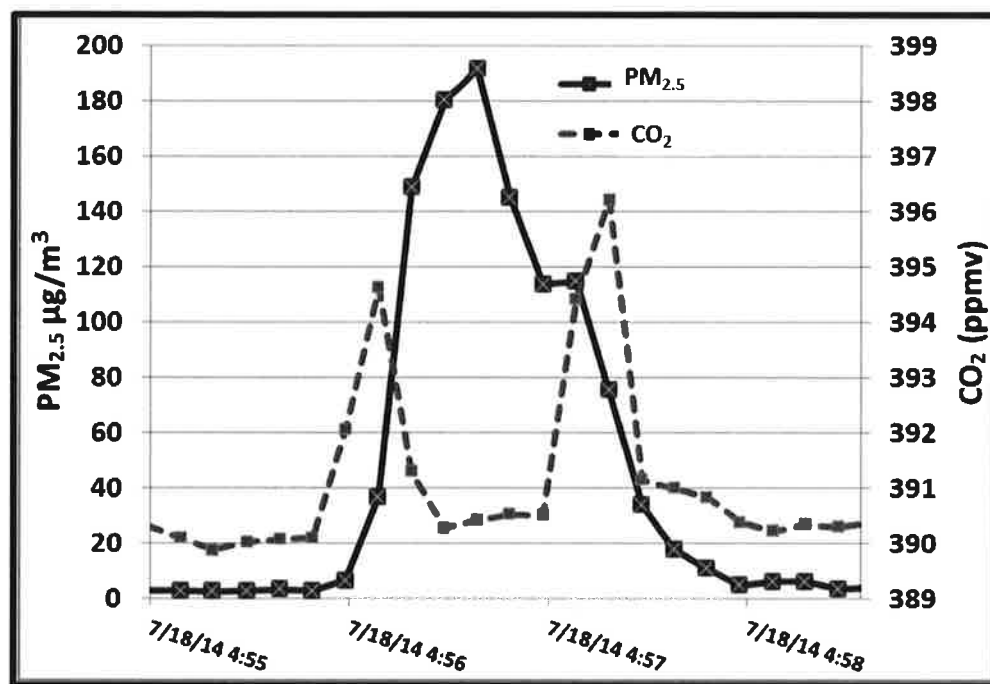


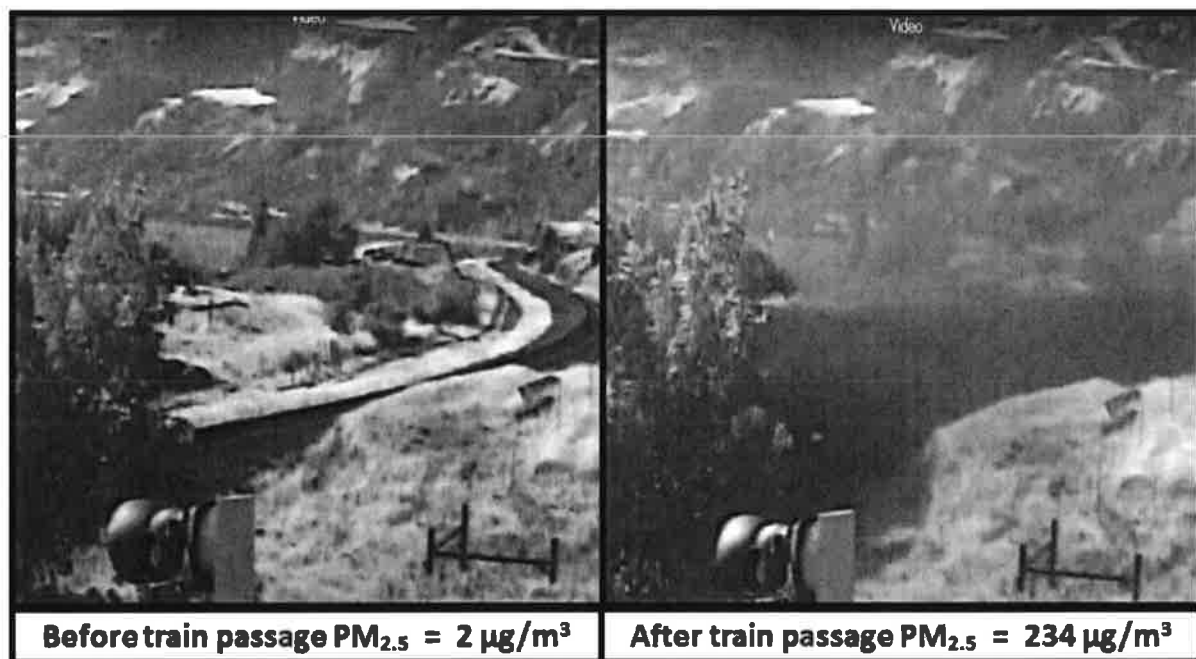
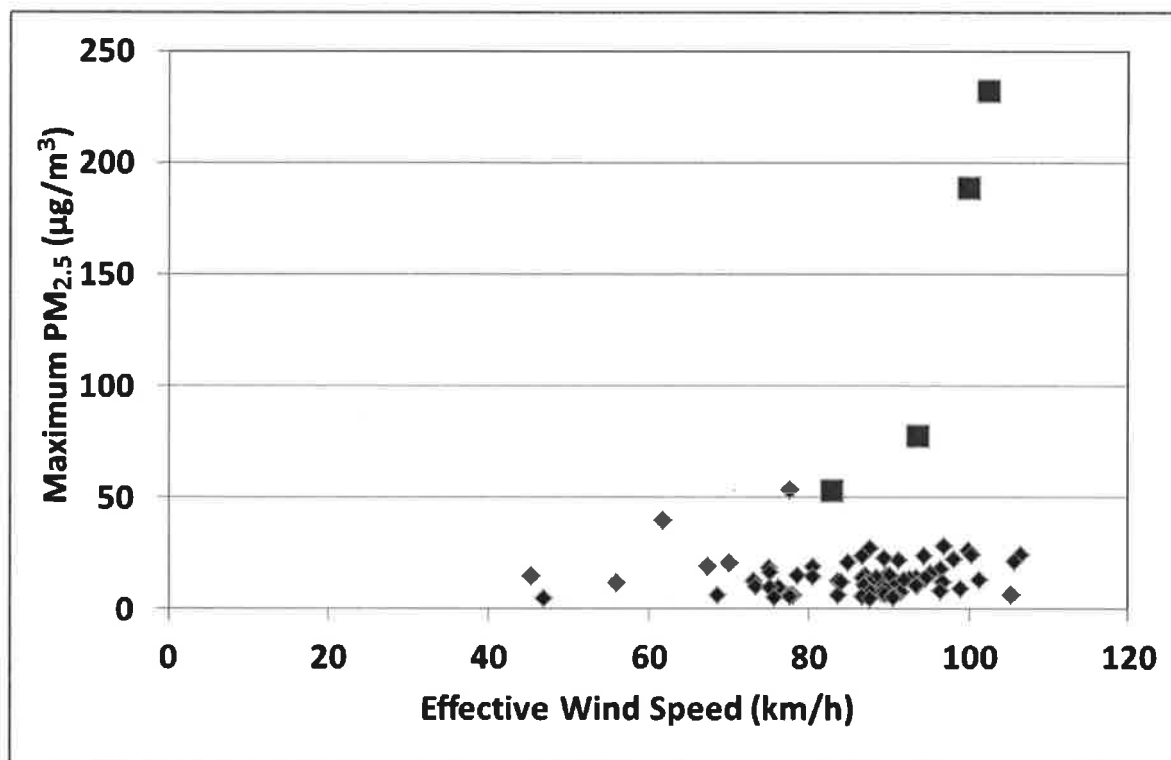
Figure 3

Figure 4



Tables

Table 1. Regression parameters for the comparisons between the DustTrak data, the TEOM data and the FRM method at the PSCAA site at Beacon Hill, Seattle, Washington.

Comparison equation (using Reduced Major Axis regression)	R ²	N
TEOM PM _{2.5} (µg/m ³) = DustTrak x 0.5577 – 0.6977	0.74	485 (hourly averages)
FRM PM _{2.5} = DustTrak x 0.5524 – 0.8433	0.92	7 (24-hour samples)
FRM PM _{2.5} = TEOM x 1.05 – 0.4326	0.96	7 (24-hour samples)

Table 2. PM and CO₂ data for freight and coal trains. Slopes for $\Delta\text{PM}_{2.5}/\Delta\text{CO}_2$ relationship is reported only for those train events with $R^2 > 0.5$ and $\Delta\text{CO}_2 > 2$ ppmv.^a

	Freight	Coal	All trains
Number	293	74	367
Average peak ΔPM_1 ($\mu\text{g}/\text{m}^3$)	11.0	19.7	12.5
Average peak $\Delta\text{PM}_{2.5}$ ($\mu\text{g}/\text{m}^3$)	10.7	20.9	13.0
Maximum $\Delta\text{PM}_{2.5}$ ($\mu\text{g}/\text{m}^3$)	57.2	232.3	232.3
Number with $\text{PM}_{2.5} - \text{CO}_2$ $R^2 > 0.5$ and $\Delta\text{CO}_2 > 2$ ppm	152 (52%)	11 (15%)	163 (44%)
Mean/median $\Delta\text{PM}_{2.5}/\Delta\text{CO}_2$ slope ($\mu\text{g}/\text{m}^3/\text{ppmv}$)	0.70/0.56	0.71/0.56	0.70/.56
Max/Min slope	3.88/0.10	1.64/0.20	3.88/0.10

^aIn addition to the criteria given in the text above, we excluded one additional case with visible coal dust and an extremely high $\text{PM}_{2.5}$ -CO₂ slope (12.0).

Table 3. BC/PM_{2.5} and PM₁/PM_{2.5} enhancement ratios for freight and coal trains.

	Freight	Coal	All trains
N (for BC/PM _{2.5} analysis)	233	61	294
Mean/median BC/PM _{2.5} (unitless)	0.47/0.40	0.29/0.20	0.43/0.35/0.27
Standard deviation on BC/PM _{2.5}	0.27	0.23	0.27
N (for PM ₁ /PM _{2.5} analysis)	293	74	367
Mean/median PM ₁ /PM _{2.5} (unitless)	0.93/0.93	0.96/0.96	0.96/0.96
Standard deviation on PM ₁ /PM _{2.5}	0.03	0.03	0.03

Table 4. The four train events with the highest peak PM_{2.5} concentrations. In each case, a coal train with a visible coal dust plume was confirmed in the video recording.

Date/time (PDT)	Peak PM _{2.5} conc. $\mu\text{g}/\text{m}^3$	Peak BC $\mu\text{g}/\text{m}^3$	BC/PM _{2.5} ratio
8/7/14 17:28	232.3	53.5	0.23
7/18/14 4:57	188.8	88.9	0.47
7/20/14 14:07	77.6	8.86	0.11
7/27/14 21:16	53.1	9.13	0.17

From: Denise Smith <DMSmith@co.whatcom.wa.us>
Sent: Monday, December 21, 2015 12:08 PM
To: Tyler Schroeder
Subject: GPT Staff time
Attachments: dms_20151221120402.pdf

Please print the attached invoice request for GPT staff time for October & November—sign both request at the bottom please and return to me!

Denise Massey Smith
Administrative Assistant
Whatcom County Planning and Development Services
5280 Northwest Drive
Bellingham, WA 98226
360-778-5906

Disclaimer: *The information contained in all correspondence with a government entity may be disclosable to third party requesters under the Public Records Act.*

WHATCOM COUNTY

Planning & Development Services
5280 Northwest Drive,
Bellingham, WA 98226-9097
360-778-5900, TTY 800-833-6384
360-778-5901 Fax



J.E. "Sam" Ryan
Director

Request for Invoice**INV: GPT-2015-010**

Date: December 21, 2015

Bill To: SSA Marine
Attn: Ari Steinberg
1131 SW Klickitat Way
Seattle, WA 98134

RE: October 2015-Monthly Whatcom County Staff Time

Fees:

Description	Revenue Account Number	Amount
Whatcom County Health Department Fees	656261.4345.8140	\$100.00
Whatcom County Parks Department Fees	6011.4345.8140	\$
Whatcom County Planning & Development Services Department Fees	2526.4345.8140	\$
Whatcom County Public Works Department Fees	108010.4345.8140	\$
Whatcom County AS Executive Office	1210.4345.8910	\$900.00
TOTAL DUE		\$1,000.00

Prepared by:  (Initials)

Denise Massey Smith

Approved by: _____ (Initials)

Tyler Schroeder

WHATCOM COUNTY

Planning & Development Services
5280 Northwest Drive,
Bellingham, WA 98226-9097
360-778-5900, TTY 800-833-6384
360-778-5901 Fax



J.E. "Sam" Ryan
Director

Request for Invoice**INV: GPT-2015-011**

Date: December 21, 2015

Bill To: SSA Marine
Attn: Ari Steinberg
1131 SW Klickitat Way
Seattle, WA 98134

RE: November 2015-Monthly Whatcom County Staff Time

Fees:

Description	Revenue Account Number	Amount
Whatcom County Health Department Fees	656261.4345.8140	\$500.00
Whatcom County Parks Department Fees	6011.4345.8140	\$
Whatcom County Planning & Development Services Department Fees	2526.4345.8140	\$
Whatcom County Public Works Department Fees	108010.4345.8140	\$
Whatcom County AS Executive Office	1210.4345.8910	\$800.00
TOTAL DUE		\$1,300.00

Prepared by:  (Initials)

Denise Massey Smith

Approved by: _____ (Initials)

Tyler Schroeder

From: Denise Smith <DMSmith@co.whatcom.wa.us>
Sent: Friday, December 11, 2015 10:39 AM
To: Tyler Schroeder
Subject: GPT

The disbursement request and escrow increase request are on their way interoffice to you Monday morning, please sign and get back to me!

Thanks
Denise

Denise Massey Smith
Administrative Assistant
Whatcom County Planning and Development Services
5280 Northwest Drive
Bellingham, WA 98226
360-778-5906

Disclaimer: *The information contained in all correspondence with a government entity may be disclosable to third party requesters under the Public Records Act.*

From: Forrest Longman <FLongman@co.whatcom.wa.us>
Sent: Monday, December 07, 2015 11:03 AM
To: Sam (Jeanne) Ryan
Cc: Tyler Schroeder
Subject: Major Projects Code Revision

Hi Sam,

When we were chatting on Friday, you mentioned your staff was making some revisions to the major projects section of the code based on Council requests. Would you mind giving me a preview of those revisions? I'm doing some research on this hearing examiner/GPT stuff and it would be helpful to get a better understanding of what's already in the works.

Thanks

Forrest Longman
Legislative Analyst
Whatcom County Council
360.778.5030
flongman@co.whatcom.wa.us



**Pacific International
Terminals**
A Carrix Enterprise

1131 SW Klickitat Way
Seattle Washington
98134
800/422-3505 tel
206/623-0179 fax

December 22, 2015

Transmitted electronically

Randel Perry, Project Manager
US Army Corps of Engineers, Seattle District
P.O. Box 3755
Seattle, WA 98124-3755

**RE: USACE Reference Number NWS-2008-260; Gateway Pacific Terminal,
Joint Aquatic Resources Permit Application (JARPA)**

Dear Mr. Perry,

Pacific International Terminals ("PI Terminals") re-submits its Joint Aquatic Resources Permit Application ("JARPA") to the U.S. Army Corps of Engineers ("USACE") for the Gateway Pacific Terminal ("Terminal"). The Terminal is a multi-commodity bulk shipping terminal to be located on approximately 1,500 acres of privately held land in the Cherry Point Heavy Impact Industrial (HII) zoned land in Whatcom County, Washington.

PI Terminals submitted a JARPA for the proposed project on February 28, 2011 ("2011 JARPA"). After USACE review and submittal of supplemental information, the application was found to be complete and the USACE's permit review process commenced. The USACE provided public notice and initiated environmental review of the project under the National Environmental Policy Act ("NEPA"). The 2011 JARPA was simultaneously submitted to state and local permitting agencies with jurisdiction and they initiated environmental review under the State Environmental Policy Act.

In response to the advice and a request from the USACE, PI Terminals withdrew the 2011 JARPA by letter dated June 12, 2012 with the expressed agreement that the USACE would continue permit review and environmental review under the provisions of the USACE regulations that provide for Pre-application review. As a Co-lead agency, the Washington State Department of Ecology made a similar request that the JARPA be withdrawn.

The ongoing Pre-application review includes preparation of a Draft Environmental Impact Statement ("DEIS") under NEPA and other federal processes such as the National Historical Preservation Act Section 106 cultural resources consultation process and the Endangered Species Act Section 7 consultation process. Over the more than 3 years since the 2011 JARPA was filed, the USACE accomplished a number of milestones in its permit review process. A list of the milestones that have been achieved during the pre-application review is shown in Attachment A.

During this period the Terminal's potential to impact treaty protected fishing rights of the Lummi Nation and other treaty recognized tribes was raised and the USACE is currently engaged in a government-to-government consultation with the Lummi Nation regarding this issue. In recognition of the importance of preserving tribal fishing as a subsistence lifeway and Treaty-protected right, PI



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Terminals has significantly engaged with the USACE and state agencies to collect, analyze and provide information in support of the government-to-government consultation. PI Terminals has also developed a set of project features related to tribal fishing that are now incorporated as committed features into our project. We believe they address the potential impacts to tribal fishing and will in fact enhance the safety and success of tribal fishing in the vicinity of Cherry Point.

In the normal course of a project review we understand that a final JARPA fully describing the project to be approved, including required mitigation, would be submitted following completion of the NEPA process and other essential permitting reviews. In that way the JARPA application would reflect the result of the permitting review including agency, tribal, and public review. However, PI Terminals is submitting our JARPA at this stage in the permit review process to provide the USACE with the clearest description of the project that PI Terminals currently wishes to have considered in the Department of the Army permit review and NEPA process and to inform the USACE in the current government-to-government consultation process with the Lummi Nation.

Accordingly, we are resubmitting the Gateway Pacific Terminal JARPA application (2015 JARPA). This 2015 JARPA proposes the same project initially proposed in 2012 with four key revisions:

- Updated Site Layout – As the result of an internal review of the upland facilities site layout undertaken by PI Terminals, the company issued a report, *“Gateway Pacific Terminal Project Alternatives Report”* on April 18, 2014, to the USACE and the other co-lead agencies. The report identified an alternative upland facilities site layout that reduced impacts to Waters of the United States (wetlands and streams) by approximately 50 percent. The report was accepted by the USACE and the revised upland facilities site layout identified in the report has been recognized as the Applicant’s Proposed Alternative for purposes of the ongoing NEPA process.
- Port Operations and Safety Plan to Facilitate Tribal Fishing – PI Terminals has developed, and incorporates as part of the proposed project, a *Port Operations and Safety Plan to Facilitate Tribal Fishing* (the “Plan”). This Plan will be implemented by PI Terminals in cooperation with the Lummi Nation, the USACE and other parties as required to accomplish the purpose and objectives of the Plan.
- Updated Property Boundary – Since filing the 2011 JARPA, PI Terminals acquired, or acquired the rights to, two additional properties. This increases the overall project site from approximately 1,200 acres to approximately 1,500 acres. The additional property was acquired to support development of an on-site wetlands compensatory mitigation in recognition of the area of wetlands disturbed by the proposed project.
- Updated Compensatory Wetlands Mitigation Plan – As a result of PI Terminals’ wetlands disturbance minimization efforts and a reduction in the area of wetland disturbance, and through discussion with the USACE, the *Draft Wetlands Compensatory Mitigation Plan* has been updated and was previously submitted to USACE in 2014.



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PI Terminals anticipates that the USACE will review this application to determine that the information provided meets your standards for a complete application. In the interest of continuing to move forward on the permit review and NEPA process, we will immediately respond to any information requests that you may have while determining the re-submitted JARPA application is complete. When reviewing the application you will note several other revisions including the revised company name, and an expanded discussion in Section 8 on avoidance, minimization and mitigation to marine resources.

Please advise if additional information is necessary for the application to be completed.

This application is submitted by Pacific International Terminals, LLC acting as agent for Pacific International Terminals, Inc., Cloud Peak Energy Logistics, LLC, and the Crow Tribe of Indians - an alliance for developing the Gateway Pacific Terminal.

Sincerely,

Pacific International Terminals,
Inc.

Bob Watters
Senior Vice President

Cloud Peak Energy,
Logistics I LLC

Bryan Pechersky
Executive Vice President,
General Counsel and
Corporate Secretary

Crow Tribe of Indians

Darrin Old Coyote
Chairman

Attachments:

- A – Pre-application Milestones Achieved (attached)
- Completed Joint Aquatic Resources Permit Application Form, December 2015 (as a separate PDF document)
- *Port Operations and Safety Plan to Facilitate Tribal Fishing*, 2015, Pacific International Terminals, LLC, Seattle, Washington (as a separate PDF document)

CC: Colonel John G. Buck, Commander and District Engineer, Seattle District, U.S. Army Corps of Engineers
Michelle Walker, Regulatory Branch Chief, Seattle District, U.S. Army Corps of Engineers
Francis Eugenio, Attorney, Seattle District, U.S. Army Corps of Engineers



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Attachment A - Pre-Application Milestones Achieved

To date the pre-application environmental review and consultation process has achieved the following milestones:

- JARPA and Project Information Document submitted – February 28, 2011
- USACE Public Notice and Notice of Scoping – September 21, 2012
- 120 – Day Public Scoping Period – September 24, 2012 to January 21, 2013
- USACE Public Scoping Meetings:
 - October 27, 2012, Bellingham
 - November 3, 2012, Friday Harbor
 - November 5, 2012, Mount Vernon
 - November 13, 2012, Seattle
 - November 29, 2012, Ferndale
 - December 4, 2012, Spokane
 - December 12, 2012, Vancouver
- USACE/PI Terminals joint agreement for withdrawal of 2011 JARPA - June 12, 2012
- USACE Scope of Analysis and Extent of Impact Evaluation for National Environmental Policy Act Environmental Impact Statement – July 3, 2013
- USACE Section 106 Initiation – July 9, 2013
- Submission of PI Terminals Alternatives Report and revised Site Layout – April 18, 2014
- USACE Determination of the Area of Potential Effect for Section 106 – July 25, 2014
- NEPA Scoping Reports – March 29, 2013
- Initial meeting of Section 106 Consulting parties – May 6, 2015
- USACE alternatives screening analysis completed – July 2015



WASHINGTON STATE

Joint Aquatic Resources Permit Application (JARPA) Form^{1,2} [\[help\]](#)

USE BLACK OR BLUE INK TO ENTER ANSWERS IN THE WHITE SPACES BELOW.



US Army Corps
of Engineers
Seattle District

AGENCY USE ONLY

Date received:

Agency reference #:

Tax Parcel #(s):

Part 1—Project Identification

1. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [\[help\]](#)

Gateway Pacific Terminal

Part 2—Applicant

The person and/or organization responsible for the project. [\[help\]](#)

2a. Name (Last, First, Middle)

Pacific International Terminals, LLC

2b. Organization (If applicable)

2c. Mailing Address (Street or PO Box)

1131 SW Klickitat Way

2d. City, State, Zip

Seattle, Washington 98134

2e. Phone (1)

2f. Phone (2)

2g. Fax

2h. E-mail

(800) 422-3505

(206) 623-0304

(206) 381-5186

Skip.Sahlin@ssamarine.com

¹Additional forms may be required for the following permits:

- If your project may qualify for Department of the Army authorization through a Regional General Permit (RGP), contact the U.S. Army Corps of Engineers for application information (206) 764-3495.
- If your project might affect species listed under the Endangered Species Act, you will need to fill out a Specific Project Information Form (SPIF) or prepare a Biological Evaluation. Forms can be found at <http://www.nws.usace.army.mil/Missions/CivilWorks/Regulatory/PermitGuidebook/EndangeredSpecies.aspx>.
- Not all cities and counties accept the JARPA for their local Shoreline permits. If you need a Shoreline permit, contact the appropriate city or county government to make sure they accept the JARPA.

²To access an online JARPA form with [\[help\]](#) screens, go to

http://www.epermitting.wa.gov/site/alias_resourcecenter/jarpa_jarpa_form/9984/jarpa_form.aspx.

For other help, contact the Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.

Part 3—Authorized Agent or Contact

Person authorized to represent the applicant about the project. (Note: Authorized agent(s) must sign 11b of this application.) [\[help\]](#)

3a. Name (Last, First, Middle)			
Mr. Skip Sahlin			
3b. Organization (If applicable)			
Pacific International Terminals, LLC			
3c. Mailing Address (Street or PO Box)			
1131 SW Klickitat Way			
3d. City, State, Zip			
Seattle, Washington 98134			
3e. Phone (1)	3f. Phone (2)	3g. Fax	3h. E-mail
(800) 422-3505	(206) 623-0304	(206) 381-5186	Skip.Sahlin@ssamarine.com

Part 4—Property Owner(s)

Contact information for people or organizations owning the property(ies) where the project will occur. Consider both **upland and aquatic** ownership because the upland owners may not own the adjacent aquatic land. [\[help\]](#)

- ☐ Same as applicant. (Skip to Part 5.)
- ☐ Repair or maintenance activities on existing rights-of-way or easements. (Skip to Part 5.)
- ☒ There are multiple upland property owners. Complete the section below and fill out [JARPA Attachment A](#) for each additional property owner.
- ☒ Your project is on Department of Natural Resources (DNR)-managed aquatic lands. If you don't know, contact the DNR at (360) 902-1100 to determine aquatic land ownership. If yes, complete [JARPA Attachment E](#) to apply for the Aquatic Use Authorization.

4a. Name (Last, First, Middle)			
Pacific International Terminals, LLC			
4b. Organization (If applicable)			
4c. Mailing Address (Street or PO Box)			
1131 SW Klickitat Way			
4d. City, State, Zip			
Seattle, Washington 98134			
4e. Phone (1)	4f. Phone (2)	4g. Fax	4h. E-mail
(800) 422-3505	(206) 623-0304	(206) 381-5186	Skip.Sahlin@ssamarine.com

Part 5–Project Location(s)

Identifying information about the property or properties where the project will occur. [\[help\]](#)

- ☐ There are multiple project locations (e.g. linear projects). Complete the section below and use [JARPA Attachment B](#) for each additional project location.

5a. Indicate the type of ownership of the property. (Check all that apply.) [help]			
<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input checked="" type="checkbox"/> Publicly owned (state, county, city, special districts like schools, ports, etc.) <input type="checkbox"/> Tribal <input checked="" type="checkbox"/> Department of Natural Resources (DNR) – managed aquatic lands (Complete JARPA Attachment E)			
5b. Street Address (Cannot be a PO Box. If there is no address, provide other location information in 5p.) [help]			
4750 Gulf Road - In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Roads. (See Sheet 1 and Sheet 2).			
5c. City, State, Zip (If the project is not in a city or town, provide the name of the nearest city or town.) [help]			
Ferndale, Washington, 98248			
5d. County [help]			
Whatcom County			
5e. Provide the section, township, and range for the project location. [help]			
¼ Section	Section	Township	Range
	17, 18, 19, 20	39 North	01 East
5f. Provide the latitude and longitude of the project location. [help]			
<ul style="list-style-type: none"> Example: 47.03922 N lat. / -122.89142 W long. (Use decimal degrees - NAD 83) 			
48.864762 N lat. / -122.727799 W long.			
5g. List the tax parcel number(s) for the project location. [help]			
<ul style="list-style-type: none"> The local county assessor's office can provide this information. 			
See Sheet 3 for locations:	39011-9214451	Parcel 15 -	
39011-7473110	39011-9252449	39011-9440480	
39011-7067334	39011-9298423	39011-9502484	
39011-7205467	39011-9327425	39012-0095477	
30911-7065466	39011-9349425	39012-0135359	
39011-8117050	39011-9388424	39012-0340476	
39011-9424335	39011-9438360	39011-9512341	
39011-9198377	39011-9454299	39012-0135359	
39011-9092500	39011-9469346	39011-9505246	
39011-9172456	39512-546546	39020-151212	
39011-9199451	Parcel 14 -	39012-337323	
	39011-7278062		

5h. Contact information for all adjoining property owners. (If you need more space, use [JARPA Attachment C.](#)) [\[help\]](#)

Name	Mailing Address	Tax Parcel # (if known)
See Attachment C and Sheet 4	-----	

5i. List all wetlands on or adjacent to the project location. [\[help\]](#)

The Gateway Pacific Terminal project area includes Pacific International Terminals owned parcels, Washington Department of Natural Resources tidelands (to be leased), and two parcels privately held by others (Parcel 14 and Parcel 15). The project area is approximately 1,566 acres.

Wetland areas and wetland functions in the project area have been documented and described in a series of wetland delineation reports produced between 2008 and 2014. Wetland functions have been rated using the *Washington State Wetlands Rating System for Western Washington* (Hruby 2004). A Jurisdictional Determination (NWS-2008-260) from the USACE, was issued on November 12, 2013 and confirmed approximately 608.6 acres of wetlands in the project area (see **Sheet 5**).

Total wetland areas by Cowardin class are provided in the table below:

Wetland Areas by Cowardin Class on Property Owned or Controlled by PI Terminals

Wetland Area by Cowardin ¹ Classification (acres) ²				Total Wetland Area (acres) ²
Palustrine Forested	Palustrine Scrub-Shrub	Palustrine Emergent	Palustrine Open Water	
402.6	58.9	143.8	3.3	608.6 ²

1. Cowardin et al. (1979).

2. Total area of wetlands calculated using professionally surveyed boundaries and geographic information system (GIS), and rounded to the nearest 0.1 acre.

Section 3.0 of the *Draft Conceptual Compensatory Wetland Mitigation Plan* (AMEC, May 2014) provides summary descriptions of wetlands and wetland functions in the project area.

5j. List all waterbodies (other than wetlands) on or adjacent to the project location. [\[help\]](#)

The project area includes the Strait of Georgia. Streams and drainages identified within the project area drain to the Strait of Georgia. Stream 1 (WRIA 1 # 01.0100), Stream 2 (WRIA 1 # 01.0101) and 10 other unnamed streams have been identified in the project area. Streams 1, 1A, 2, 2A, and 2B flow for the most part in natural watercourses. Streams 3, 4, 5, 6A, 6B, 7A, and 7B flow in roadside ditches or adjacent to BNSF's Custer Spur rail line. Stream characteristics are summarized in the table below.

Stream Characteristics in the Project Area

Stream ID	WDFW Jurisdiction?	State of Washington Stream Type ¹	Whatcom County Stream Type ²	Tributary Class ³	Location
Stream 1	Yes -Reaches 1, 2, and 3 No - Reaches 4 and 5	F – Reach 1 Ns – Reaches 2 through 5	HCA 1b	RPW	Flows mainly south through the west side of the project area.
Stream 1A	Yes	Ns	HCA 1c	RPW	Flows in a defined channel between Wetland 7A and Stream 1; confluence with Stream 1 located approximately 50 feet north of Henry Road.
Stream 2	Yes	Ns	HCA 1b	RPW	Flows southwest in the southernmost portion of the project area.
Stream 2A	Yes	Ns	HCA 1c	RPW	Tributary to Stream 2. Located south of Henry Road and east of Gulf Road.

Stream ID	WDFW Jurisdiction?	State of Washington Stream Type ¹	Whatcom County Stream Type ²	Tributary Class ³	Location
Stream 2B	Yes	Ns	HCA 1c	RPW	Tributary to Stream 2. Located in the southeast corner of the project area.
Stream 3	No	Ns	HCA1c	RPW	Drainage ditch on BP property adjacent to north side of Aldergrove Road. Drains to the "Industrial Tributary to Terrell Creek." Adjacent to property.
Stream 4	Yes	Ns	HCA 1c	RPW	Drainage ditch on the north side of Lonseth Road.
Stream 5	No	Ns	HCA 1c	RPW	Drainage ditch on the north side of Henry Road.
Stream 6A	Yes	Ns	HCA 1c	RPW	Drainage ditch on the east side of Gulf Road and north of Lonseth Road.
Stream 6B	No	Ns	HCA 1c	RPW	Drainage ditch on the east side of Gulf Road between Lonseth Road and Henry Road.
Stream 7A	No	Ns	HCA 1c	RPW	Drainage ditch located between Aldergrove and Lonseth Road west of the Custer Spur rail embankment in the Elliot Yard.
Stream 7B	No	Ns	HCA 1c	RPW	Drainage ditch located between Henry Road and Lonseth Road along the west side of the Custer Spur rail embankment in the Elliott Yard.

1. WAC 222-16-030.

2. Habitat Conservation Area (HCA). HCA 1b - Other fish-bearing streams that do not meet the definition of shorelines of the state but have known or potential use by anadromous or resident fish species. HCA 1c - Non-fish-bearing streams are those streams that have no known or potential use by anadromous or resident fish.

3. All streams drain to the Strait of Georgia, a Traditional Navigable Water. RPW = relatively permanent water.

In addition to the streams, 11 other drainages occur as roadside ditches (Drainages 1 through 11), and two drainages occur as railroad ditches (Drainages 12 and 13). See **Sheet 5** for locations of all waterbodies on or adjacent to the project area.

5k. Is any part of the project area within a 100-year floodplain? [\[help\]](#)

☐ Yes ☒ No ☐ Don't know

5l. Briefly describe the vegetation and habitat conditions on the property. [\[help\]](#)

Vegetation in the terrestrial portion of the project area is comprised of pastures, hayfields, mowed utility corridors, and secondary growth deciduous forest. Pastures in the project area are grazed seasonally and hayfields are annually harvested. Whatcom County roads paralleled by roadside ditches cross the project area (see **Sheet 6** for locations of roadways). Both the forested wetland and forested upland habitats have multiple vegetation layers (canopy, subcanopy, shrub layers) that provide habitat for a variety of common terrestrial wildlife species. Roads and other adjacent land uses preclude undisturbed wildlife corridors.

Habitats in the project area include a coastal lagoon located near the shoreline, which is rated a Category I wetland per the *Washington State Wetlands Rating System for Western Washington* (Hruby 2004). Riparian areas of Streams 1 and 2 are mapped as priority habitat by Washington Department of Fish and Wildlife (WDFW) and Whatcom County. Additional priority habitats present within the project area include wetlands, tributaries to Streams 1 and 2 and their riparian zones, and the balance of the marine nearshore.

Marine habitat areas include intertidal to subtidal marine habitat consisting of a nearshore macroalgae community growing mainly on cobble substrate to a depth of approximately minus 20 feet mean lower low water (MLLW). Generally marine plants do not occur in water depths greater than minus 20 feet MLLW as light penetration is too low. Also at this depth the marine substrate transitions from cobbles to sands and silt.

5m. Describe how the property is currently used. [\[help\]](#)

Approximately 245 acres (16 percent) of the project area is currently used for pastures and hayfields. The remaining portions of the property are comprised of deciduous forest and shrub habitats, and have been historically developed as small farms and used to harvest pulpwood and firewood.

Linear right-of-ways for underground pipelines and a BPA electrical transmission line cross the project area approximately north to south. BNSF Railway's Custer Spur line transects the eastern edge of the project area. Whatcom County roads cross the project area. Marine areas offshore (-30 to -60 MLLW) support commercial, recreational, and tribal fisheries. The beach area is used for a variety of passive recreation activities.

5n. Describe how the adjacent properties are currently used. [\[help\]](#)

The project area lies within Whatcom County's Heavy Impact Industrial Zone and Urban Growth Area (UGA). BP's Cherry Point Refinery and associated industries lie north and west of the property. The Strait of Georgia is adjacent to the project area to the south (see **Sheet 4**). The ALCOA-Intalco Works (aluminum plant) lies to the southeast. Single-family residences lie to the east. The northeastern corner of the property is adjacent to State owned property managed by Washington Department of Natural Resources (WDNR), and WDNR manages State Aquatic lands adjacent to the property.

5o. Describe the structures (above and below ground) on the property, including their purpose(s) and current condition. [\[help\]](#)

An uninhabited house and a hay barn are located in the southeast portion of the project area. A partially developed area is adjacent to Henry Road in the vicinity of Gulf Road and includes two large, unused, slab foundations and associated stormwater facilities. A conveyor trestle in-ruin at the shoreline and at least four, formerly residential, foundations-in-ruin in other locations are present in other locations. Other development in the project area includes two-lane roadways; agricultural and roadside ditching, fencing and dirt lane access for agriculture; and rail, pipeline, and electric utility corridors.

5p. Provide driving directions from the closest highway to the project location, and attach a map. [\[help\]](#)

The project area can be accessed from Interstate 5. Take Exit 266 from Interstate 5, then travel west on SR 548/Grandview Road. Turn left (south) on Kickerville Road (before the BP Refinery) continuing to Henry Road. Turn right (west) on Henry Road. Continue on Henry Road to access the project area (**See Sheet 1 and Sheet 2**).

Part 6–Project Description

6a. Briefly summarize the overall project. You can provide more detail in 6b. [\[help\]](#)

The following provides a summary of the overall project. Additional details on the project description are found in, "Appendix B: Project Description for Alternative C2" in the *Gateway Pacific Terminal Project Alternatives Report* (Pacific International Terminals, Inc. 2014).

PI Terminals proposes to construct and operate a deep-water, multimodal terminal for the export of dry bulk commodities. The development footprint and project components are shown on **Sheet 6**. The Terminal would have a 3,000-foot-long, deep-water wharf (see **Sheet 7**), an approximately 1,285-foot-long access trestle connecting the wharf to shore and to on-shore commodity unloading, and storage and transfer areas. The storage and transfer area would be serviced by a rail loop (see **Sheet 8**) and support facilities (see **Sheets 9**,

10, and 11). The wharf would accommodate large ocean-going vessels, including Panamax and Capesize vessels.

The Terminal would handle a variety of dry bulk commodities throughout its lifetime. Dry bulk commodities would be transferred to and from the Terminal by rail. Rail access would be provided by the BNSF Railway main line via the existing Custer Spur industrial rail line. Commodities-handling equipment would be installed and appropriate management practices enforced to protect the environment from fugitive dust during Terminal operations.

Development of the Terminal would result in the following facilities and infrastructure:

- A rail loop with sufficient rail tracks to handle projected bulk volumes and which is connected to BNSF Railway's existing Custer Spur rail line;
- Open and closed commodity storage areas, material handling equipment, and other required bulk handling infrastructure, such as conveyors;
- Access to the trestle and wharf;
- A 3,000-foot, deep-draft wharf with ship loading equipment and an access trestle extending from the shoreline to the wharf;
- A stormwater management system; and
- Utilities, including electric power and water.

6b. Describe the purpose of the project and why you want or need to perform it. [\[help\]](#)

The purpose of the Gateway Pacific Terminal project is:

To develop and successfully operate a multimodal marine terminal, including a deep-draft wharf with access trestle and other associated upland facilities, for export of multiple dry bulk commodities ("multimodal deep-water bulk terminal") within the Cherry Point Industrial Area, to meet international and domestic demand.

6c. Indicate the project category. (Check all that apply) [\[help\]](#)

- ☒ Commercial ☐ Residential ☐ Institutional ☐ Transportation ☐ Recreational
☐ Maintenance ☐ Environmental Enhancement

6d. Indicate the major elements of your project. (Check all that apply) [\[help\]](#)

<input type="checkbox"/> Aquaculture	<input type="checkbox"/> Culvert	<input type="checkbox"/> Float	<input type="checkbox"/> Retaining Wall (upland)
<input type="checkbox"/> Bank Stabilization	<input type="checkbox"/> Dam / Weir	<input type="checkbox"/> Floating Home	<input checked="" type="checkbox"/> Road
<input type="checkbox"/> Boat House	<input type="checkbox"/> Dike / Levee / Jetty	<input type="checkbox"/> Geotechnical Survey	<input type="checkbox"/> Scientific Measurement Device
<input type="checkbox"/> Boat Launch	<input type="checkbox"/> Ditch	<input checked="" type="checkbox"/> Land Clearing	<input type="checkbox"/> Stairs
<input type="checkbox"/> Boat Lift	<input checked="" type="checkbox"/> Dock / Pier	<input type="checkbox"/> Marina / Moorage	<input checked="" type="checkbox"/> Stormwater facility
<input type="checkbox"/> Bridge	<input type="checkbox"/> Dredging	<input type="checkbox"/> Mining	<input type="checkbox"/> Swimming Pool
<input type="checkbox"/> Bulkhead	<input type="checkbox"/> Fence	<input type="checkbox"/> Outfall Structure	<input type="checkbox"/> Utility Line
<input type="checkbox"/> Buoy	<input type="checkbox"/> Ferry Terminal	<input checked="" type="checkbox"/> Piling/Dolphin	
<input type="checkbox"/> Channel Modification	<input type="checkbox"/> Fishway	<input type="checkbox"/> Raft	

☐ Other:

6e. Describe how you plan to construct each project element checked in 6d. Include specific construction methods and equipment to be used. [\[help\]](#)

- Identify where each element will occur in relation to the nearest waterbody.
- Indicate which activities are within the 100-year floodplain.

There is no 100-year floodplain in the project area.

Upland Facilities

The Gateway Pacific Terminal upland facilities would be developed on approximately 283 acres of the 1,520-acre upland portion of the project area. Prior to initiation of any **land clearing**, appropriate sedimentation control and other water quantity and quality controls would be installed to protect adjacent and downstream resources. Clearing and excavation would likely be performed using mechanical excavators within delimited construction zones. Where possible, excavated materials would be reused on site as fill. Construction staging, stockpiling, and material laydown are anticipated to occur within the bounds of the upland facility, in locations that would ultimately function as part of the commodity-handling infrastructure. Construction **roads** would include the currently existing roadways in the project vicinity along with new roads built for site access in the same location as the final roadways would be built to serve the facility. New roadbeds would be graded and surfaced with appropriate hard surfaces.

Within the construction footprint, vegetation would be cleared, topsoil and organic material would be removed, and the soil surface would be graded and compacted. In some locations, the surface would be preloaded with fill. Existing topsoil and organic material present within areas of excavation would be stockpiled and stored during rough grading for potential reuse as soil amendments for re-vegetating disturbed areas. If it is not practical to stockpile existing on-site material, imported compost or other organic material may be used to amend soils for re-vegetation.

Stormwater Management System

Installation of the construction stormwater management system (**stormwater facilities**) would be the one of the first steps in construction and would be completed before bulk earthwork activities. It is anticipated that construction stormwater facilities would mainly be designed to fit within the areas of the various operational stormwater ponds (shown on **Sheet 12**). It is anticipated that Stormwater Management Ponds 1, 7, 9, 10, and 11 would be preferred locations to settle and treat construction stormwater runoff (see **Sheet 12**).

Stormwater runoff during construction would be managed to protect water quality in accordance with erosion and sedimentation control plans. Discharges would meet requirements for construction stormwater discharges under the Washington State NPDES requirements and would incorporate best management practices (BMPs) for stormwater management, such as stormwater sediment-trapping basins. It is anticipated that perimeter sediment-controlling geotextile fabric fences would be installed, then stormwater management basins would be excavated. These would act as the primary sediment-trapping basin with internal finger dikes and flow-control outlets. Construction drainage ditches, with erosion-resistant linings, would then be constructed to drain to the sediment trapping basins. In addition to traditional settling ponds, treatment using flocculants or electrocoagulation would be used to reduce the turbidity of construction runoff, if needed.

Site preparation, including earthmoving, cutting, and filling activities, would be performed in a manner to minimize and manage stormwater runoff. Interim exposed disturbed areas would be stabilized with mulch or plastic covering, and permanent exposed cut surfaces would be vegetated as soon as practicable, including those portions of the ditches that do not require smooth hard surfaces to prevent erosion. Water trucks would routinely sprinkle dust-suppressing water spray over the site until disturbed soils are treated with mulch and revegetated. Spill-containment measures would be constructed and maintained around chemical and oil storage areas and equipment fueling areas, to supplement drip trays and other spill-control practices during construction. Additional pollution control BMPs would be implemented as required to comply with local and state requirements and permit conditions.

Marine Wharf and Access Trestle

Marine wharf and access trestle construction would occur in the Strait of Georgia. Construction of the **access trestle** would start with **pile** installation using an incremental methodology whereby construction begins at the

shore and the pile crane moves incrementally away from shore on the newly installed piles. The pile crane used to install piles would act as a mobile and self-contained work platform to support pile-driving activities. Piles would be installed with a vibratory pile driver, proofed with an impact hammer, and then topped with a cast-in-place pile cap. The pile caps would be created by building wooden and reinforced steel bar forms around the top of the piles and pouring concrete into the forms. Once the concrete pile cap has cured, the form would be removed. The deck structure would be constructed of pile caps and pre-cast concrete girders.

Construction of the marine **wharf** would be initiated from a center section of the wharf using floating equipment. Once the center section of the wharf is complete, the center section would function as a platform for using the same methodology as described for the trestle where a pile-driving crane works off of existing piles to extend the wharf. Construction activity would require a variety of support vessels—tug boats, barges, and monitoring boats. The number of support vessels would vary, ranging from two to eight, depending on the activity being conducted.

Water quality protections would include implementation of best management practices to prevent and protect marine water quality degradation during construction. The wharf and access trestle construction would be limited to the agency approved in-water work windows and would occur over approximately 2 years.

6f. What are the anticipated start and end dates for project construction? (Month/Year) [\[help\]](#)

- If the project will be constructed in phases or stages, use [JARPA Attachment D](#) to list the start and end dates of each phase or stage.

Start date: January 2017

End date: January 2019

☐ See JARPA Attachment D

The Terminal would be constructed over a period of approximately 2 years, commencing after environmental reviews required under the National Environmental Policy Act and State Environmental Policy Act have been completed and required federal, state, and local permits and authorizations have been obtained. The Terminal would be built to its full capacity (54 million metric tons per year [mmty]), in a single construction effort once project permitting is completed. Initial operation of the Terminal is anticipated to occur in 2019.

6g. Fair market value of the project, including materials, labor, machine rentals, etc. [\[help\]](#)

\$665 Million

6h. Will any portion of the project receive federal funding? [\[help\]](#)

- **If yes**, list each agency providing funds.

☐ Yes ☒ No ☐ Don't know

Part 7–Wetlands: Impacts and Mitigation

- ☒ Check here if there are wetlands or wetland buffers on or adjacent to the project area.
(If there are none, skip to Part 8.) [\[help\]](#)

7a. Describe how the project has been designed to avoid and minimize adverse impacts to wetlands. [\[help\]](#)

☐ Not applicable

In 2012, a Terminal layout of the same capacity (54 mmt) with two independently functioning rail loops was presented in a JARPA and had wetland impacts estimated to be on the order of 180 acres. Terminal design was revised in 2014 which resulted in significantly reduced impacts to wetlands. The revised layout is called the “Revised Terminal Layout” and is described in detail in, “Appendix B--Project Description for Alternative C2” to the *Gateway Pacific Terminal Project Alternatives Report* (Pacific International Terminals, Inc. 2014).

The Revised Terminal Layout avoids and minimizes impacts to wetlands, streams, and ditches to the extent possible. The project would rectify temporary impacts and provide compensation for minimized, unavoidable negative effects to wetlands, streams, ditches, and their functions, consistent with federal and state regulatory requirements and guidance. More information regarding avoidance and minimization and the proposed wetland and stream mitigation is provided in the *Draft Conceptual Compensatory Wetland Mitigation Plan* (AMEC 2014).

Avoidance

Adverse impacts to aquatic resources have been avoided to the extent practicable. Potential impacts to the shoreline area have been avoided by placing all project infrastructure (materials handling, commodity storage, and rail facilities) away from the shoreline, except for the trestle which must cross the shoreline to connect with the wharf.

The project does not require marine dredging for construction, operation, or maintenance of the wharf.

An earlier Terminal design had included a new rail crossing of the Stream 1 ravine, which would have likely required construction of an embankment within the ravine. Operation of trains across the ravine may have resulted in other indirect impacts. These potential direct and indirect effects of a train crossing of Stream 1 has been completely avoided.

To avoid aquatic areas, Terminal infrastructure was repositioned to be more densely developed, leaving large areas of the property undisturbed.

Priority wildlife habitats are present in the project area and were avoided to the extent possible to protect these areas. The current design completely avoids direct effects to the highest functioning wetland (coastal lagoon) and stream system (Stream 1) in the project area.

Approximately 534 acres of wetlands would be completely avoided by the revised layout of the Terminal, which is more avoided acres than the 391 acres avoided by the previously considered layout.

Minimization

For those impacts that cannot be avoided, appropriate and practicable measures to minimize impacts to wetlands, streams, and ditches have been taken.

Compared to the previously considered layout, the Revised Terminal Layout reduces wetland impacts to approximately 72.5 acres and impacts to named streams to approximately 2,955 linear feet.

Other actions taken to minimize impacts aquatic resources included:

- The Terminal’s overall footprint (in non-marine areas) has been re-designed and reduced from 334 acres to approximately 278 acres.
- The Terminal layout has been compacted to minimize the length of rail required to deliver bulk commodities to the open and closed storage areas.

- Rail lines were aligned to minimize impacts to wetlands, streams, and drainages while maintaining the length and turning radius required for trains to enter and exit the site safely and efficiently.
- Bulk commodities would be delivered to the closed storage area via conveyor belt rather than by rail to minimize the length of new railbed.
- Facilities have been shifted away from the shoreline, which allows for preservation and improvement of the critical areas proximate to shoreline priority habitats.
- Stormwater management facilities have been configured to minimize direct impacts to wetlands.
- The Longshore Building and support area have been relocated to an existing upland hayfield to minimize impacts to forested habitats.
- Required grading quantities have been minimized to the maximum extent practicable through positioning of facilities on the site.
- Extra consideration has been given to preserving watershed functions, especially functions that protect Stream 1 and its watershed area.
- Potential effects to hydrology and water quality have been minimized through the careful design of stormwater facilities that provide water quality protection and integrate hydrologic functions with natural stream courses.
- Development of Terminal infrastructure would be completed in a single phased construction period (vs. multiple-phased construction), which avoids repeated disturbances to areas over time.
- Temporary construction impacts have been minimized by:
 - Placing construction lay-down and staging areas in locations that would ultimately be developed,
 - Requiring high-visibility fencing to locate construction limits, and
 - Designing and implementing an effective construction stormwater plan.

The Terminal was designed to avoid and minimize impacts to wetlands and streams to the extent practicable.

The degradation of water quality is not anticipated because the Terminal development would result in:

- Effective on-site management of commodities using emission control technologies,
- Providing effective stormwater treatment systems, and
- Rerouting streams and drainages to the extent possible into new or restored natural stream corridors to improve water quality functioning.

No grazing is planned to remain in the project area following construction. Some of the currently grazed areas would be permanently affected by Terminal development, but approximately 79 acres of wet pasture would be enhanced from emergent wet pasture to forested wetland, and approximately 13.9 acres of upland pasture would become forested wetlands. Wetland and buffer areas temporarily affected by vegetation removal during construction will be restored. Areas of temporary vegetation disturbance in wet pastures would be enhanced with receive shrubs or tree plantings, as appropriate.

7b. Will the project impact wetlands? [\[help\]](#)

☒ Yes ☐ No ☐ Don't know

Permanent direct impacts to 74.7 acres of wetlands would occur from development of the Terminal infrastructure. Approximately 8.0 acres of temporary impacts to wetlands would also occur. See Section 4.2 of the *Draft Conceptual Compensatory Wetland Mitigation Plan* (AMEC 2014) for details.

7c. Will the project impact wetland buffers? [\[help\]](#)

☒ Yes ☐ No ☐ Don't know

Permanent direct impacts to approximately 70.7 acres of wetland buffers would occur from development of the Terminal infrastructure. See Section 4.4 of the *Draft Conceptual Compensatory Wetland Mitigation Plan* (AMEC 2014) for further information.

7d. Has a wetland delineation report been prepared? [\[help\]](#)

- **If Yes**, submit the report, including data sheets, with the JARPA package.

☒ Yes ☐ No

Approximately 609 acres of wetlands are located within the project area (see **Sheet 5**). On November 12, 2013, the USACE issued a Jurisdictional Determination (NWS-2008-260) that confirmed wetlands, streams, and ditches within the project area to be jurisdictional as they either abut or are adjacent to unnamed tributaries of the Strait of Georgia, a traditional navigable waterway used for interstate and foreign commerce. The USACE also confirmed the location and extent of delineated wetlands on the project site. Whatcom County and Department of Ecology participated in the decision by attending the field inspections and participating in discussions and concurred with the results.

Wetland descriptions and functional assessments are documented in the following documents: *Wetland Determination and Delineation* (AMEC 2008); *Wetland Identification and Delineation – Parcel 14* (AMEC 2011); letter from Amec Foster Wheeler to USACE dated September 12, 2012 (AMEC 2012); and *Wetland Determination and Delineation – Parcel 15 Property* (AMEC 2013).

7e. Have the wetlands been rated using the Western Washington or Eastern Washington Wetland Rating System? [\[help\]](#)

- **If Yes**, submit the wetland rating forms and figures with the JARPA package.

☒ Yes ☐ No ☐ Don't know

Wetlands have been rated using the Western Washington Wetland Rating System (Hruby 2004), and rating forms have been submitted with the wetland delineation reports listed in Section 7d. Ratings for impacted wetland areas is given on the table on Sheet 14.

7f. Have you prepared a mitigation plan to compensate for any adverse impacts to wetlands? [\[help\]](#)

- **If Yes**, submit the plan with the JARPA package and answer 7g.
- **If No, or Not applicable**, explain below why a mitigation plan should not be required.

☒ Yes ☐ No ☐ Not applicable

The Draft Conceptual Compensatory Wetland Mitigation Plan (AMEC 2014) has been developed for the Gateway Pacific Terminal project.

7g. Summarize what the mitigation plan is meant to accomplish, and describe how a watershed approach was used to design the plan. [\[help\]](#)

Compensatory Mitigation

Compensatory mitigation for unavoidable, minimized impacts to wetlands is proposed. The compensatory mitigation strategy was developed using a watershed approach, where compensation is designed within a holistic framework, and which addresses the highest needs for the watershed when viewed as a connected, interactive ecosystem from its headwater wetlands to the Strait of Georgia. The goal of the watershed approach is to maintain and improve the quality and quantity of aquatic resources in a watershed through strategic selection of mitigation sites and by addressing functional needs.

Proposed permittee-responsible, on-site wetland compensation includes creating approximately 122.7 acres of wetlands and enhancing approximately 117.5 acres. The proposed compensatory mitigation areas are shown on **Sheet 13**. Wetland buffers would be provided in association with the wetland creation and enhancement areas. Approximately 534 acres of wetlands would be preserved in the project area. Pursuant to Whatcom County Code requirements for mitigation, the proposed mitigating actions would generate approximately 76.0 mitigation acre-credits, where 74.7 mitigation acre-credits are needed to compensate for unavoidable wetland impacts (see table below). This estimate does not include any credits which may be available from preservation of remaining wetland acreage on the property.

Potential Wetland Mitigation Credits Available

Mitigation Type	Estimated Area Available (acres)	Ratio²	Potentially Available Mitigation Credits
Creation	122.7	2:1	61.3
Enhancement ¹	117.5	8:1	14.7
Total			76.0

1. Enhancement includes areas enhanced to forested wetland and other habitat improvements

2. Based on WCC replacement ratios for Category III wetlands (WCC 16.16.680(C)).

Additional compensation measures include 7,757 linear feet of stream restoration, riparian buffer enhancement, and improving fish habitat and access through culvert replacements. These compensation actions are intended to improve ecological functions at a watershed scale and satisfy federal, state, and local agency guidelines for wetland mitigation.

7h. Use the table below to list the type and rating of each wetland impacted, the extent and duration of the impact, and the type and amount of mitigation proposed. Or if you are submitting a mitigation plan with a similar table, you can state (below) where we can find this information in the plan. [\[help\]](#)

See **Sheet 14** a table which provide details on anticipated permanent and temporary impacts to wetlands, impacts extent and duration, and also the type and amount of mitigation proposed.

Additional information for wetlands, stream and ditches is available in the *Draft Conceptual Compensatory Wetland Mitigation Plan* (AMEC 2014): Section 4 – Potential Impacts and Functional Assessment; Section 5 – Mitigation Sequencing; and Section 6 – Proposed Compensatory Mitigation.

Sheet 15 provides an overview and key map for the overlay of the project's construction footprint and direct permanent wetland impacts. **Sheets 16 through 24 and 26** detail the location of wetland and stream direct impacts.

Page number(s) for similar information in the mitigation plan, if available: Pages 41 to 82.

7i. For all filling activities identified in 7h, describe the source and nature of the fill material, the amount in cubic yards that will be used, and how and where it will be placed into the wetland. [\[help\]](#)

For all wetlands, fill material will be clean, native soil and subsoil from other locations on site. Fill will be placed by dump trucks, front-end loaders, and excavators within delimited construction areas within the project area. Development of the Terminal will require approximately 2.68 million cubic yards of material to be moved to create a level area for the open and closed storage areas, and rail embankment. Minimal grading would be needed for the shared services area to create a roadbed and for the abutment of the trestle.

7j. For all excavating activities identified in 7h, describe the excavation method, type and amount of material in cubic yards you will remove, and where the material will be disposed. [\[help\]](#)

Excavation activities would be by mechanical excavators within delimited construction areas within the project area. Where wetlands would be excavated, organic overburden material will be removed using tracked backhoes and bulldozers. Where possible, the excavated material surface will be transferred to the overburden fill location on site to be reused in appropriate locations. The temporary overburden storage areas would be located in areas that will ultimately be developed. Subsurface materials will be used for rail embankments and filling at other locations on site when appropriate. A total of 2.68 million cubic yards would be moved including cut and fill with an on-site balance achieved.

Part 8–Waterbodies (other than wetlands): Impacts and Mitigation

In Part 8, “waterbodies” refers to non-wetland waterbodies. (See Part 7 for information related to wetlands.) [\[help\]](#)

☒ Check here if there are waterbodies on or adjacent to the project area. (If there are none, skip to Part 9.)

8a. Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment. [\[help\]](#)

☐ Not applicable

Non-wetland waterbodies on or adjacent to the project area include streams, roadside ditches, and marine waters of the Strait of Georgia, known as “the Cherry Point Reach”. See Section 7a (on Page 10) for a discussion of avoidance and minimization of impacts to streams and ditches.

The following information is a summary of avoidance, minimization and mitigation of impacts to the Strait of Georgia.

Avoidance and Minimization of direct impacts in the Strait of Georgia

- **Avoidance of Dredging** - The Wharf and Trestle have been configured to avoid disturbing and eliminating benthic habitat by dredging. No fill or dredging is required in the Strait of Georgia during construction. No fill or dredging is required during operational life-time of the Terminal.
- **Shoreline Bluff Erosion** - Direct alterations to the shoreline bluff that could potentially cause or change the rate of bluff erosion at the location of the trestle crossing have been avoided by installation of an elevated trestle that spans the shoreline bluff. No excavation or other alteration of the bluff will be required for construction or for permanent placement of the trestle.
- **Maintenance of Water Quality** - Loss of dust entrained in the conveyed commodities that could be potentially deposited on the shoreline or in nearshore waters is avoided by installation of full enclosures on all overwater conveyors that will prevent fugitive dust emissions. Commodities are

moved on long, belt conveyors, which are in enclosures (building-like structures) on both the wharf and trestle. The enclosure has a roof, a solid floor, and walls on all sides.

- **Displacement of Marine Habitat** - Displacement of intertidal and marine bottom habitat by the installation of piles has been minimized through optimal placement of the piles and minimizing the overall size of the wharf and trestle structure. The design width of the trestle has been minimized to 50-foot (15 m) width by stacking the conveyors to reduce the required width of the trestle. The trestle structure would be oriented approximately due north-south which was determined to have the least area of crossing the photic zone. The number of pilings to be used to support the wharf and trestle would be minimized and grated decking would be used above the intertidal photic zone to reduce shading. The photic zone lies from the ordinary high water mark to approximately -20 feet (-9 m) relative to Mean Lower Low Water (MLLW).
- **Effects on Benthic Habitat** - Shading impacts to intertidal bottom habitat, including algae beds (the photic zone), has been avoided and minimized by locating the wharf offshore in deep water and by minimizing the width of the access trestle as it crosses the intertidal zone. The height of the trestle deck within this zone would be approximately 40 feet (12 m) above MLLW in the nearshore. The deck height and piling locations are planned to enhance light refraction and diffusion under and around the structure, particularly within the photic zone. The *Marine Biology Baseline Report* (AMEC 2014) provides additional information regarding current biological resources in the marine environment, and reports macroalgae growth to a depth of approximately -20 MLLW. For the area that is unavoidably shaded, a macroalgae compensation site is proposed to compensate for these effects. **Sheet 25** shows the location of the macroalgae mitigation site.

Avoidance and Minimization of indirect impacts in the Strait of Georgia

- **Pre-construction and Construction Monitoring** - Extensive monitoring of marine vegetation, water quality (turbidity), and marine wildlife will be conducted both prior to and during construction. Marine vegetation surveys will be conducted within 2 years of construction. Underwater surveys to evaluate and monitor benthic conditions are planned prior to construction and during construction. Monitoring of the presence of marine mammals in the vicinity will be conducted during construction, and following the details in the *Marine Mammal Monitoring Plan* (unpublished).
- **Marine Water Quality Protection** - During construction and operation of the Terminal, potential impacts to marine water quality would be avoided and minimized through implementation of stormwater control measures, and spill control and containment and response plans. The wharf would include containment and processing of potentially contaminated stormwater and equipment wash-down water. Uncontaminated stormwater runoff from the wharf and trestle would be allowed to drain naturally. As stated earlier, all commodities on the trestle and wharf are within enclosures at all times. Introduction of any hydrocarbon pollutants to marine waters would be avoided by prohibiting fueling (bunkering) of vessels calling at the wharf. All bunkering would occur at locations where bunkering is now occurring, or at other ports of call.
- **Prevention of Invasive Species Release** - During facility operations, the potential for release of non-native invasive species or other potential contaminants during ballast water discharge while loading vessels will be avoided by requiring that all calling vessels are fully in compliance with international, federal, and state ballast water management requirements. By the time of initial operation of the Terminal, federal standards are scheduled to require that all ballast water be processed through a USCG certified ballast water treatment system (on-board the vessel) to eliminate the potential release of invasive species. Pacific International Terminals will require that calling vessels demonstrate compliance through review of shipboard systems certification.
- **Prevention of Impacts to Tribal Treaty Fishing Activities** – No permanent fishing exclusion zone is required by any regulation and no permanent exclusion zone would be established around the wharf that would continuously prohibit tribal fishing activities.

- **Port Operations Plan** – A Port Operations Plan (the Plan) has been developed by PI Terminals (2015) detailing project features which allow unimpeded access to fishing during marine operations at the Terminal.

The following measures are described in more detail in the Plan (PI Terminals 2015) and include:

- Establishment of an Operational Safety Zone that limits fishing in direct proximity to vessels only when Terminal-calling vessels approach, moor, or depart from the wharf.
- Advanced notice to tribal fishers of Terminal-calling vessel movements.
- Navigation support for tribal fishers.
- Use of Inshore Traffic Zone navigation during Terminal-calling Vessel approach/departure.
- Tug and barge operations would be prohibited in the vicinity of the operational wharf to prevent fishing gear loss. This includes no use of tug and barge operations either for transportation of commodity cargos or refueling of vessels. Note that tug and barge operations would occur during construction.

Mitigation of Expected Marine Impacts

Construction and operation of the wharf and trestle is expected to create certain unavoidable long term impacts in marine waters for which mitigation is planned as an element of the proposed action. These mitigation measures include:

- **Removal of existing overwater structure: abandoned conveyor**

To reduce overwater shading in the project area and to improve water quality, the existing abandoned creosote-piling conveyor along the shoreline would be removed. Eight creosote piles support the conveyor structure. The total area of the abandoned conveyor is approximately 848 square feet (79 square m), with the nearshore area calculated to be 484 square feet (45 sq m). Removal of the existing conveyor would result in a net reduction of approximately 484 square feet (45 sq m) of overwater structure in the nearshore habitat, prior to construction of the Terminal.

- **Macroalgae compensatory mitigation site**

Macroalgae compensatory mitigation is proposed to compensate for potential shading effects from construction of the wharf and trestle (**Sheet 25**). Small to large cobble and small boulders would be placed at four existing locations of sandy substrate which is currently without vegetation to enhance macroalgae production in these locations. A total of 16,000 square feet of sandy substrate would be enhanced to support macroalgae. Installation would occur prior to wharf and trestle construction. Each of the four locations would be developed with a slightly different substrate mix (see table below).

Proposed Substrate Mix by Location at the Macroalgae Enhancement Site

Location	Size (square feet)	Small boulders (2 x 3 ft)	Large cobble (1 x 1 ft)	Small cobble (6 in x 6 in)	Large gravel (4 ft x 3 ft)
A	2,097	—	60%	40%	—
B	4,757	—	—	60%	40%
C	6,840	5%	65%	30%	—
D	2,306	—	—	20%	80%

8b. Will your project impact a waterbody or the area around a waterbody? [\[help\]](#)

☒ Yes ☐ No

8c. Have you prepared a mitigation plan to compensate for the project's adverse impacts to non-wetland waterbodies? [\[help\]](#)

- If Yes, submit the plan with the JARPA package and answer 8d.
- If No, or Not applicable, explain below why a mitigation plan should not be required.

☒ Yes ☐ No ☐ Not applicable

The *Draft Conceptual Compensatory Wetland Mitigation Plan* (AMEC 2014) has been developed for the Gateway Pacific Terminal project and addresses stream and ditch mitigation. The Appendix B of the Gateway Pacific Terminal Biological Assessment (AMEC 2014) along with Appendix B of the 1999 Settlement Agreement provide a detailed description of the Macroalgae Mitigation Plan and requirements.

8d. Summarize what the mitigation plan is meant to accomplish. Describe how a watershed approach was used to design the plan.

- If you already completed 7g you do not need to restate your answer here. [\[help\]](#)

See Section 7g and 8a above.

8e. Summarize impact(s) to each waterbody in the table below. [\[help\]](#)

Impacts to Streams and Drainages

Terminal development would permanently impact approximately 5,443 linear feet of drainages and 5,696 linear feet of streams (11,139 ft. total). Impacts would primarily be to roadside streams and ditches (4,232 ft), with 1,211 linear feet of streams flowing in natural corridors permanently impacted – all attributed to Stream 2A. For Stream 2A, impacts would result from redirecting flow through a culvert that would connect with Stream 2 at a location just upstream of the existing confluence between Stream 2 and Stream 2A.

For more information regarding impacts to non-wetland waterbodies see the *Draft Conceptual Compensatory Wetlands Mitigation Plan* (AMEC 2014). In all cases, existing flows would be rerouted to new or restored natural surface systems whenever possible, preferably in association with existing, enhanced, or new wetland systems.

Impacts to Streams and Ditches

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name	Impact location	Permanent Impacts (fill) (Linear Feet)	Temporary Impacts (Linear Feet)
Clearing, grading, excavation, and filling for Terminal infrastructure.	Stream 2A	In-water	1,211	71
	Stream 4 (roadside ditch)	In-water	773	90
	Stream 5 (roadside ditch)	In-water	2,726	97
	Stream 6b (roadside ditch)	In-water	577	68
	Stream 7A	In-water	0	38
	Stream 7B	In-water	409	44
	Drainage 1	In-water	1,068	148
	Drainage 3	In-water	3,173	291
	Drainage 4	In-water	33	25
	Drainage 7	In-water	208	178

	Drainage 10	In-water	961	64
	Total		11,139	1,114

Impacts to the Strait of Georgia

No fill or dredging would be required to construct the wharf or access trestle in the Strait of Georgia. No fill or dredging would be required during the operation of the wharf.

An estimated 730 steel piles would be required to build the wharf. Each pile is estimated to be up to 48 inches in diameter and averaging 172 feet long. The trestle would be built on an estimated 64 steel piles, each estimated to be 24 to 30 inches in diameter and averaging about 122 feet long each. This is the maximum number of piles expected to be required and there is a possibility that fewer piles will be needed. The number, size, and spacing of the wharf and trestle piles will be finalized after marine geotechnical information is available.

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody Name	Impact Location	Duration of Impact	Amount of material to be placed in or removed from waterbody	Area (sq. ft.) of waterbody directly affected
Pile installation	Strait of Georgia	In-water for Wharf and Trestle	Approximately 18 months over two in-water work windows	Piles only; no dredge or filling will be performed	1,320 ¹

1. Affected area was estimated using the area covered by 730 48-inch diameter piles, and 64 24-inch diameter piles. This is the maximum number and size of piles estimated to be likely required for the wharf and trestle. Future geotechnical evaluation will confirm or reduce these estimates.

8f. For all activities identified in 8e, describe the source and nature of the fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody. [\[help\]](#)

Streams and Drainages

Fill material would be clean, native soil and subsoil from onsite locations within the project area. Areas to be filled and graded are shown on **Sheets 16 through 24**. During construction stream flows will be temporarily diverted to new temporary flow pathways and ultimately to restored natural areas. For ditches, flows will be managed using construction stormwater management techniques, and ultimately flows will be restored to natural water courses. Fill will be placed by front-end loaders and excavators within delimited construction areas within the project area. Currently it is estimated that approximately 2,000 cubic yards would be needed as fill. More complete estimates for each stream or ditch will be determined when final grading plans are developed for the project.

8g. For all excavating or dredging activities identified in 8e, describe the method for excavating or dredging, type and amount of material you will remove, and where the material will be disposed. [\[help\]](#)

No dredging activities are proposed for any waterbodies in the project area.

Part 9—Additional Information

Any additional information you can provide helps the reviewer(s) understand your project. Complete as much of this section as you can. It is ok if you cannot answer a question.

9a. If you have already worked with any government agencies on this project, list them below. [help]			
Agency Name	Contact Name	Phone	Most Recent Date of Contact
Whatcom County	Tyler Schroeder	(360) 676-6717	December 2015
USACE	Randel Perry	(360) 734-3119	December 2015
WDFW	Brendan Brokes	(360) 466-4345	April 2015
WDNR	Dennis Clark	(360) 854-2805	December 2015
Ecology	Alice Kelly	(425) 649-7168	December 2015
9b. Are any of the wetlands or waterbodies identified in Part 7 or Part 8 of this JARPA on the Washington Department of Ecology's 303(d) List? [help] <ul style="list-style-type: none"> • If Yes, list the parameter(s) below. • If you don't know, use Washington Department of Ecology's Water Quality Assessment tools at: http://www.ecy.wa.gov/programs/wq/303d/. 			
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
9c. What U.S. Geological Survey Hydrological Unit Code (HUC) is the project in? [help] <ul style="list-style-type: none"> • Go to http://cfpub.epa.gov/surf/locate/index.cfm to help identify the HUC. 			
17110002			
9d. What Water Resource Inventory Area Number (WRIA #) is the project in? [help] <ul style="list-style-type: none"> • Go to http://www.ecy.wa.gov/services/gis/maps/wria/wria.htm to find the WRIA #. 			
WRIA #01			
9e. Will the in-water construction work comply with the State of Washington water quality standards for turbidity? [help] <ul style="list-style-type: none"> • Go to http://www.ecy.wa.gov/programs/wq/swqs/criteria.html for the standards. 			
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable			
9f. If the project is within the jurisdiction of the Shoreline Management Act, what is the local shoreline environment designation? [help] <ul style="list-style-type: none"> • If you don't know, contact the local planning department. • For more information, go to: http://www.ecy.wa.gov/programs/sea/sma/laws_rules/173-26/211_designations.html. 			
<input type="checkbox"/> Rural <input type="checkbox"/> Urban <input type="checkbox"/> Natural <input type="checkbox"/> Aquatic <input type="checkbox"/> Conservancy <input checked="" type="checkbox"/> Other <u>Cherry Point Area Shoreline Management Unit</u>			
9g. What is the Washington Department of Natural Resources Water Type? [help] <ul style="list-style-type: none"> • Go to http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesApplications/Pages/fp_watertyping.aspx for the Forest Practices Water Typing System. 			
<input checked="" type="checkbox"/> Shoreline <input checked="" type="checkbox"/> Fish <input type="checkbox"/> Non-Fish Perennial <input checked="" type="checkbox"/> Non-Fish Seasonal			

9h. Will this project be designed to meet the Washington Department of Ecology's most current stormwater manual? [\[help\]](#)

- **If No**, provide the name of the manual your project is designed to meet.

☒ Yes ☐ No

Name of manual: Stormwater Management Manual for Western Washington (Ecology 2012, as amended 2014).

9i. Does the project site have known contaminated sediment? [\[help\]](#)

- **If Yes** please describe below.

☐ Yes ☒ No:

Marine sediments were sampled and analyzed for contaminants in 2011 (*2011 Baseline Sediment Sampling Report*, Amec Environment and Infrastructure). Stream sediments were sampled and analyzed for contaminants in 2015 (Foster Wheeler 2015, *2015 Stream Water Quality and Sediment Quality Baseline Sampling Report: Stream 1 and Stream 2*, Pacific International Terminals Property, Whatcom County, Washington).

9j. If you know what the property was used for in the past, describe below. [\[help\]](#)

Archaeological studies indicate that portions of the property have been used by Native Americans for approximately 3,000 years. Beginning in the late 1800s, the site was logged and homesteaded. Farming activities and fishing of the marine waters continued through the mid-1940s when large tracts of land, including this property, were acquired for industrial uses. Several foundations-in-ruin are present on-site. At the shoreline, a trestle-in-ruin remains from an historic gravel loading operation. Review of aerial photography indicates that the present landscape pattern, with county roads, open fields, and wooded areas, appears to have been stable for approximately the last 50 years.

9k. Has a cultural resource (archaeological) survey been performed on the project area? [\[help\]](#)

- **If Yes**, attach it to your JARPA package.

☒ Yes ☐ No

The Draft *Gateway Pacific Terminal Archaeological Findings Report* (Amec Foster Wheeler 2015) has been submitted to the USACE.

9I. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [\[help\]](#)

Individual species that are listed under the Endangered Species Act by the National Oceanic and Atmospheric Administration (NOAA) and the US Fish and Wildlife Service (USFWS), and occur in the project vicinity or might be affected by the proposed project, are provided in the table below.

Agency	Common Name:	Scientific Name:
USFWS-Listed Species	Bull trout	<i>Salvelinus confluentus</i>
	Marbled murrelet	<i>Brachyramphus marmoratus</i>
	Oregon spotted frog	<i>Rana pretiosa</i>
NOAA-Listed Species	Chinook salmon	<i>Oncorhynchus tshawytscha</i>
	Steelhead trout	<i>Oncorhynchus mykiss</i>
	Summer Chum salmon	<i>Oncorhynchus keta</i>
	Humpback whale	<i>Megaptera novaeangliae</i>
	Killer whale	<i>Orcinus orca</i>
	Blue whale	<i>Balaenoptera musculus</i>
	Fin whale	<i>Balaenoptera musculus</i>
	Leatherback sea turtle	<i>Dermochelys coriacea</i>
	Bocaccio	<i>Sebastes paucispinis</i>
	Canary rockfish	<i>Sebastes pinniger</i>
	Yelloweye rockfish	<i>Sebastes ruberrimus</i>
	Eulachon	<i>Thaleichthys pacificus</i>
	Green sturgeon	<i>Acipenser medirostris</i>

9m. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [\[help\]](#)

Wetlands, streams, shoreline bluff, and riparian areas are considered Priority Habitats by WDFW on the property. Individual Priority Species that may be affected by the proposed work are listed in the table below.

Common Name:	Scientific Name:
Pacific herring	<i>Clupea pallasii</i>
Surfsmelt/longfin smelt	<i>Hypomesus pretiosus</i>
Pacific sand lance	<i>Ammodytes hexapterus</i>
Bull trout	<i>Salvelinus confluentus</i>
Chinook salmon	<i>Oncorhynchus tshawytscha</i>
Chum salmon	<i>Oncorhynchus keta</i>
Coastal Res./Searun cutthroat	<i>Oncorhynchus clarki clarki</i>
Coho salmon	<i>Oncorhynchus kisutch</i>
Kokanee/sockeye salmon	<i>Oncorhynchus nerka</i>
Pink salmon	<i>Oncorhynchus gorbuscha</i>
Rainbow trout/steelhead	<i>Oncorhynchus mykiss</i>
Pacific cod	<i>Gadus macrocephalus</i>
Pacific hake	<i>Merluccius productus</i>
Walleye pollock	<i>Theragra chalcogramma</i>
Black rockfish	<i>Sebastes melanops</i>
Bocaccio rockfish	<i>Sebastes paucispinis</i>
Brown rockfish	<i>Sebastes auriculatus</i>
Canary rockfish	<i>Sebastes pinniger</i>
Copper rockfish	<i>Sebastes caurinus</i>
Greenstriped rockfish	<i>Sebastes elongates</i>
Quillback rockfish	<i>Sebastes maliger</i>
Redstripe rockfish	<i>Sebastes prioriger</i>
Yelloweye rockfish	<i>Sebastes reuberrimus</i>
Yellowtail rockfish	<i>Sebastes flavidus</i>
Lingcod	<i>Ophiodon elongatus</i>
English sole	<i>Parophrys vetulus</i>
Rock sole	<i>Lepidopsetta bilineata</i>
Butter clam	<i>Saxidomus giganteus</i>
Native littleneck clam	<i>Protothaca abrupt</i>
Dungeness crab	<i>Cancer magister</i>
Pandalid shrimp	<i>Pandalus spp.</i>
Dall's porpoise	<i>Phocoenoides dalli</i>
Gray whale	<i>Eschrichtius robustus</i>
Harbor seal	<i>Phoca vitulina</i>
Orca (Southern Resident killer whale)	<i>Orcinus orca</i>
Pacific harbor porpoise	<i>Phocoena phocoena</i>
Common loon	<i>Gavia immer</i>
Western grebe	<i>Aechmophorus occidentalis</i>
Great blue heron	<i>Ardea herodias</i>
Harlequin duck	<i>Histrionicus histrionicus</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Merlin	<i>Falco columbarius</i>
Pileated woodpecker	<i>Dryocopus pileatus</i>
Oregon spotted frog	<i>Rana pretiosa</i>

Part 10–SEPA Compliance and Permits

Use the resources and checklist below to identify the permits you are applying for.

- Online Project Questionnaire at <http://apps.oria.wa.gov/opas/>.
- Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.
- For a list of addresses to send your JARPA to, click on [agency addresses for completed JARPA](#).

10a. Compliance with the State Environmental Policy Act (SEPA). (Check all that apply.) [\[help\]](#)

- For more information about SEPA, go to www.ecy.wa.gov/programs/sea/sepa/e-review.html.

☒ A copy of the SEPA determination or letter of exemption is included with this application.

Whatcom County and Ecology have issued a SEPA determination of Significance and Public Notice (Attachment F). The SEPA Co-leads are currently in an EIS process. USACE has issued a Notice of Intent and is currently in a NEPA EIS process for this project.

☐ A SEPA determination is pending with _____ (lead agency). The expected decision date is _____.

☐ I am applying for a Fish Habitat Enhancement Exemption. (Check the box below in 10b.) [\[help\]](#)

☐ This project is exempt (choose type of exemption below).

☐ Categorical Exemption. Under what section of the SEPA administrative code (WAC) is it exempt?

☐ Other: _____

☐ SEPA is pre-empted by federal law.

10b. Indicate the permits you are applying for. (Check all that apply.) [\[help\]](#)

LOCAL GOVERNMENT

Local Government Shoreline permits:

☒ Substantial Development ☐ Conditional Use ☐ Variance

☐ Shoreline Exemption Type (explain): _____

Other City/County permits:

☐ Floodplain Development Permit ☒ Critical Areas Ordinance

STATE GOVERNMENT

Washington Department of Fish and Wildlife:

☒ Hydraulic Project Approval (HPA) ☐ Fish Habitat Enhancement Exemption – [Attach Exemption Form](#)

You must submit a check for \$150 to Washington Department of Fish and Wildlife, unless your project qualifies for an exemption or alternative payment method below. **Do not send cash.**

Check the appropriate boxes:

☐ \$150 check enclosed. Check # _____
Attach check made payable to Washington Department of Fish and Wildlife.

☐ My project is exempt from the application fee. (Check appropriate exemption) _____

☐ HPA processing is conducted by applicant-funded WDFW staff.

Agreement # _____

☐ Mineral prospecting and mining.

☐ Project occurs on farm and agricultural land.

(Attach a copy of current land use classification recorded with the county auditor, or other proof of current land use.)

☐ Project is a modification of an existing HPA originally applied for, prior to July 10, 2012.

HPA # _____

Washington Department of Natural Resources:

☒ Aquatic Use Authorization

Complete [JARPA Attachment E](#) and submit a check for \$25 payable to the Washington Department of Natural Resources.

Do not send cash.

Washington Department of Ecology:

☒ Section 401 Water Quality Certification

FEDERAL GOVERNMENT

United States Department of the Army permits (U.S. Army Corps of Engineers):

☒ Section 404 (discharges into waters of the U.S.)

☒ Section 10 (work in navigable waters)

United States Coast Guard permits:

☒ Private Aids to Navigation (for non-bridge projects)

Part 11—Authorizing Signatures

Signatures are required before submitting the JARPA package. The JARPA package includes the JARPA form, project plans, photos, etc. [\[help\]](#)

11a. Applicant Signature (required) [\[help\]](#)

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities, and I agree to start work only after I have received all necessary permits.

I hereby authorize the agent named in Part 3 of this application to act on my behalf in matters related to this application. Skip Sahlin (initial)

By initialing here, I state that I have the authority to grant access to the property. I also give my consent to the permitting agencies entering the property where the project is located to inspect the project site or any work related to the project. Skip Sahlin (initial)

<u>Skip Sahlin</u>	<u>Skip Sahlin</u>	<u>December 22, 2015</u>
Applicant Printed Name	Applicant Signature	Date

11b. Authorized Agent Signature [\[help\]](#)

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities and I agree to start work only after all necessary permits have been issued.

<u>Kristie Dunkin</u>	<u>Kristie Dunkin Ph.D., Ph.D.</u>	<u>December 21, 2015</u>
Authorized Agent Printed Name	Authorized Agent Signature	Date

11c. Property Owner Signature (if not applicant) [\[help\]](#)

Not required if project is on existing rights-of-way or easements.

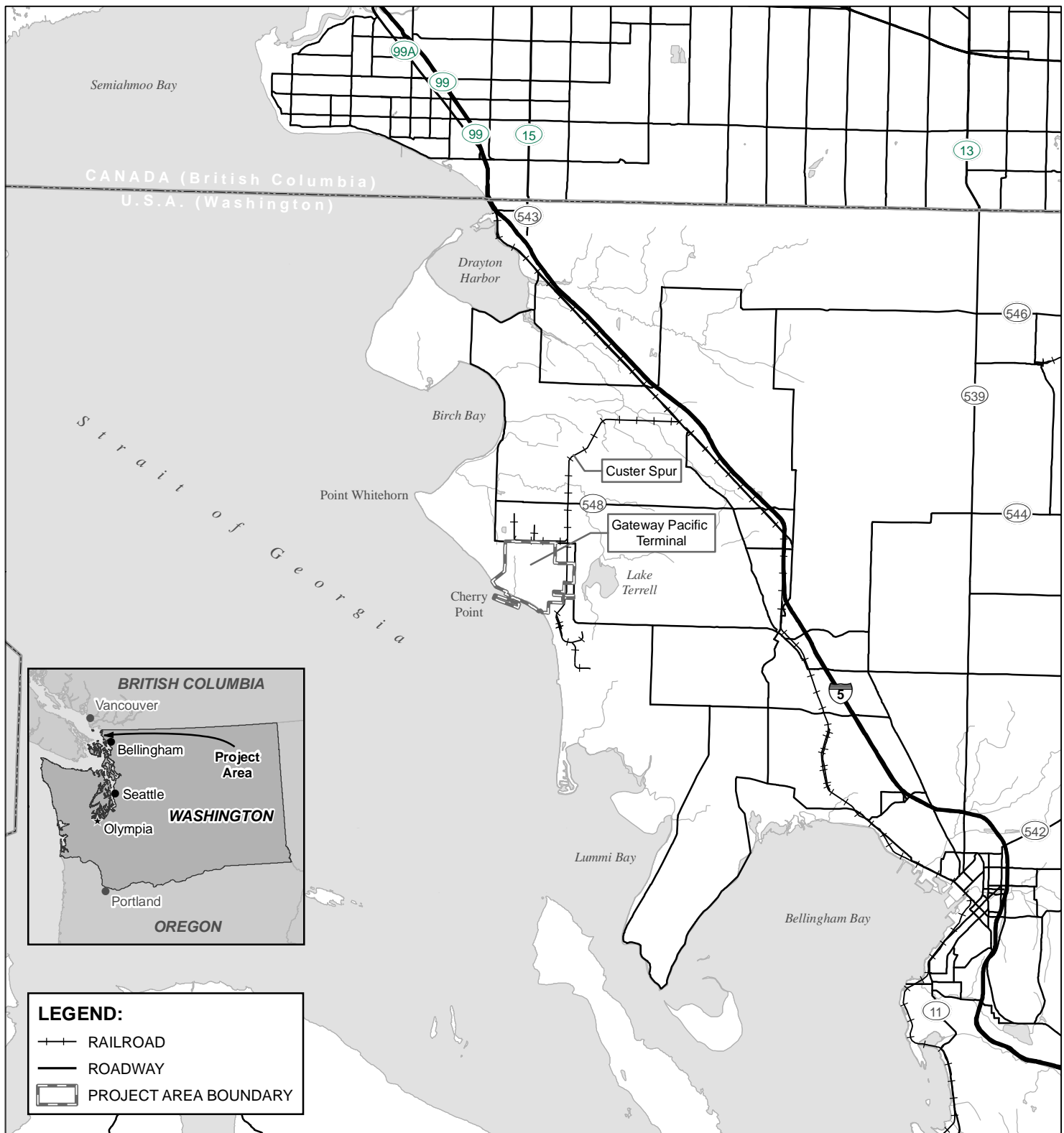
I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

See attachments A-1 and A-2

Property Owner Printed Name	Property Owner Signature	Date
-----------------------------	--------------------------	------

18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than \$10,000 or imprisoned not more than 5 years or both.

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ENV-019-09 rev. 09/2015



NOTE: Not for construction, for agency review only.

PROJECT AREA:
48.868383, -122.728311 (NAD83)
5412860.29, 519924.32 (UTM 10N)

0 1 2 4
Miles



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

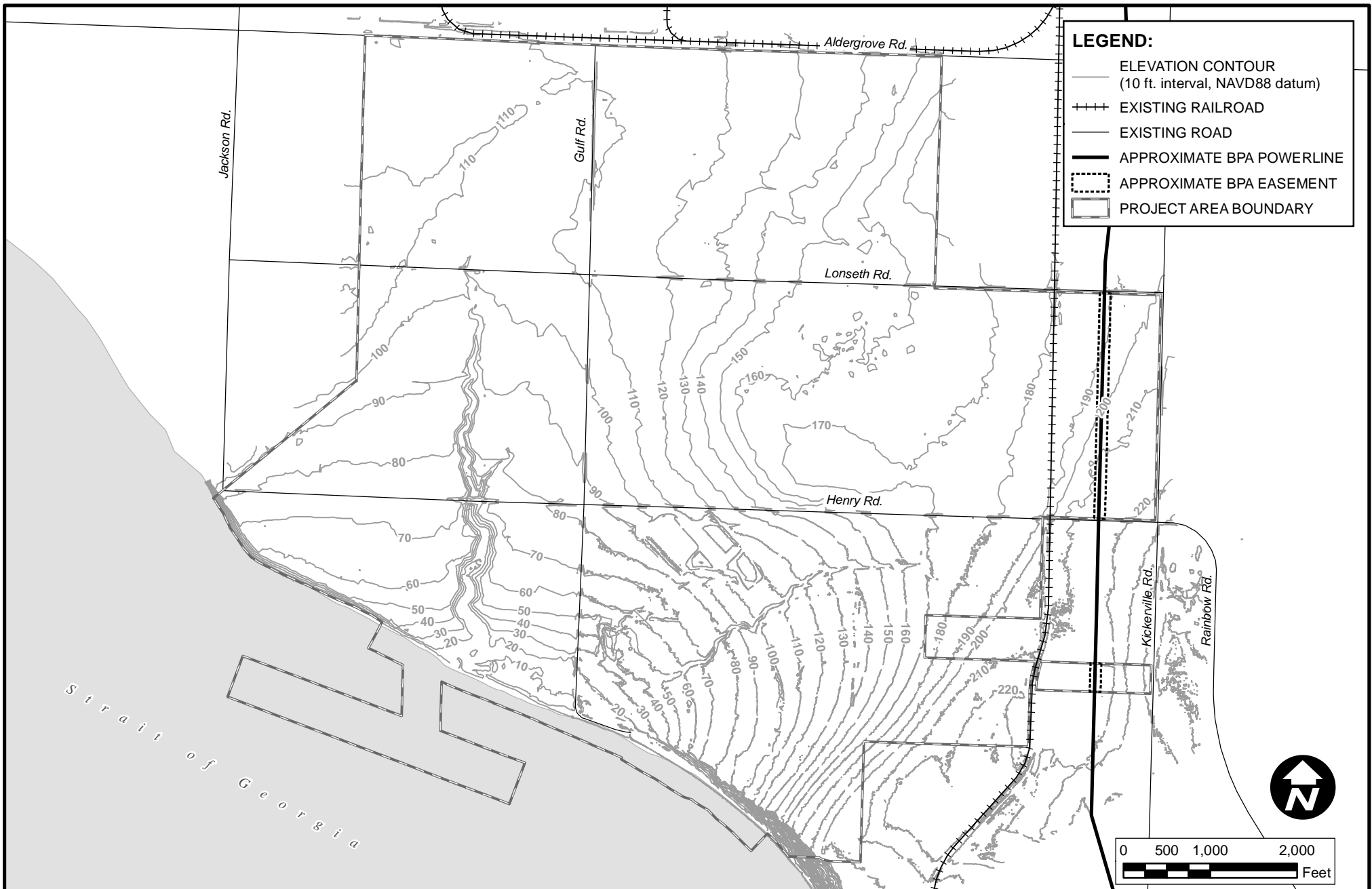
APPLICANT REFERENCE: NWS-2008-260

LOCATION:
In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.

PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia
NEAR/AT: Ferndale
COUNTY: Whatcom **STATE:** WA
APPLICATION BY: Pacific International Terminals, Inc.
SHEET: 1 of 26

DATE: December 2015



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

Source: Elevation Contours obtained from David Evans & Associates:
2013-09-17-svTPX-piti006-DEGROSS-C3d.dwg, 09/17/2013 &
2012-09-05-svEM01piti0006-CIP-LIDAR-2' contours.dwg, 09/05/2012

APPLICANT REFERENCE: NWS-2008-260

LOCATION:

In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.
NOTE: Not for construction, for agency review only.

PROJECT AREA:

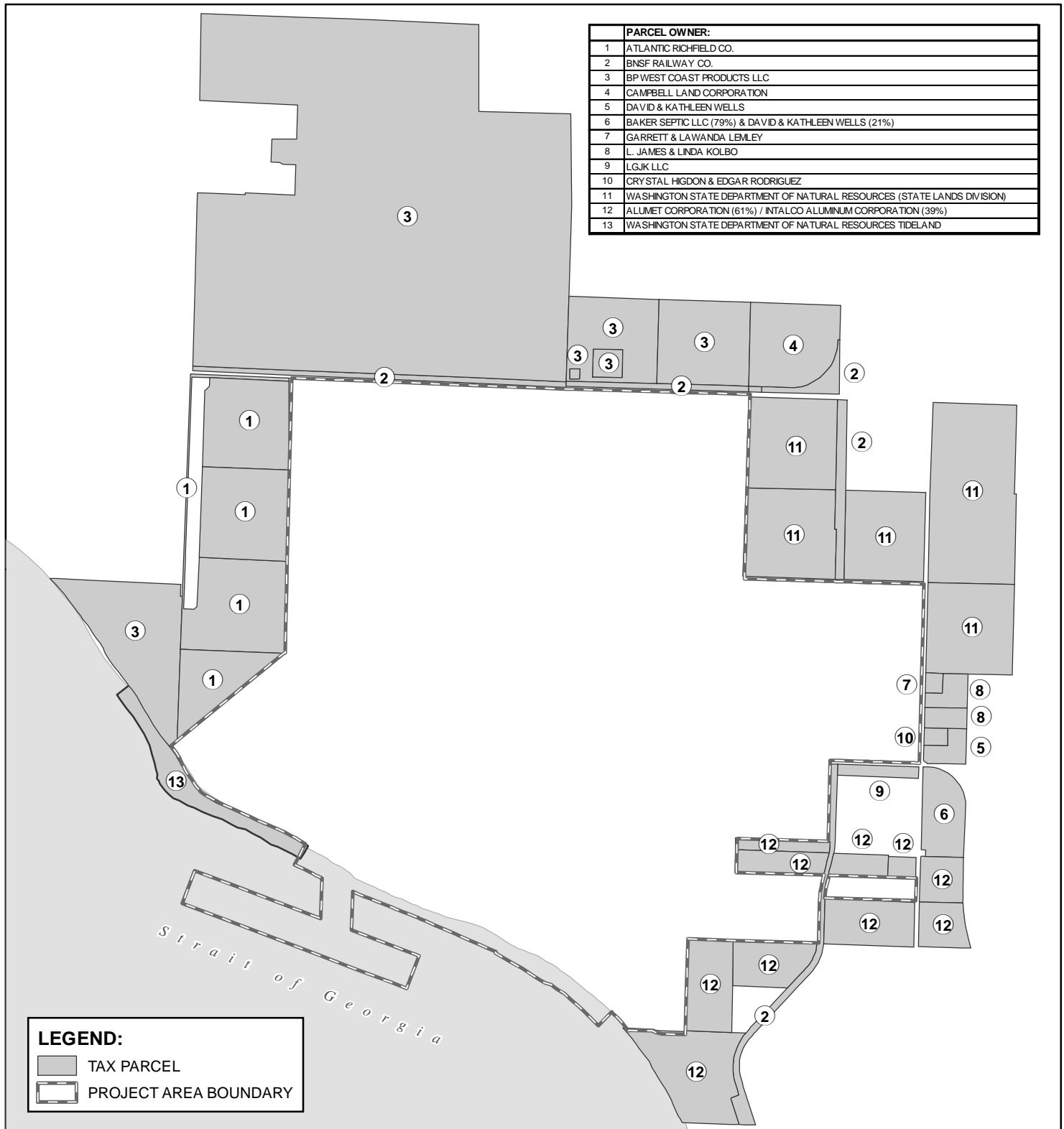
48.868383, -122.728311 (NAD83)
5412860.29, 519924.32 (UTM 10N)

PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia
NEAR/AT: Ferndale
COUNTY: Whatcom **STATE:** WA
APPLICATION BY: Pacific International Terminals, Inc.
SHEET: 2 of 26

DATE: December 2015

PARCEL OWNER:	
1	ATLANTIC RICHFIELD CO.
2	BNSF RAILWAY CO.
3	BP WEST COAST PRODUCTS LLC
4	CAMPBELL LAND CORPORATION
5	DAVID & KATHLEEN WELLS
6	BAKER SEPTIC LLC (79%) & DAVID & KATHLEEN WELLS (21%)
7	GARRETT & LAWANDA LEMLEY
8	L. JAMES & LINDA KOLBO
9	LGJK LLC
10	CRYSTAL HIGDON & EDGAR RODRIGUEZ
11	WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES (STATE LANDS DIVISION)
12	ALUMET CORPORATION (61%) / INTALCO ALUMINUM CORPORATION (39%)
13	WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES TIDELAND



NOTE: Not for construction, for agency review only.

PROJECT AREA:
48.868383, -122.728311 (NAD83)
5412860.29, 519924.32 (UTM 10N)

0 1,000 2,000 4,000
Feet



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See above

Source: Tax Parcel data obtained from Whatcom County Assessor's Office and is current as of 05/07/2015.
Tideland data obtained from Washington Department of Natural Resources on 04/14/2015: <http://fortress.wa.gov/dnr/app1/dataweb/dmmatrix.html>

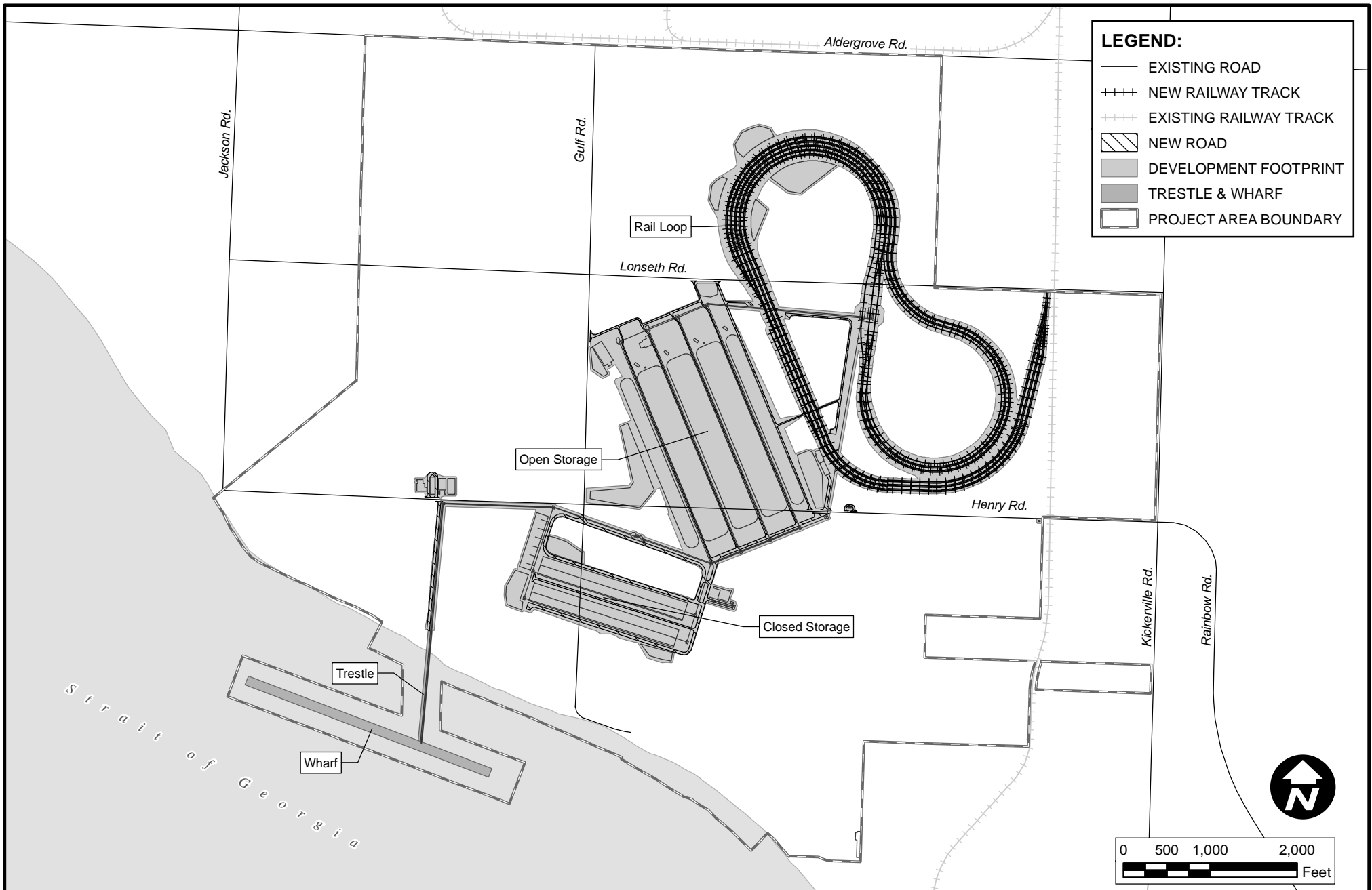
APPLICANT REFERENCE: NWS-2008-260

LOCATION:
In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.

PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia
NEAR/AT: Ferndale
COUNTY: Whatcom STATE: WA
APPLICATION BY: Pacific International Terminals, Inc.
SHEET: 4 of 26

DATE: December 2015



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

APPLICANT REFERENCE: NWS-2008-260

LOCATION:

In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.
NOTE: Not for construction, for agency review only.

PROJECT AREA:

48.868383, -122.728311 (NAD83)
5412860.29, 519924.32 (UTM 10N)

PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia

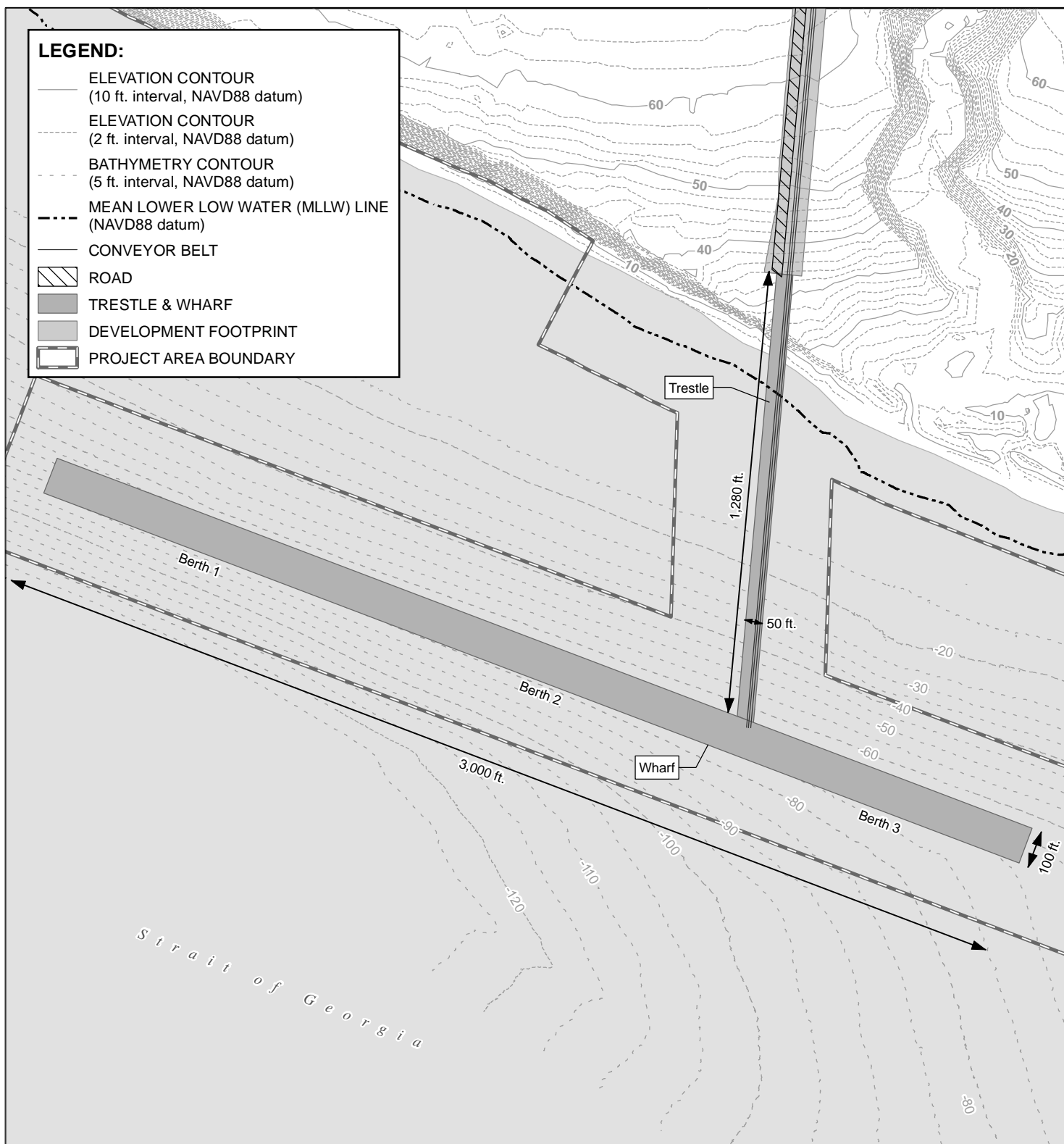
NEAR/AT: Ferndale

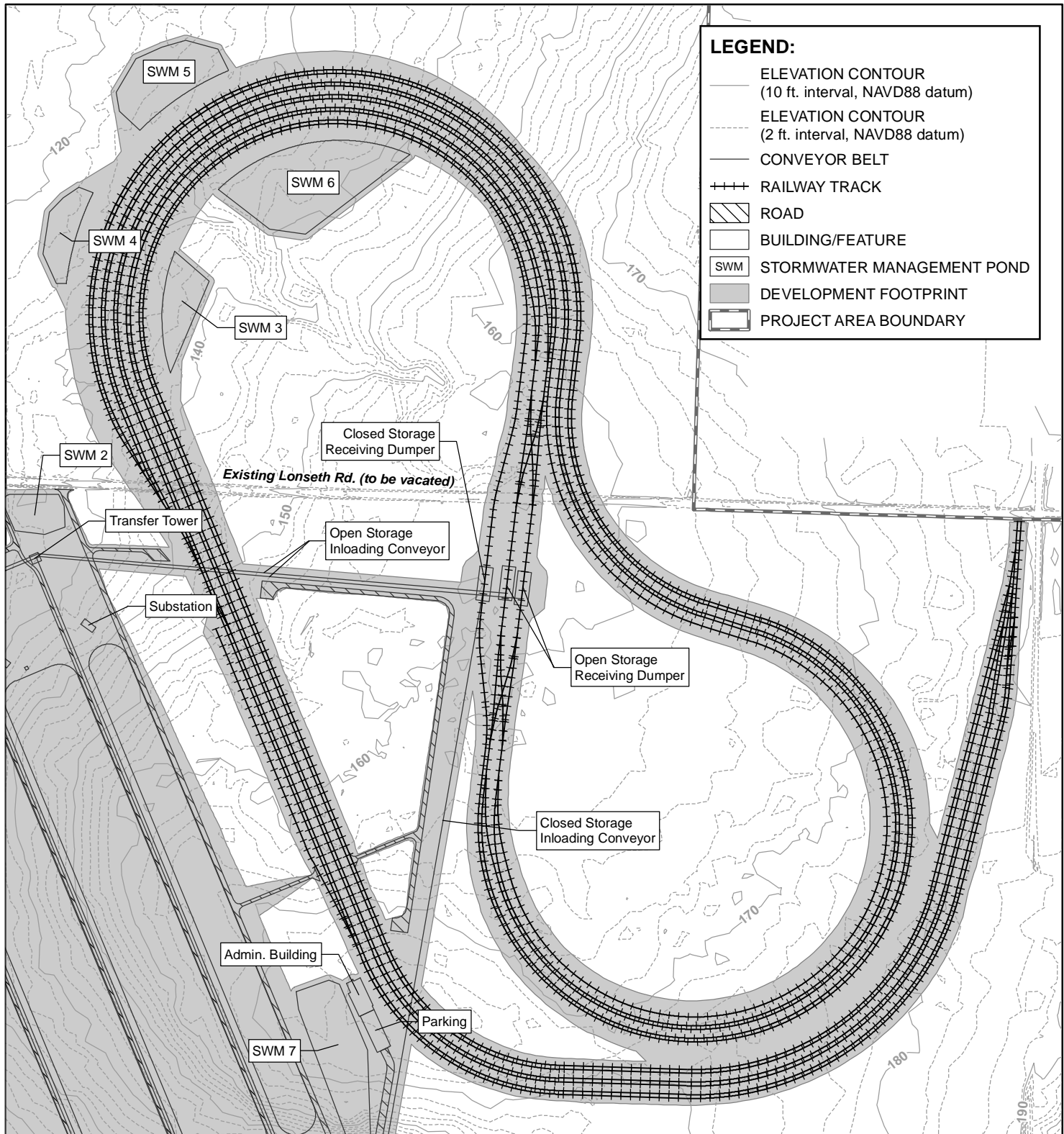
COUNTY: Whatcom **STATE:** WA

APPLICATION BY: Pacific International Terminals, Inc.

SHEET: 6 of 26

DATE: December 2015





NOTE: Not for construction, for agency review only.

PROJECT AREA:
48.868383, -122.728311 (NAD83)
5412860.29, 519924.32 (UTM 10N)

0 275 550 1,100
Feet



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

Source: Elevation Contours obtained from David Evans & Associates:
2013-09-17-svTPX-piti006-DEGROSS-C3d.dwg, 09/17/2013 &
2012-09-05-svEM01piti0006-CIP-LIDAR-2' contours.dwg, 09/05/2012

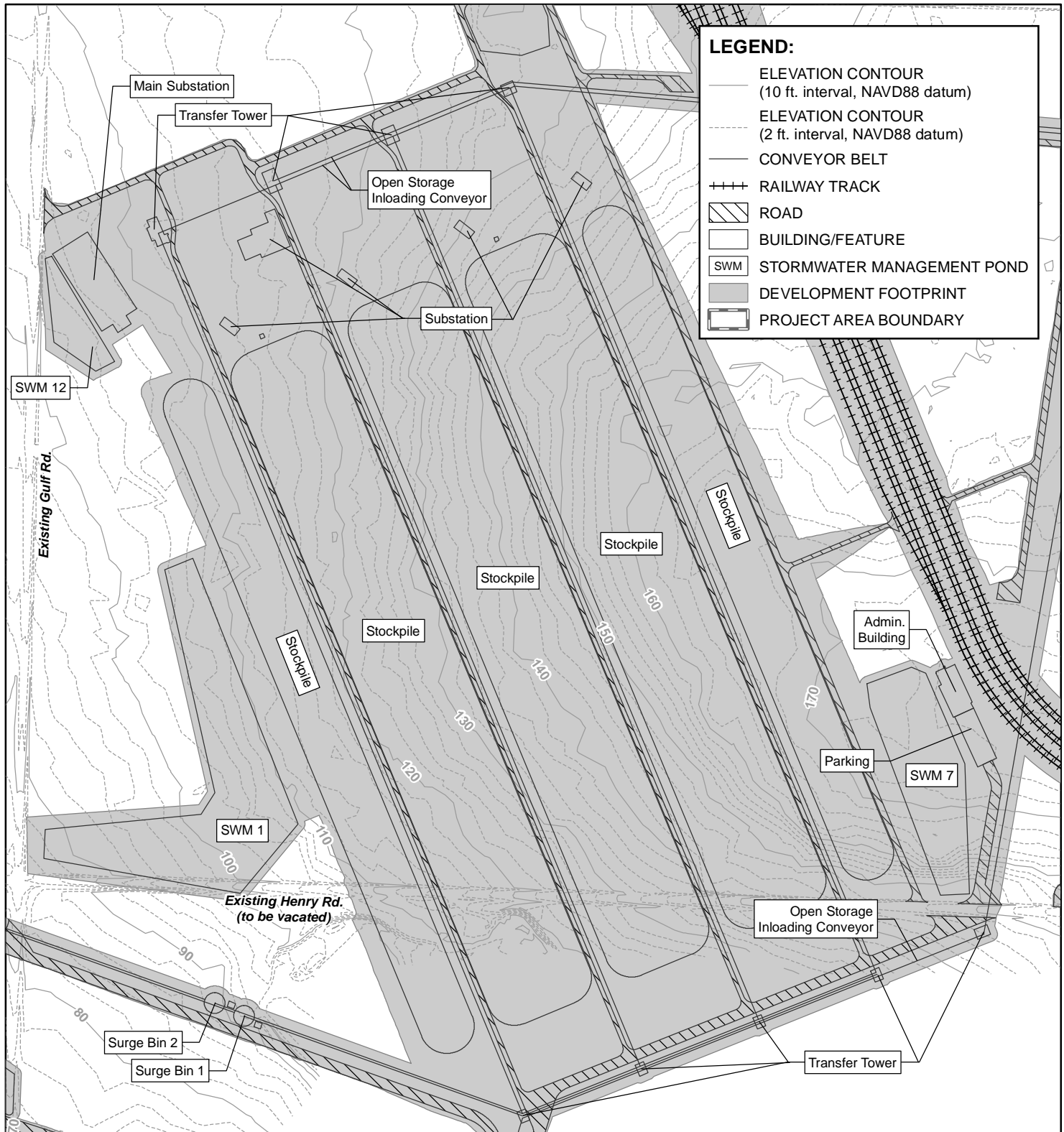
APPLICANT REFERENCE: NWS-2008-260

LOCATION:
In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.

PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

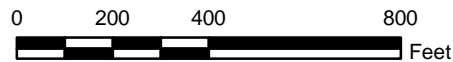
IN: Eastern Shore of Strait of Georgia
NEAR/AT: Ferndale
COUNTY: Whatcom STATE: WA
APPLICATION BY: Pacific International Terminals, Inc.
SHEET: 8 of 26

DATE: December 2015



NOTE: Not for construction, for agency review only.

PROJECT AREA:
48.868383, -122.728311 (NAD83)
5412860.29, 519924.32 (UTM 10N)



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

Source: Elevation Contours obtained from David Evans & Associates:
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2012-09-05-svEM01piti0006-CIP-LIDAR-2' contours.dwg, 09/05/2012

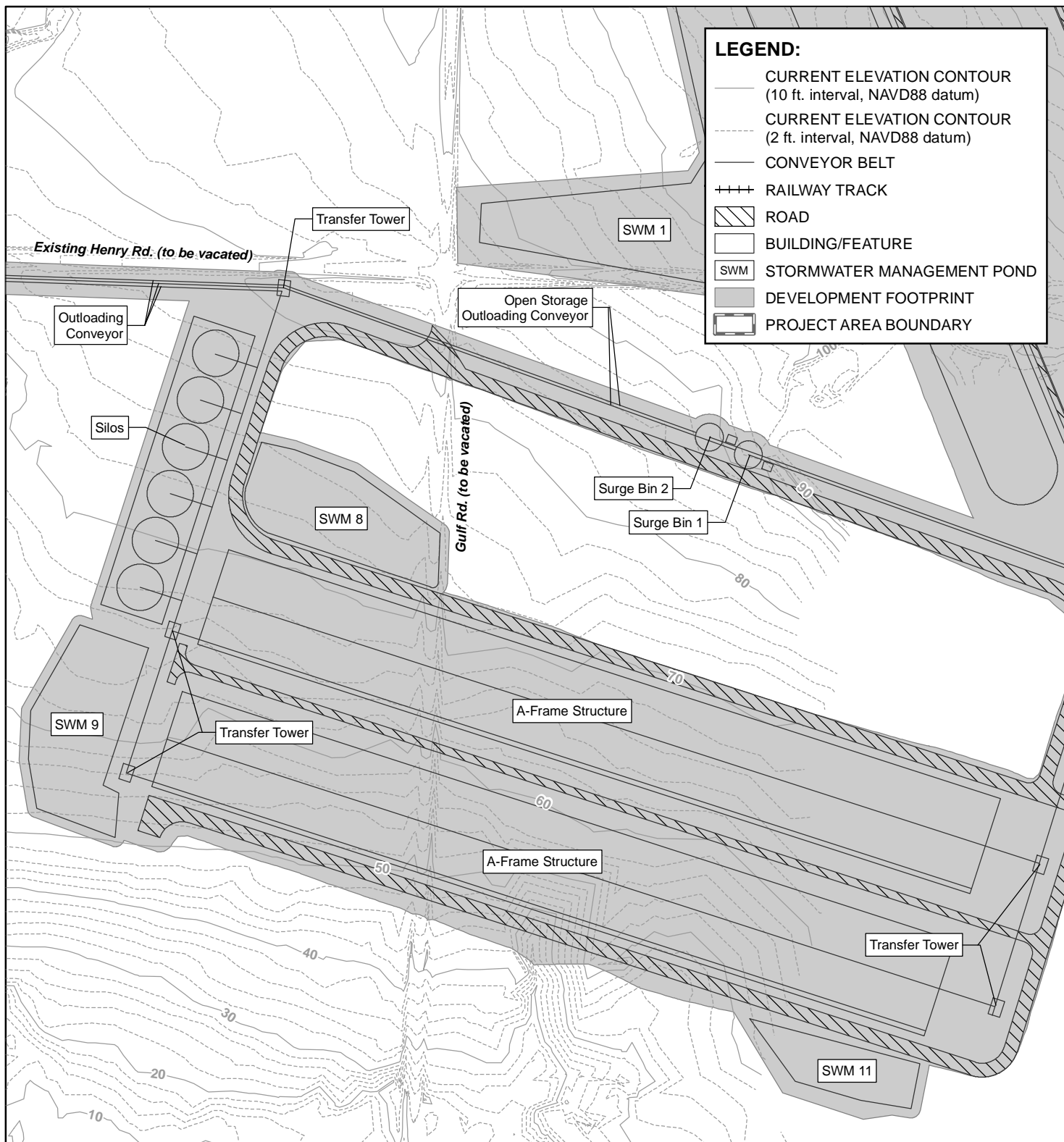
APPLICANT REFERENCE: NWS-2008-260

LOCATION:
In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.

PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia
NEAR/AT: Ferndale
COUNTY: Whatcom **STATE:** WA
APPLICATION BY: Pacific International Terminals, Inc.
SHEET: 9 of 26

DATE: December 2015



NOTE: Not for construction, for agency review only.

PROJECT AREA:
48.868383, -122.728311 (NAD83)
5412860.29, 519924.32 (UTM 10N)

0 150 300 600
Feet



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

Source: Elevation Contours obtained from David Evans & Associates:
2013-09-17-svTPX-piti006-DEGROSS-C3d.dwg, 09/17/2013 &
2012-09-05-svEM01piti0006-CIP-LIDAR-2' contours.dwg, 09/05/2012

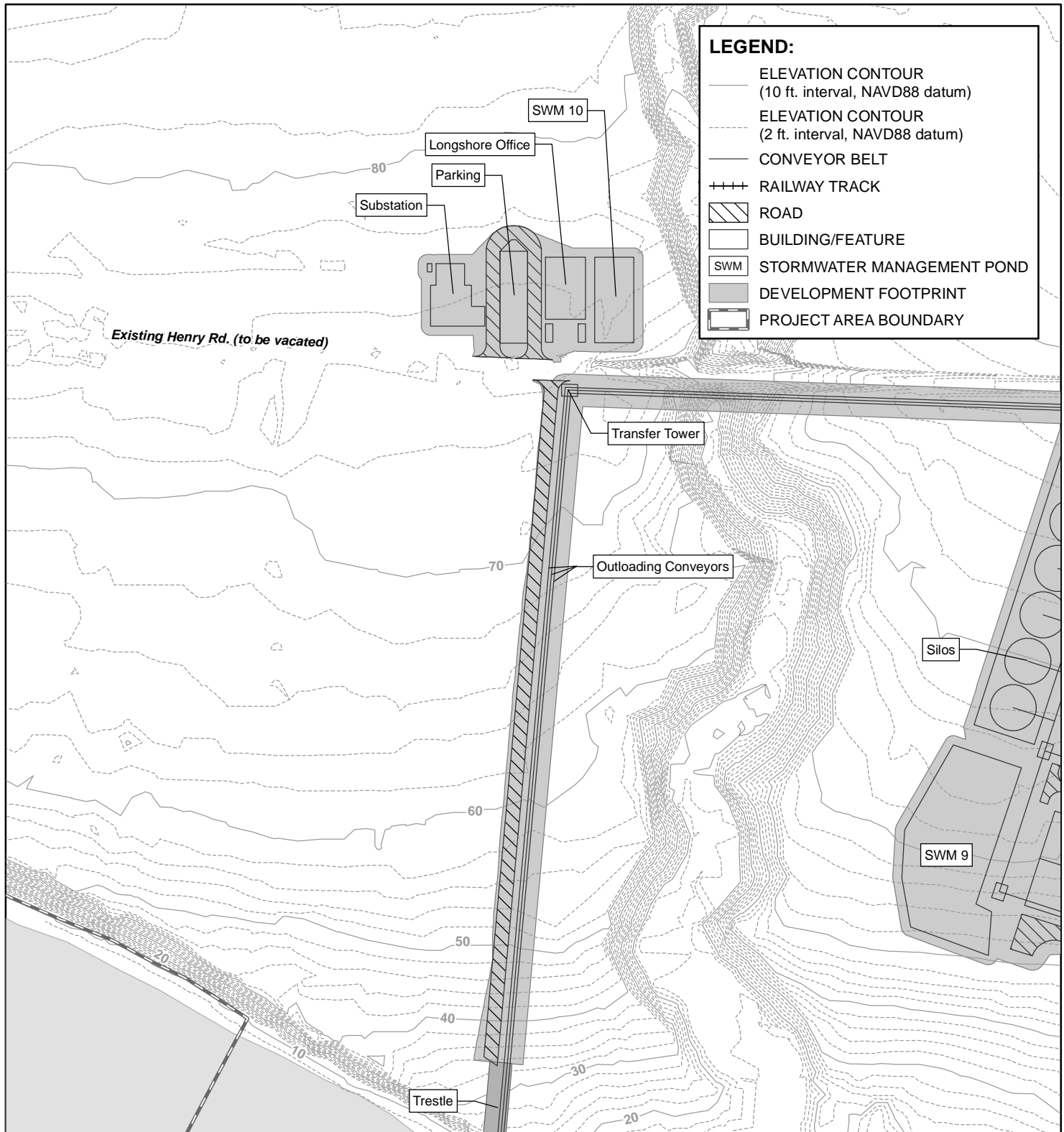
APPLICANT REFERENCE: NWS-2008-260

LOCATION:
In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.

PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

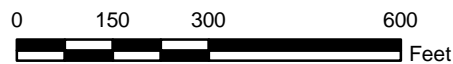
IN: Eastern Shore of Strait of Georgia
NEAR/AT: Ferndale
COUNTY: Whatcom **STATE:** WA
APPLICATION BY: Pacific International Terminals, Inc.
SHEET: 10 of 26

DATE: December 2015



NOTE: Not for construction, for agency review only.

PROJECT AREA:
48.868383, -122.728311 (NAD83)
5412860.29, 519924.32 (UTM 10N)



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

Source: Elevation Contours obtained from David Evans & Associates:
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APPLICANT REFERENCE: NWS-2008-260

LOCATION:
In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.

PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia
NEAR/AT: Ferndale
COUNTY: Whatcom **STATE:** WA
APPLICATION BY: Pacific International Terminals, Inc.
SHEET: 11 of 26

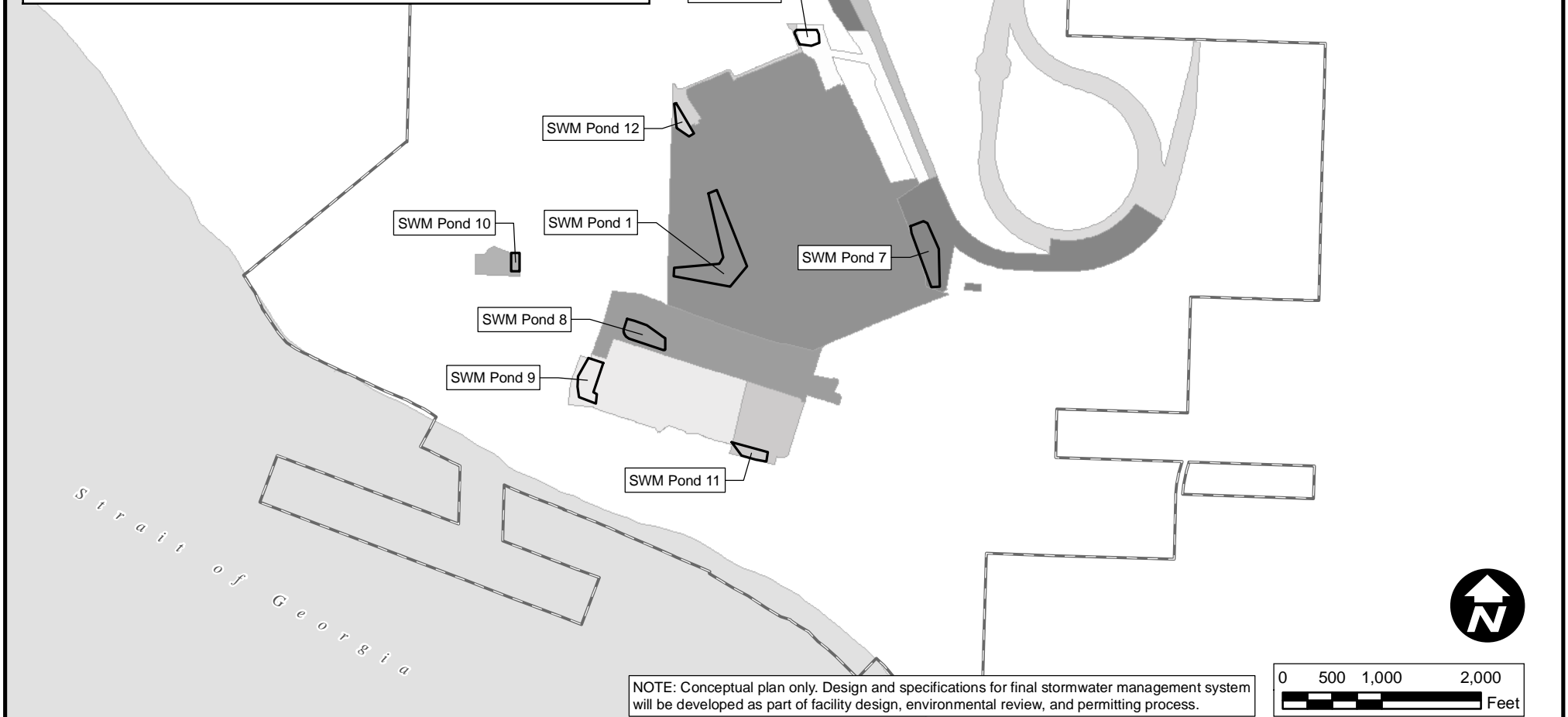
DATE: December 2015

LEGEND:

- PROJECT AREA BOUNDARY
- PROPOSED STORMWATER POND

STORMWATER FACILITY TRIBUTARY SUBBASINS:

- | | |
|------------|-------------|
| SWM POND 1 | SWM POND 6 |
| SWM POND 2 | SWM POND 7 |
| SWM POND 3 | SWM POND 8 |
| SWM POND 4 | SWM POND 9 |
| SWM POND 5 | SWM POND 10 |
| | SWM POND 11 |
| | SWM POND 12 |



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

APPLICANT REFERENCE: NWS-2008-260

LOCATION:

In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.
NOTE: Not for construction, for agency review only.

PROJECT AREA:

48.868383, -122.728311 (NAD83)
 5412860.29, 519924.32 (UTM 10N)

PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia

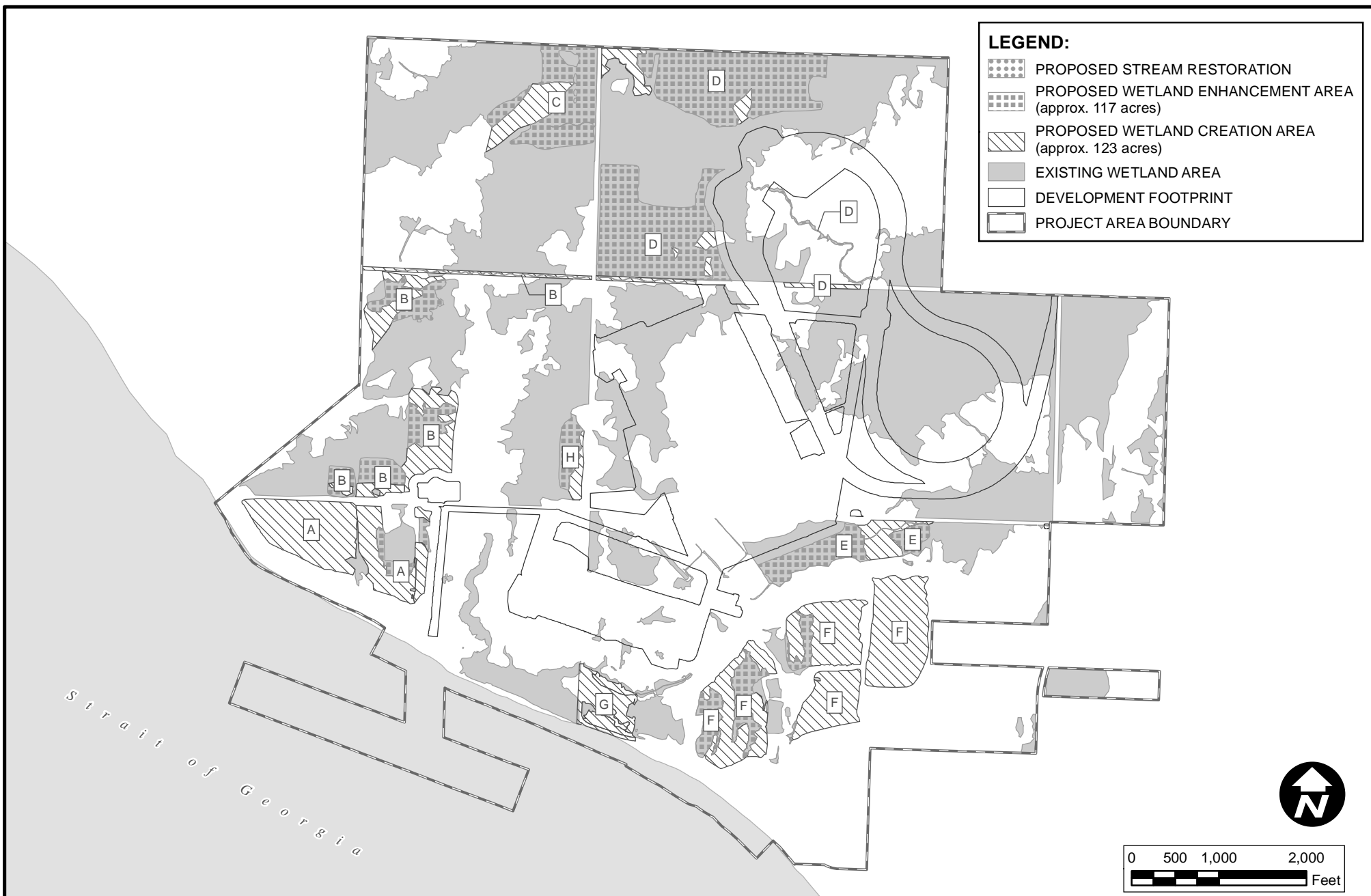
NEAR/AT: Ferndale

COUNTY: Whatcom **STATE:** WA

APPLICATION BY: Pacific International Terminals, Inc.

SHEET: 12 of 26

DATE: December 2015



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

APPLICANT REFERENCE: NWS-2008-260

LOCATION:

In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.
NOTE: Not for construction, for agency review only.

PROJECT AREA:

48.868383, -122.728311 (NAD83)
 5412860.29, 519924.32 (UTM 10N)

PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia

NEAR/AT: Ferndale

COUNTY: Whatcom **STATE:** WA

APPLICATION BY: Pacific International Terminals, Inc.

SHEET: 13 of 26

DATE: December 2015

Direct Temporary Wetland Impacts and Restoration

Activity	Wetland ID	Rating Category ³	Impact Area by Cowardin Class (acres) ²			Total Temporary Impact Area (acres) ²
			PEM	PFO	PSS	
Vegetation impacts and soil disturbance in a zone 15 feet beyond the outer edge of the development footprint.	03	III	0.5	0.8	0.2	1.5
	3	III	0.3	0.1	-	0.4
	4	III	-	<0.1	-	<0.1
	05A	III	0.2	4.1	0.3	4.6
	5	III	-	0.1	-	0.1
	06	III	-	1.1	-	1.1
	6	III	-	0.2	-	0.2
	10C	III	-	<0.1	-	<0.1
	13D	III	-	<0.1	-	<0.1
	014	III	-	<0.1	-	<0.1
	24	III	-	<0.1	-	<0.1
Total³			0.9	6.6	0.4	8.0

1. Cowardin, et al. (1979)
2. Total wetland area calculated using GIS spatial data and by rounding to 0.1 acre.
3. Hruby (2004).

Direct Permanent Wetland Impacts and Mitigation

Activity	Wetland ID	Rating Category ³	Impact Area by Cowardin ¹ Class (acres) ²				Total Permanent Impact Area (acres) ²	Proposed Mitigation Type and Area (acres)
			PEM	PFO	PSS	POW		
Clearing, grading, excavation and filling for Terminal Infrastructure	03	III	6.2	9.3	2.2	-	17.7	Wetland Mitigation Areas A-H:
	3*	III	3.0	0.1	-	-	3.1	
	4*	III	-	0.1	-	-	0.1	
	05A	III	0.7	28.2	1.5	-	30.4	
	5*	III	-	0.6	-	-	0.6	• Creation = 122.7 acres
	06	III	-	21.0	-	-	21.0	
	6*	III	-	0.4	-	-	0.4	
	7A*	III	-	0.7	-	-	0.7	
	8*	III	-	0.1	-	-	0.1	• Enhancement = 117.5 acres
	010C	III	-	<0.1	-	-	<0.1	
	13D	III	-	0.1	-	-	0.1	
	014	III	-	0.1	-	-	0.1	
	24*	III	-	0.2	-	-	0.2	Total compensation area = 240.2 acres
	SW*	IV	-	-	-	0.2	0.2	
	SW1*	IV	-	0.1	-	-	0.1	
	SW2*	IV	-	<0.1	-	-	<0.1	
Total³			9.8	60.9	3.7	0.2	74.7	

1. Cowardin, et al. (1979)
2. Total wetland area calculated using GIS spatial data and by rounding to 0.1 acre.
3. Hruby (2004).

PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: N/A

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

APPLICANT REFERENCE: NWS-2008-260

LOCATION:

In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.

NOTE: Not for construction, for agency review only.

PROJECT AREA:

48.868383, -122.728311 (NAD83)
5412860.29, 519924.32 (UTM 10N)

PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia

NEAR/AT: Ferndale








COUNTY: Whatcom STATE: WA

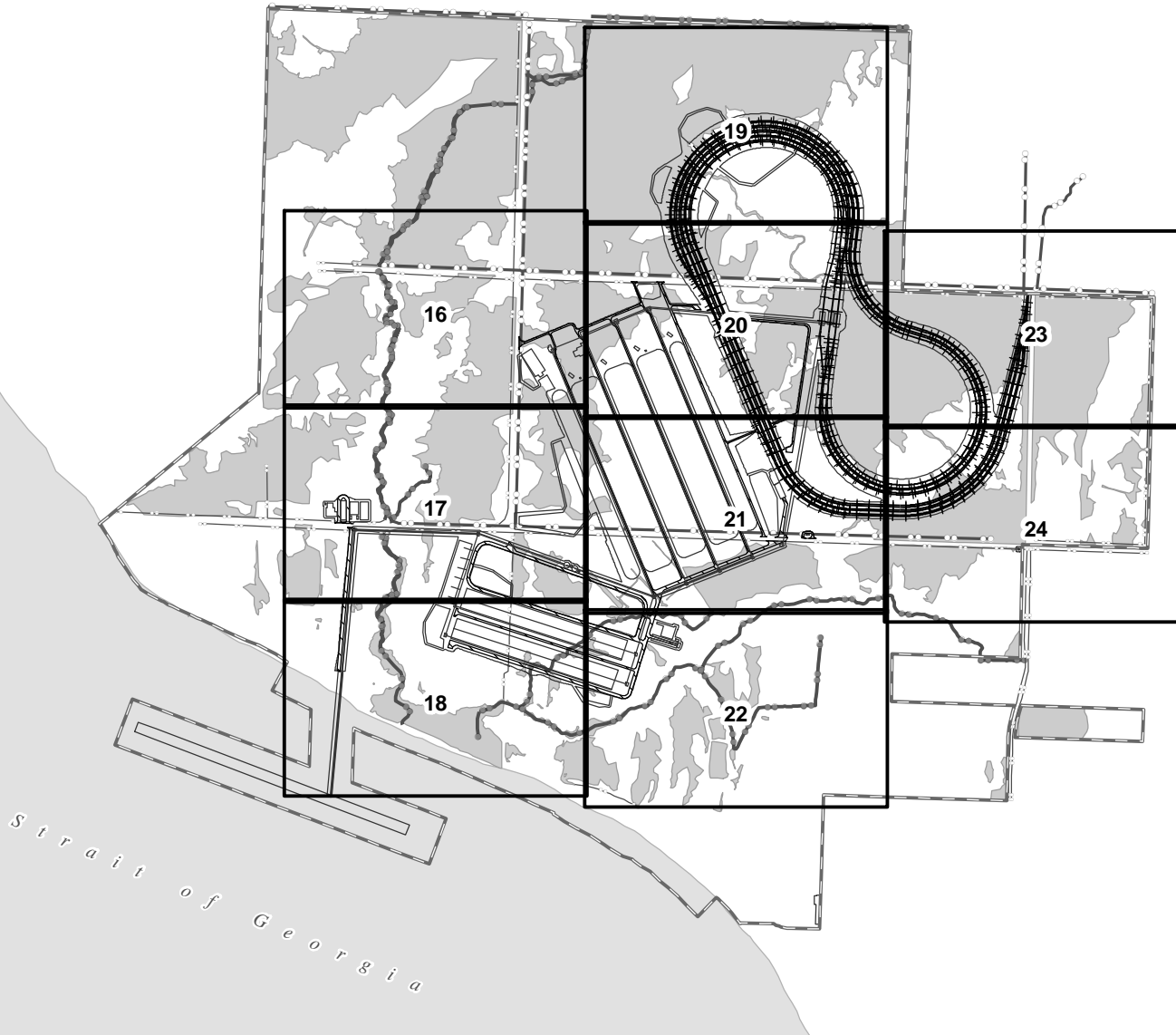
APPLICATION BY: Pacific International Terminals, Inc.

SHEET: 14 of 26

DATE: December 2015

LEGEND:

-  EXISTING WETLAND AREA
-  DEVELOPMENT FOOTPRINT
-  PROJECT AREA BOUNDARY
-  KEY
-  APPROXIMATE DRAINAGE
-  APPROXIMATE STREAM COURSE
-  SURVEYED STREAM COURSE



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

APPLICANT REFERENCE: NWS-2008-260

LOCATION:

In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.
NOTE: Not for construction, for agency review only.

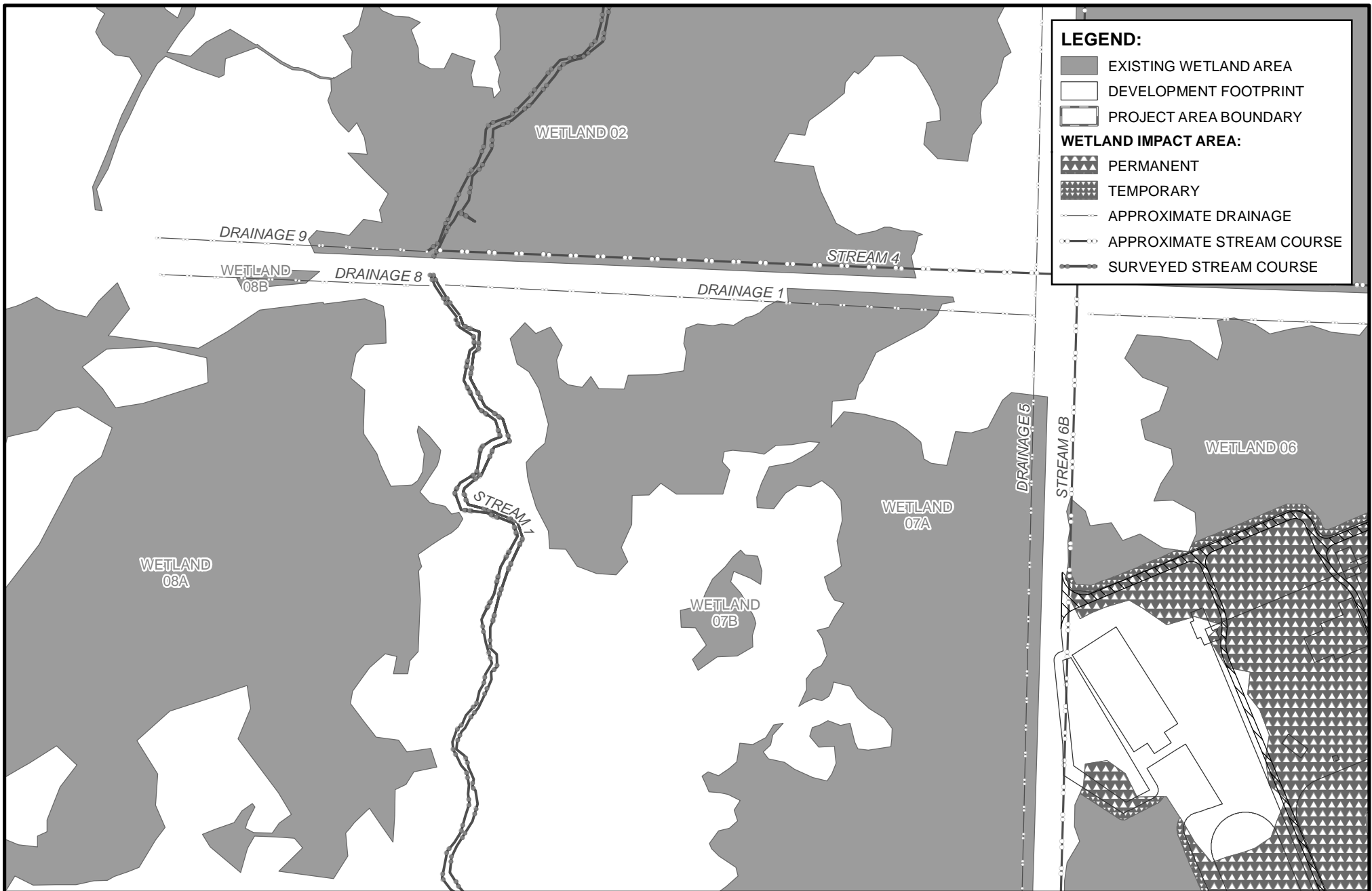
PROJECT AREA:

48.868383, -122.728311 (NAD83)
5412860.29, 519924.32 (UTM 10N)

PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia
NEAR/AT: Ferndale
COUNTY: Whatcom **STATE:** WA
APPLICATION BY: Pacific International Terminals, Inc.
SHEET: 15 of 26

DATE: December 2015



LEGEND:

- EXISTING WETLAND AREA
- DEVELOPMENT FOOTPRINT
- PROJECT AREA BOUNDARY

WETLAND IMPACT AREA:

- PERMANENT
- TEMPORARY
- APPROXIMATE DRAINAGE
- APPROXIMATE STREAM COURSE
- SURVEYED STREAM COURSE

PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

APPLICANT REFERENCE: NWS-2008-260

LOCATION:
In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.

NOTE: Not for construction, for agency review only.

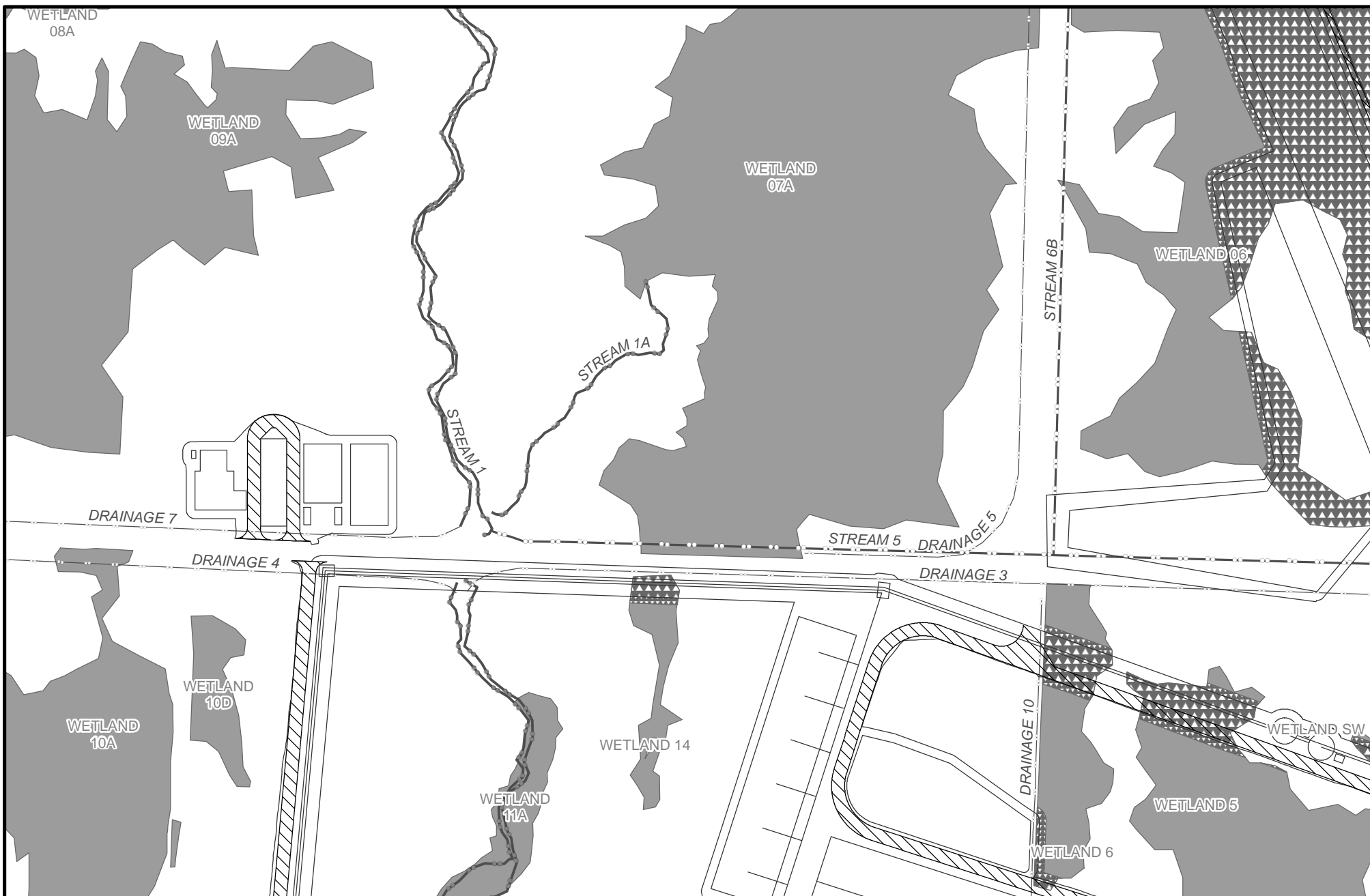
PROJECT AREA:
48.868383, -122.728311 (NAD83)
5412860.29, 519924.32 (UTM 10N)

0 75 150 300 Feet

PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia
NEAR/AT: Ferndale
COUNTY: Whatcom **STATE:** WA
APPLICATION BY: Pacific International Terminals, Inc.
SHEET: 16 of 26

DATE: December 2015



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

APPLICANT REFERENCE: NWS-2008-260

LOCATION:

In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.

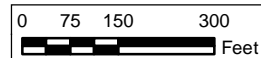
NOTE: Not for construction, for agency review only.

PROJECT AREA:

48.868383, -122.728311 (NAD83)

5412860.29, 519924.32 (UTM 10N)

SEE 16 FOR LEGEND



PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia

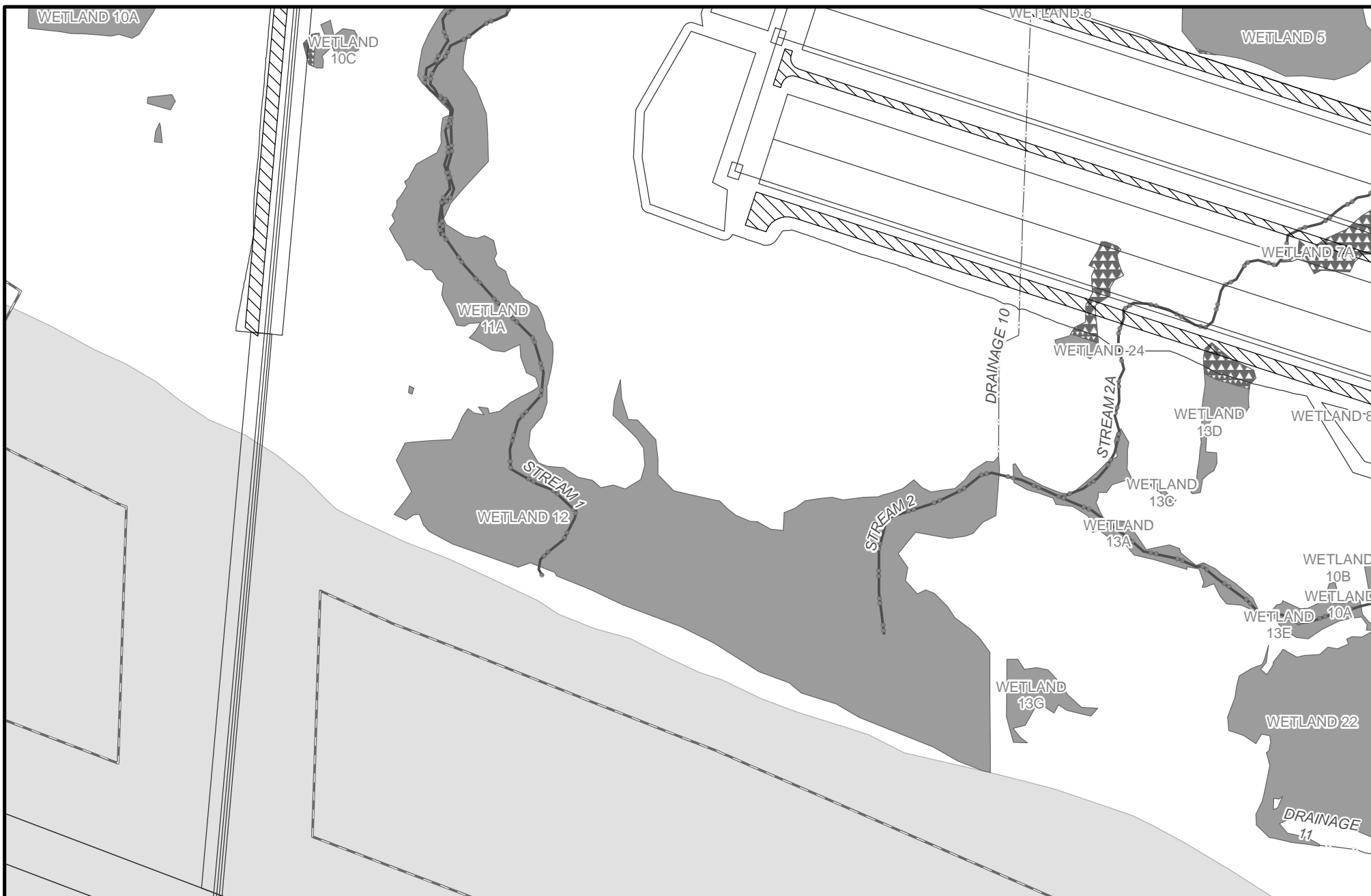
NEAR/AT: Ferndale

COUNTY: Whatcom **STATE:** WA

APPLICATION BY: Pacific International Terminals, Inc.

SHEET: 17 of 26

DATE: December 2015



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

APPLICANT REFERENCE: NWS-2008-260

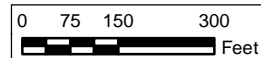
LOCATION:

In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.
NOTE: Not for construction, for agency review only.

PROJECT AREA:

48.868383, -122.728311 (NAD83)
5412860.29, 519924.32 (UTM 10N)

SEE 16 FOR LEGEND



PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia

NEAR/AT: Ferndale

COUNTY: Whatcom **STATE:** WA

APPLICATION BY: Pacific International Terminals, Inc.

SHEET: 18 of 26

DATE: December 2015



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

APPLICANT REFERENCE: NWS-2008-260

LOCATION:

In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.

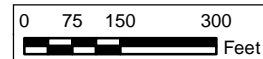
NOTE: Not for construction, for agency review only.

PROJECT AREA:

48.868383, -122.728311 (NAD83)

5412860.29, 519924.32 (UTM 10N)

SEE 16 FOR LEGEND



PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia

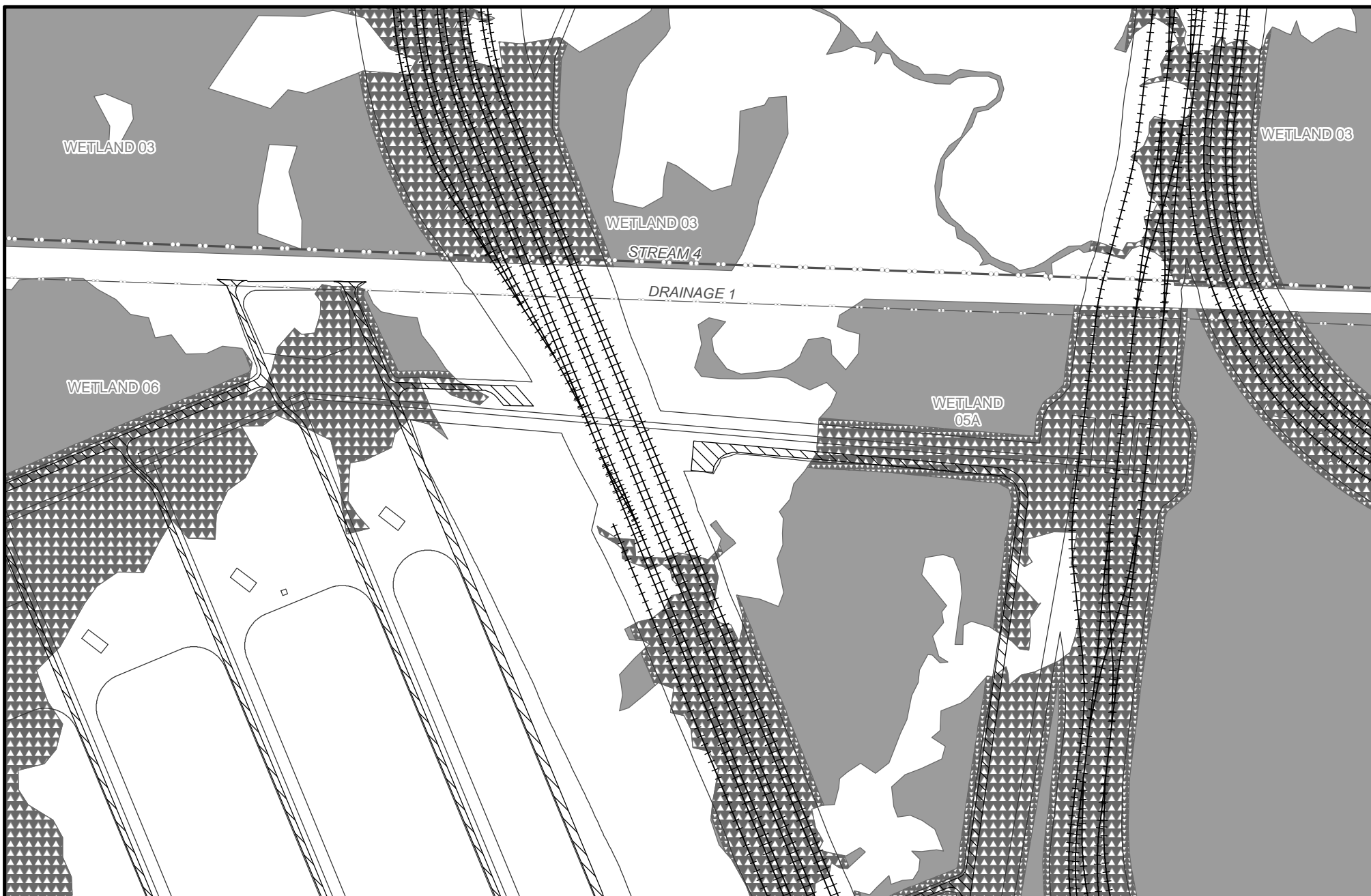
NEAR/AT: Ferndale

COUNTY: Whatcom **STATE:** WA

APPLICATION BY: Pacific International Terminals, Inc.

SHEET: 19 of 26

DATE: December 2015



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

APPLICANT REFERENCE: NWS-2008-260

LOCATION:

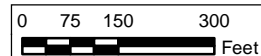
In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.

NOTE: Not for construction, for agency review only.

PROJECT AREA:

48.868383, -122.728311 (NAD83)
5412860.29, 519924.32 (UTM 10N)

SEE 16 FOR LEGEND



PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia

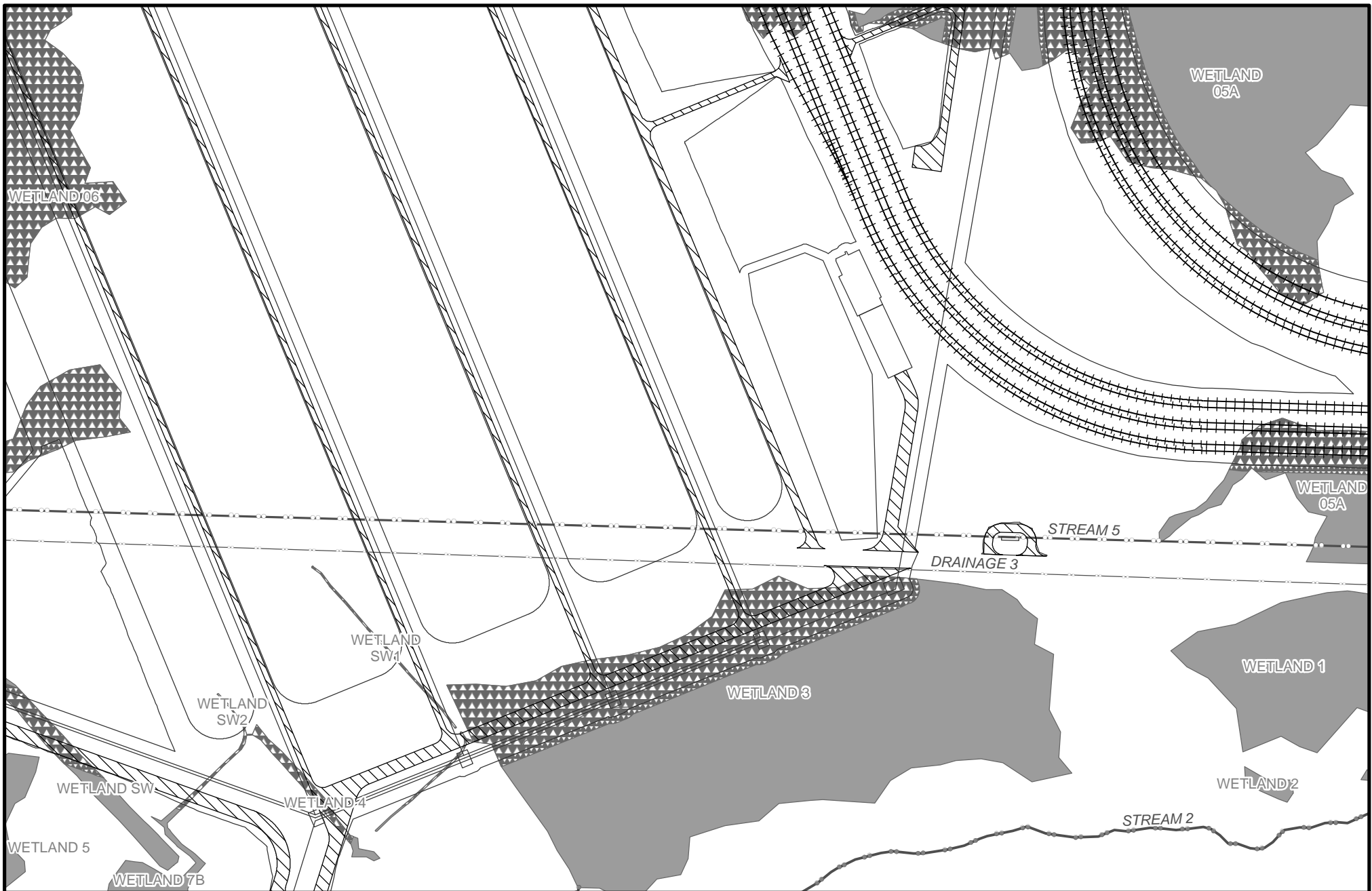
NEAR/AT: Ferndale

COUNTY: Whatcom **STATE:** WA

APPLICATION BY: Pacific International Terminals, Inc.

SHEET: 20 of 26

DATE: December 2015



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

APPLICANT REFERENCE: NWS-2008-260

LOCATION:

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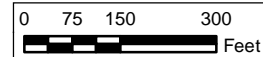
NOTE: Not for construction, for agency review only.

PROJECT AREA:

48.868383, -122.728311 (NAD83)

5412860.29, 519924.32 (UTM 10N)

SEE 16 FOR LEGEND



PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia

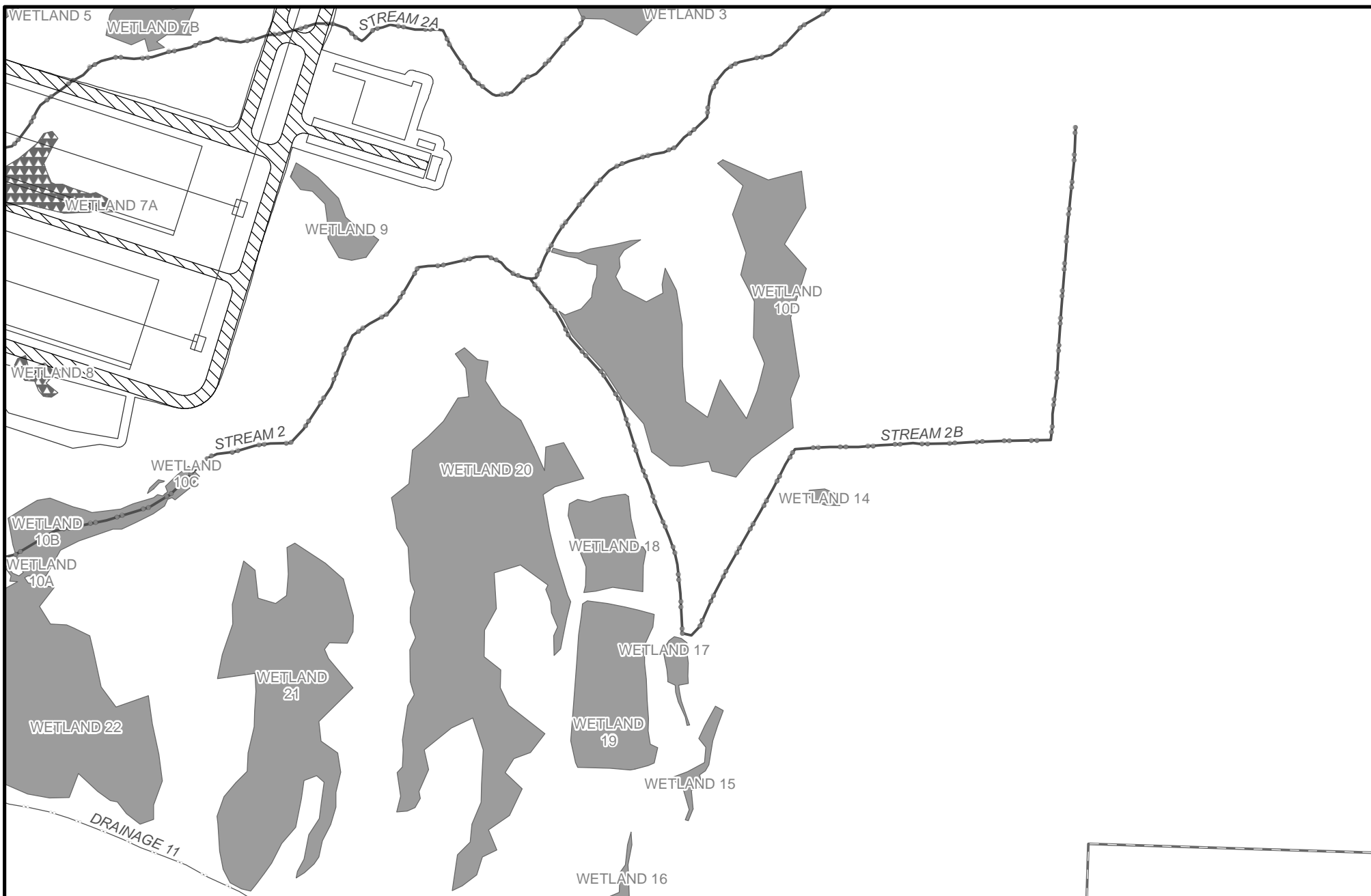
NEAR/AT: Ferndale

COUNTY: Whatcom **STATE:** WA

APPLICATION BY: Pacific International Terminals, Inc.

SHEET: 21 of 26

DATE: December 2015



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

APPLICANT REFERENCE: NWS-2008-260

LOCATION:

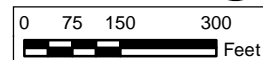
In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.

NOTE: Not for construction, for agency review only.

PROJECT AREA:

48.868383, -122.728311 (NAD83)
5412860.29, 519924.32 (UTM 10N)

SEE 16 FOR LEGEND



PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia

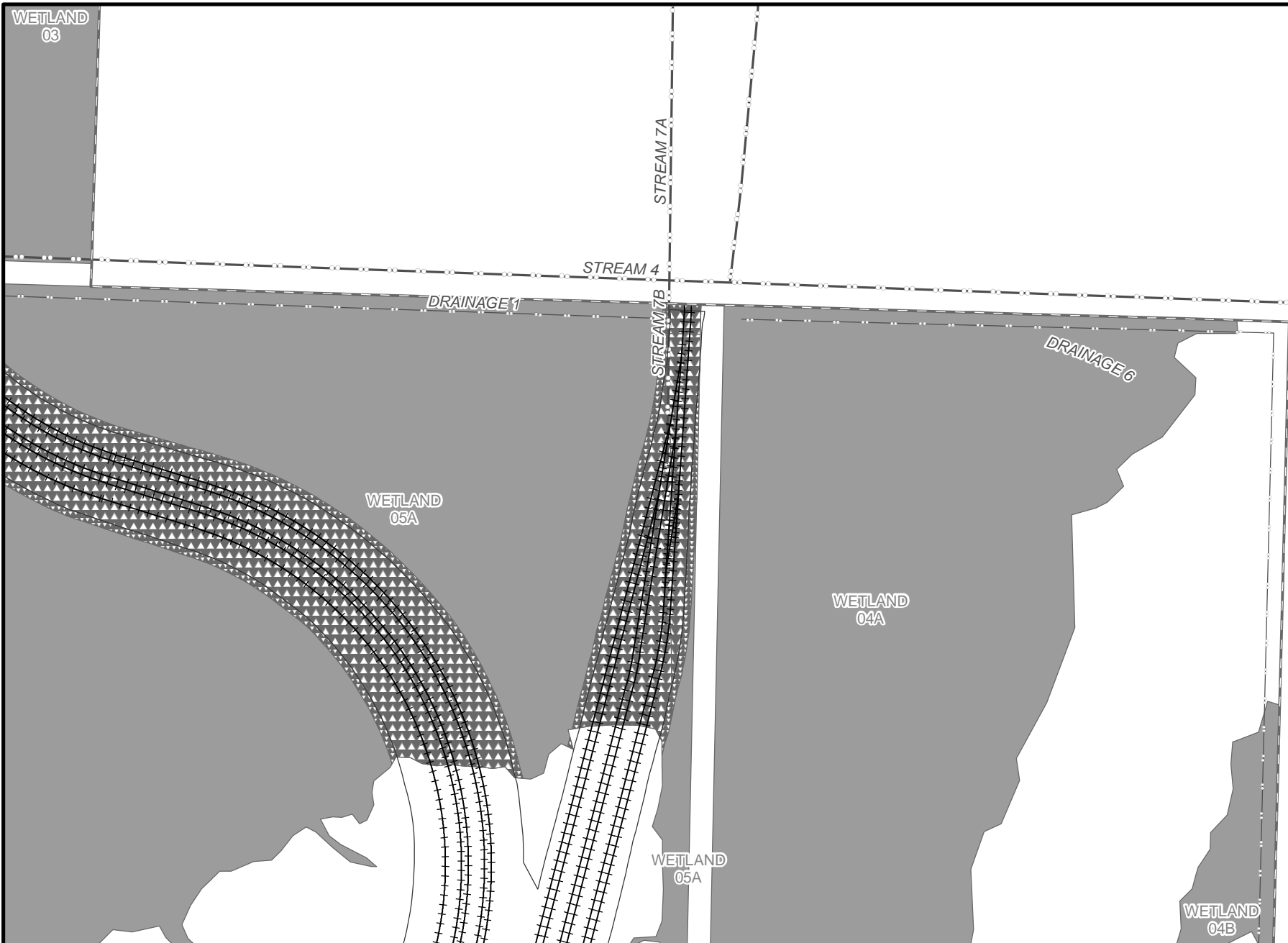
NEAR/AT: Ferndale

COUNTY: Whatcom **STATE:** WA

APPLICATION BY: Pacific International Terminals, Inc.

SHEET: 22 of 26

DATE: December 2015



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

APPLICANT REFERENCE: NWS-2008-260

LOCATION:

In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.

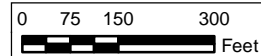
NOTE: Not for construction, for agency review only.

PROJECT AREA:

48.868383, -122.728311 (NAD83)

5412860.29, 519924.32 (UTM 10N)

SEE 16 FOR LEGEND



PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia

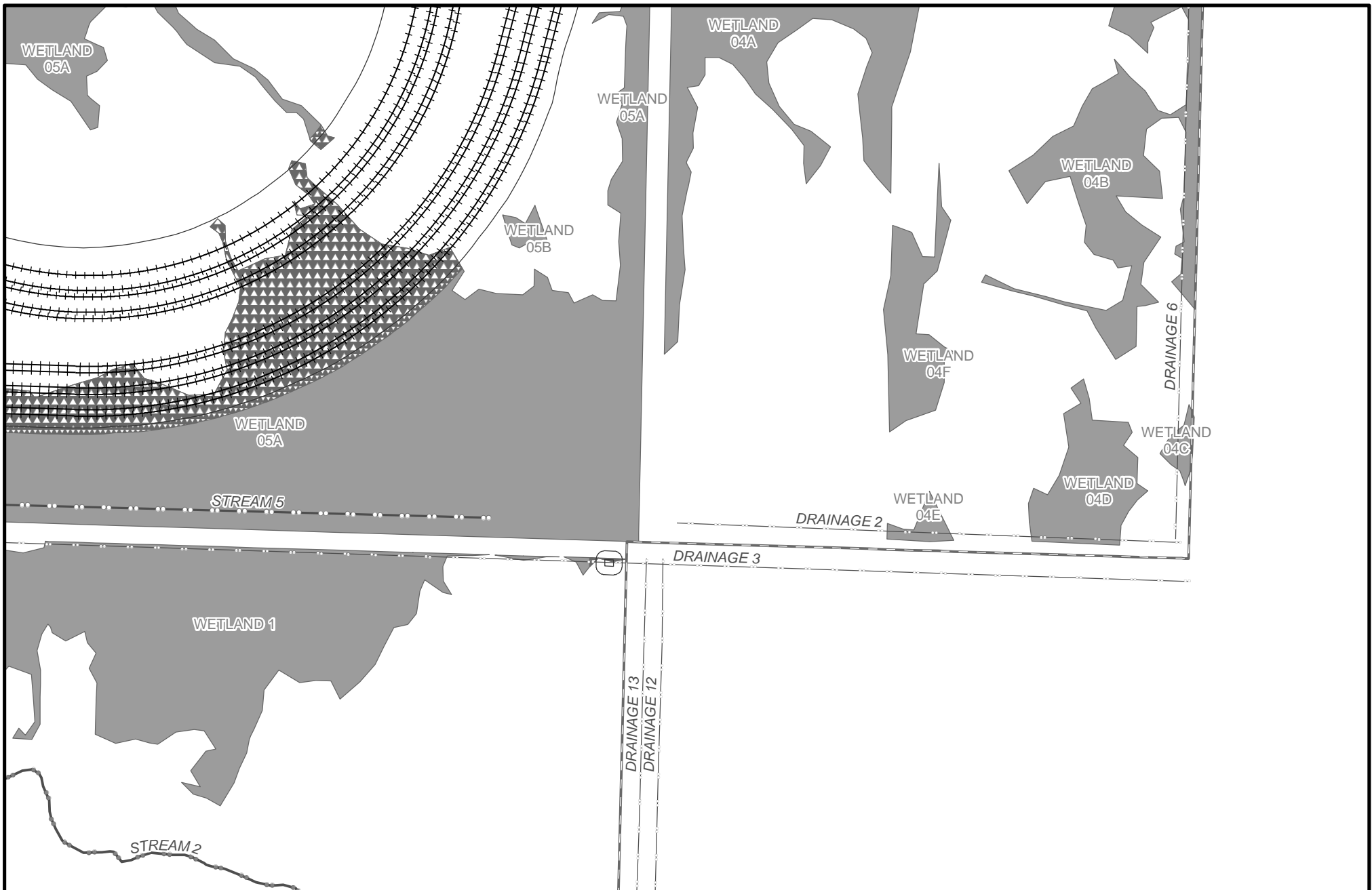
NEAR/AT: Ferndale

COUNTY: Whatcom **STATE:** WA

APPLICATION BY: Pacific International Terminals, Inc.

SHEET: 23 of 26

DATE: December 2015



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

APPLICANT REFERENCE: NWS-2008-260

LOCATION:

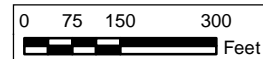
In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.

NOTE: Not for construction, for agency review only.

PROJECT AREA:

48.868383, -122.728311 (NAD83)
5412860.29, 519924.32 (UTM 10N)

SEE 16 FOR LEGEND



PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia

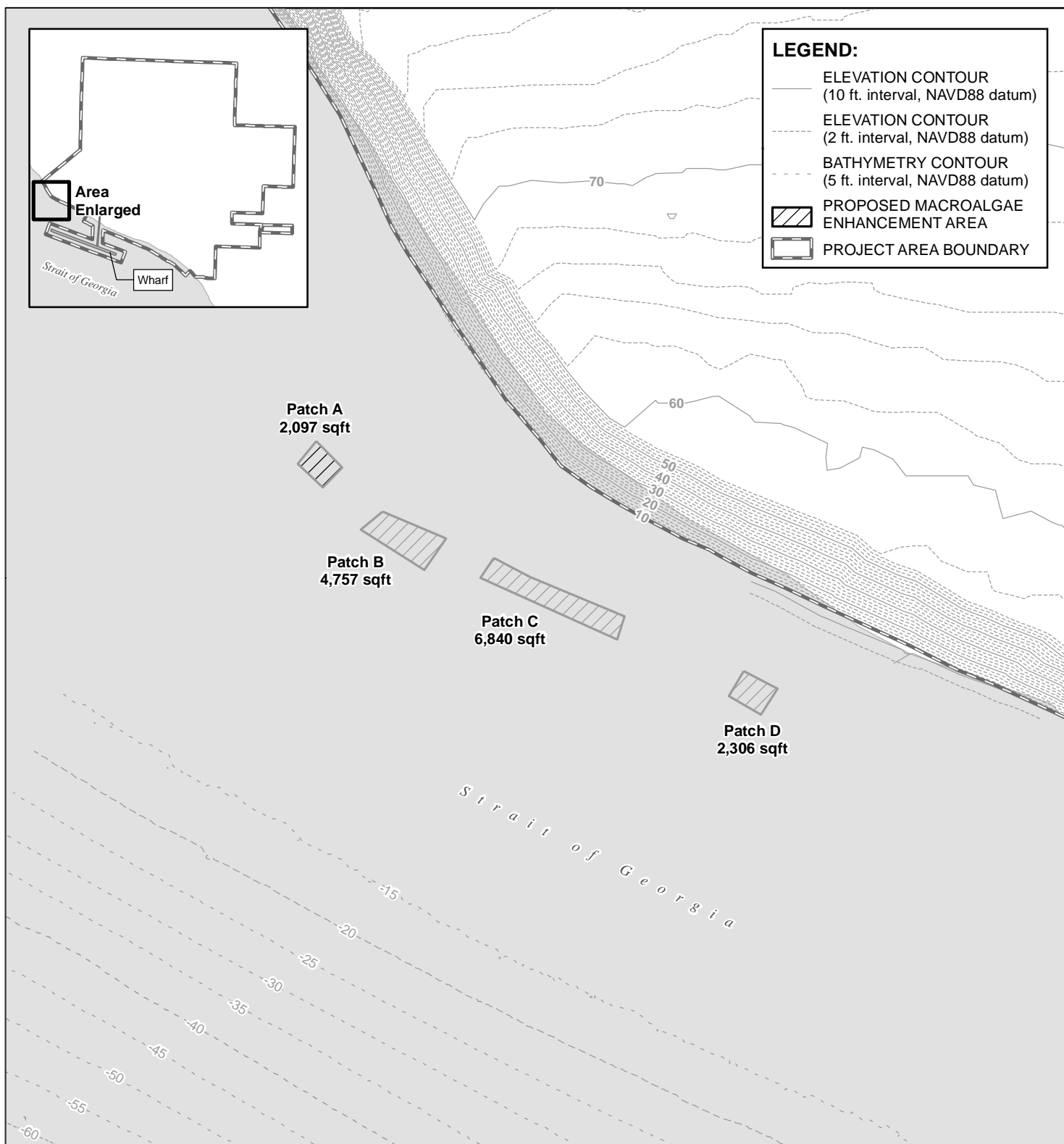
NEAR/AT: Ferndale


COUNTY: Whatcom **STATE:** WA

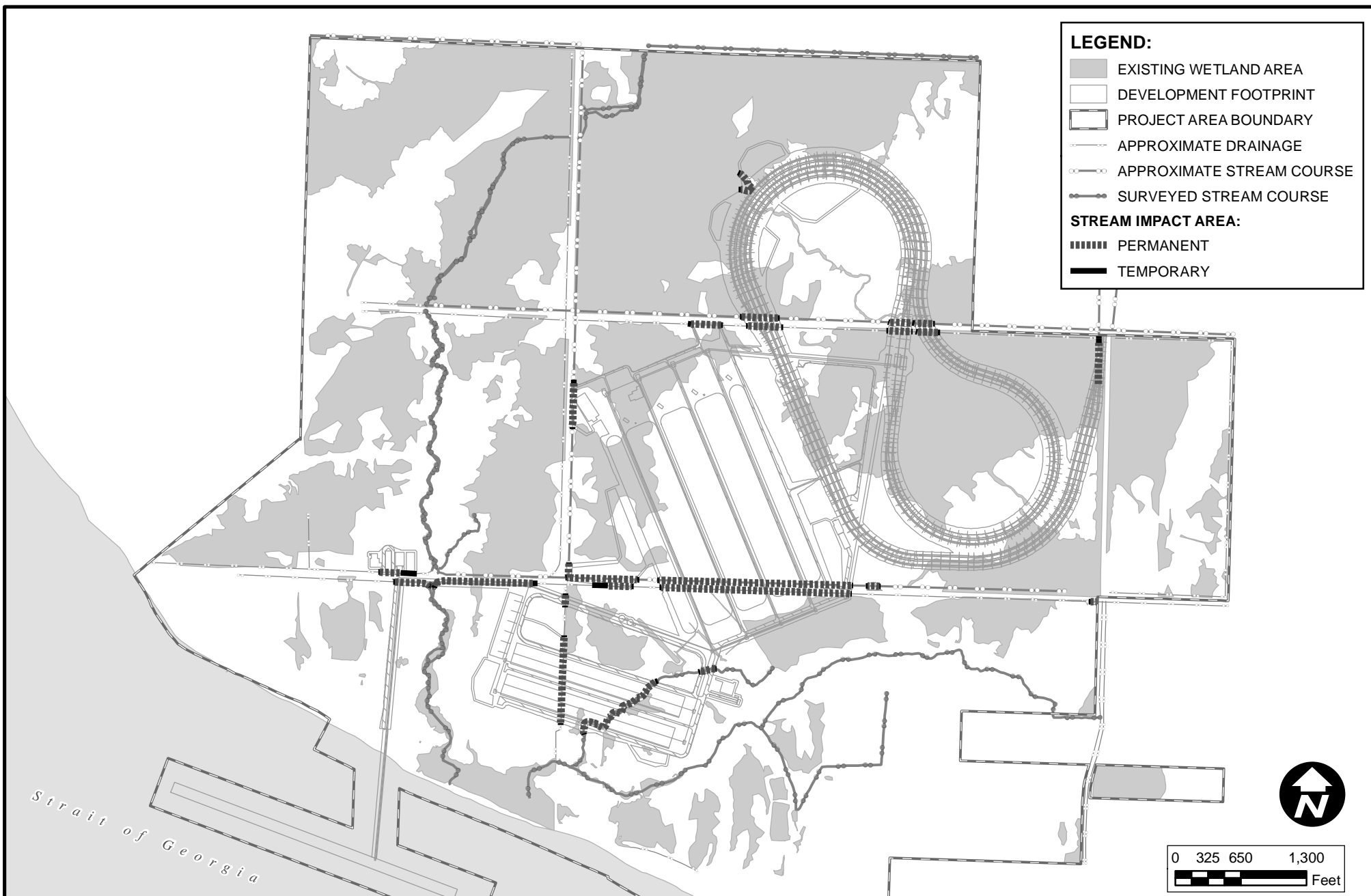
APPLICATION BY: Pacific International Terminals, Inc.

SHEET: 24 of 26

DATE: December 2015



<p>NOTE: Not for construction, for agency review only.</p> <p>PROJECT AREA: 48.868383, -122.728311 (NAD83) 5412860.29, 519924.32 (UTM 10N)</p> <p>0 100 200 400 Feet</p>				
<p>PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.</p> <p>DATUM: NAD83</p> <p>ADJACENT PROPERTY OWNERS: See JARPA Attachment C</p>	<p>APPLICANT REFERENCE: NWS-2008-260</p> <p>LOCATION: In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.</p>	<p>PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export and bulk commodities.</p> <p>IN: Eastern Shore of Strait of Georgia NEAR/AT: Ferndale COUNTY: Whatcom STATE: WA APPLICATION BY: Pacific International Terminals, Inc. SHEET: 25 of 26</p> <p>DATE: December 2015</p>		



PURPOSE: To develop and operate a multimodal (rail-to-ship) deepwater bulk terminal for export of dry bulk commodities.

DATUM: NAD83

ADJACENT PROPERTY OWNERS: See JARPA Attachment C

APPLICANT REFERENCE: NWS-2008-260

LOCATION:

In the vicinity of Henry Road, Lonseth Road, Aldergrove Road, Powder Plant Road, and Gulf Road, Whatcom County, WA.
NOTE: Not for construction, for agency review only.

PROJECT AREA:

48.868383, -122.728311 (NAD83)
5412860.29, 519924.32 (UTM 10N)

PROPOSED: Construct and operate a multimodal, deep-water storage, handling, and transportation facility for the export of bulk commodities.

IN: Eastern Shore of Strait of Georgia

NEAR/AT: Ferndale

COUNTY: Whatcom **STATE:** WA

APPLICATION BY: Pacific International Terminals, Inc.

SHEET: 26 of 26

DATE: December 2015

WHATCOM COUNTY

Planning & Development Services
5280 Northwest Drive,
Bellingham, WA 98226-9097
360-676-6907, TTY 800-833-6384
360-738-2525 Fax

**J.E. "Sam" Ryan**

Director

Whatcom County
Determination of Significance & Request for Comments on Scope of EIS for
Gateway Pacific Terminal / Custer Spur

Description of Proposal: A deepwater, multimodal terminal for the export and import of dry bulk commodities between rail and oceangoing vessels has been proposed within the Cherry Point Industrial Urban Growth Area (UGA). The project area would encompass approximately 1,500 acres with development occurring on approximately 334 acres. If approved, the proposal would include two materials handling and storage areas and a wharf and trestle. Associated development would include a rail connection and improvements with BNSF Railway's Custer Spur Industrial rail line. At full operation, the facility would have the capacity to export and import 54 million metric tons per annum (Mtpa) of dry bulk commodities including, but not limited to coal, grain products, potash, and calcined petroleum coke.

Proponent: Pacific International Terminals, Inc.

Location of Proposal: The proposed Gateway Pacific Terminal site is located at Cherry Point at and near 4750 Gulf Road, Ferndale, WA. The area is located with Sections 17, 18, and 19; Township 39 North; Range 01 East. Parcel numbers include:

390117065466, 390117205467, 390117067334, 395124546546, 390119092500,
390119172456, 390119424335, 390119198377, 390119214451, 390119327425,
390119349425, 390119469346, 390118117050, 390119388424, 390119199451,
390119438360, 390119246354, 390117473110, 390119298423, 390119252449,
390119454299, 390117278062, 390119440480, 390119502484, 390119512341,
390120095477, 390120135359, 390120151212, 390120337323, 390120340476,
390119505246

Lead Agency: Whatcom County Planning and Development Services and the Washington State Department of Ecology (Ecology) will be co-lead agencies under State Environmental Policy Act (SEPA). The U.S. Army Corps of Engineers (Corps) will be the lead agency under National Environmental Policy Act (NEPA). Whatcom County, Ecology, and the Corps will be considered lead agencies.

EIS Required: The lead agencies have determined that the proposal is likely to result in significant adverse impacts to the environment and, pursuant to 42 U.S. Code (U.S.C.) 4332(C) (NEPA) and Revised Code of Washington (RCW) 43.21C

(SEPA), an environmental impact statement (EIS) is required. The lead agencies have determined that a combined NEPA/SEPA EIS will be prepared. A separate Notice of Intent (NOI) will be posted in the Federal Register by the Corps to initiate the NEPA process.

The SEPA lead agencies have preliminarily identified the following for discussion in the EIS: Under SEPA, the EIS will examine the environmental impacts of the Gateway Pacific Terminal proposal on the proposed site within the Cherry Point Industrial UGA and the related Custer Spur project. Elements of the environment (WAC 197-11-444) that have been identified for discussion are listed below. Issues and elements to be discussed under NEPA are included in the NOI.

Natural Environment

Earth

- Geology
- Soils
- Topography
- Unique physical features
- Erosion/enlargement of land area (accretion)

Air

- Air quality
- Odor
- Climate

Water

- Surface water movement/quantity/quality
- Runoff/absorption
- Floods
- Groundwater movement/quantity/quality
- Public water supplies

Plants and animals

- Habitat for and numbers or diversity of species of plants, fish, or other wildlife
- Unique species
- Fish or wildlife migration routes

Energy and natural resources

- Amount required/rate of use/efficiency
- Source/availability
- Nonrenewable resources
- Conservation and renewable resources
- Scenic resources

Built Environment

Environmental health

- Noise
- Risk of explosion
- Releases or potential releases to the environment affecting public health, such as toxic or hazardous materials

Land and shoreline use

- Relationship to existing land use plans and to estimated population
- Light and glare
- Aesthetics
- Recreation
- Historic and cultural preservation

Transportation

- Transportation systems
- Vehicular traffic
- Waterborne and rail traffic
- Movement/circulation of people or goods
- Traffic hazards

Public services and utilities

- Fire
- Police
- Parks or other recreational facilities
- Maintenance
- Communications
- Water/storm water
- Other governmental services or utilities.

Alternatives: Alternatives to the Gateway Pacific Terminal proposal will be determined through the scoping process according to WAC 197-11-440(5)(b). Reasonable alternatives shall include actions that could feasibly attain or approximate the proposal's objectives, but at a lower environmental cost or

decreased level of environmental degradation. The No Action Alternative will also be evaluated.

Scoping: Agencies, affected tribes, and members of the public are invited to comment on the scope of the EIS within a 120-day expanded scoping comment period beginning on September 24, 2012 and closing January 21, 2013. You may comment on alternatives, probable significant adverse impacts, mitigation measures, and licenses or other approvals that may be required.

Public scoping meetings will be held within Washington State in the following cities in order of occurrence:

Bellingham: 11:00 a.m. - 3:00 p.m., October 27, Squalicum High School, 3773 E McLeod Road, Bellingham, WA;

Friday Harbor: 12:00 p.m. - 3:00 p.m., November 3, Friday Harbor High School, 45 Blair Avenue, Friday Harbor, WA;

Mount Vernon: 4:00 p.m. - 7:00 p.m.; November 5, McIntyre Hall, 2501 E College Way, Mount Vernon, WA;

Seattle: 4:00 p.m. - 7:00 p.m., November 13, North Seattle Community College Wellness Center Gym, 9600 College Way N, Seattle WA;

Ferndale: 3:00 p.m. - 7:00 p.m., November 29, Ferndale Events Center 5715 Barrett Road, Ferndale, WA;

Spokane: 4:00 p.m. - 7:00 p.m., December 4, Spokane County Fairgrounds Plaza, 404 N Havana Street, Spokane Valley, WA;

Vancouver: 4:00 p.m. - 7:00 p.m., December 12, Clark College Gaiser Student Center, 1933 Fort Vancouver Way, Vancouver, WA.

Written Comments: Provide comments via the web at www.eisgatewaypacificwa.gov or to the Lead Agency Contact Person (see below) through January 21, 2013. Notifications about the Draft EIS publication and public meetings and hearings will be made in accordance with adopted County, State, and Federal procedures. Interested parties who sign up on mailing lists or contact the agencies with a request to receive notices will also receive notices.

Documents Available: Environmental background documents and other materials indicating likely environmental impacts can be reviewed at our offices and on our website at: <http://www.co.whatcom.wa.us/pds/index.jsp>

Responsible Official: Tyler R. Schroeder

Position/Title: Designated SEPA Official

Address: GPT/BNSF Custer Spur EIS Co-Lead Agencies
c/o CH2MHILL, 1100 112th Avenue NE, Suite 400
Bellevue, WA 98004

Email: tschroed@co.whatcom.wa.us

Telephone: (360) 676-6907

Date: September 24, 2012

Signature: _____

A handwritten signature in blue ink is written over a horizontal line. The signature is stylized and appears to be 'J. Schroed'.



WASHINGTON STATE
Joint Aquatic Resources Permit
Application (JARPA) [\[help\]](#)



US Army Corps
of Engineers
Seattle District

AGENCY USE ONLY

Date received: _____

Agency reference #: _____

Tax Parcel #(s): _____

TO BE COMPLETED BY APPLICANT [\[help\]](#)

Project Name: _____

Attachment A-1:
For additional property owner(s) [\[help\]](#)

Use this attachment only if you have more than one property owner. Complete one attachment for each additional property owner impacted by the project.

Signatures of property owners are not needed for repair or maintenance activities on existing rights-of-way or easements.

Use black or blue ink to enter answers in white spaces below.

1. Name (Last, First, Middle) and Organization (if applicable)

Watts Family Partnership, Emily Watts Tidball, Partner

2. Mailing Address (Street or PO Box)

2608 260th Place SE

3. City, State, Zip

Sammamish, Washington 98075

4. Phone (1)

(425) 557-8684

5. Phone (2)

(425) 736-7984

6. Fax

-

7. E-mail

-

Address or tax parcel number of property you own:

390117278062

Signature of Property Owner

A purchase and sale agreement for this property has been negotiated with applicant.

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner and/or project applicant.

Emily Watts Tidball
Printed Name

Emily Watts Tidball
Signature

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ENV-020-09 rev. 08/2013



WASHINGTON STATE
Joint Aquatic Resources Permit
Application (JARPA) [\[help\]](#)



US Army Corps
of Engineers
Seattle District

Attachment A-2:
For additional property owner(s) [\[help\]](#)

AGENCY USE ONLY

Date received: _____

Agency reference #: _____

Tax Parcel #(s): _____

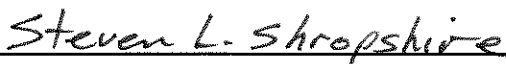
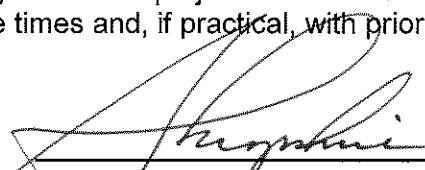
TO BE COMPLETED BY APPLICANT [\[help\]](#)

Project Name: _____

Use this attachment only if you have more than one property owner. Complete one attachment for each additional property owner impacted by the project.

Signatures of property owners are not needed for repair or maintenance activities on existing rights-of-way or easements.

Use black or blue ink to enter answers in white spaces below.

1. Name (Last, First, Middle) and Organization (if applicable)			
Cherry Point Industries, LLC and Cherry Point Industrial Park Ltd			
2. Mailing Address (Street or PO Box)			
10587 108 Street NW			
3. City, State, Zip			
Edmonton, AB T5H 2Z8 Canada			
4. Phone (1)	5. Phone (2)	6. Fax	7. E-mail
(360) 715-1218	-	(360) 715-9829	-
Address or tax parcel number of property you own:			
390119440480, 390119502484, 390120095477, 390120135359, 390120340476, 390119512341, 390119505246			
Signature of Property Owner			
A purchase and sale agreement for this property has been negotiated with applicant. Owners Agent: Mr. Steven L. Shropshire Shropshire Law Firm, PLLC 1223 Commercial Street, Bellingham, WA 98225 I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.			
 Printed Name		 Signature	

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ENV-020-09 rev. 08/2013



WASHINGTON STATE
Joint Aquatic Resources Permit
Application (JARPA) [\[help\]](#)



Attachment C:
Contact information for adjoining
property owners. [\[help\]](#)

Use this attachment only if you have more than four adjoining property owners.

AGENCY USE ONLY	
Date received:	
Agency reference #:	_____
Tax Parcel #(s):	_____
TO BE COMPLETED BY APPLICANT [help]	
Project Name:	_____
Location Name (if applicable):	_____

Use black or blue ink to enter answers in white spaces below.

1. Contact information for all adjoining property owners. [\[help\]](#)

Name	Mailing Address	Tax Parcel # (if known)
Atlantic Richfield Company (1)	PO Box 512485, Los Angeles, CA 90051-0485	390118084466, 390118086345, 390118088200, 390118052092
Baker Septic (6)	PO Box 2128, Ferndale, WA 98248-2128	390121038472
BNSF Railway Company (2)	PO Box 961089, Fort Worth, TX 76161-0089	390120388243, 390117403017, 390108384026, 390107267010
BP West Coast Products LLC (3)	PO Box 5015, Buena Park, CA 90622-5015	395113488166, 390107317235, 390108071094, 390108018023, 390108059042, 390108204081
Campbell Land Corporation (4)	Attn: Herbert A Davis 6568 Lambert Crest, Delta, BC V4E 1R8 Canada	390108326085
David and Kathleen Wells (5)	P.O. Box 3104, Ferndale, WA 98248-3104	390116036016
Garrett and Lawanda Lemley (7)	6188 Kickerville Road, Ferndale, WA 98248-9617	390116018121
L. James and Linda Kolbo (8)	4017 Mayne Lane, Ferndale, WA 98248-9578	390116051110, 390116037071
LGJK LLC (9)	1134 37 th Street, Bellingham, WA 98226-3132	390120478526
Crystal Higdon and Edgar Rodriguez (10)	6128 Kickerville Road, Ferndale, WA 98248-9617	390116029040

Attachment C - Continued

Department of Natural Resources, State Lands Division (11)	415 East 11 th Street, Olympia, WA 98504	390117334462, 390117334328, 390116070420, 390116073206
Intalco Aluminum Corp. (12)	Attn: Property Tax Department 201 Isabella Street, Pittsburgh, PA 15212-5858	390120237207; 390120341236; 390120478304; 390120337323; 390120505379; 390120489388; 390120395412
Department of Natural Resources, Orca Straits Aquatic District (Tidelands)	919 N. Township Street Sedro Woolley, WA 98284-9384	-

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ENV-022-09 rev. 08/2013



**Pacific International
Terminals**

A Carrix Enterprise

PORT OPERATIONS AND SAFETY PLAN TO FACILITATE TRIBAL FISHING

Gateway Pacific Terminal

Whatcom County, Washington

Pacific International Terminals, LLC

1131 SW Klickitat Way
Seattle, Washington
98134

December 21, 2015

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1.0 INTRODUCTION

Pacific International Terminals, LLC (PI Terminals), proposes to develop the Gateway Pacific Terminal (the “Terminal”), a multimodal terminal for transfer of dry bulk commodities, at Cherry Point in Whatcom County, Washington. The Terminal will include marine facilities consisting of a three berth wharf and trestle and upland facilities including rail, commodity unloading and storage facilities and commodity handling and ship loading facilities.

The proposed Terminal project is located approximately 18 miles northwest of the City of Bellingham in an industrially zoned waterfront area (see Figure 1 for general location). A more detailed description of the proposed Terminal including the layout is provided in “Appendix B: Project Description for Alternative C2” in the *Gateway Pacific Terminal Project Alternatives Report* (Pacific International Terminals, Inc. 2014).

PI Terminals recognizes that the proposed location of the Terminal’s wharf and trestle is within the Usual and Accustomed (U&A) fishing area of tribal fishers. Certain rights have been granted by treaty to tribal fishers to undertake fishing activities for both shellfish and fin fish in the region in which the proposed wharf and trestle are to be located. Fishing may occur during time periods and at locations designated by fisheries management agencies (including tribal agencies) with jurisdiction.

To assure that tribal fishers may continue to exercise their rights, PI Terminals has stated to the United States Army Corps of Engineers (USACE) in response to claims by the Lummi Nation of potential interference with their treaty protected fishing rights that it would include, as part of its proposed project, certain committed project features that are designed to avoid and minimize effects, and facilitate continued exercise of treaty protected tribal fishing activities. These features would pertain to fishing activities that would occur at the location of the proposed wharf and trestle¹.

PI Terminals hereby includes as part of its proposed project this “Port Operations and Safety Plan to Facilitate Tribal Fishing” (the “Plan”).

¹ In PI Terminals’ July 27, 2015 submittal to the USACE, the Company committed to implement the following actions; 1) Adopt approach and departure vessel lanes, suggested in the 2008 Gear Loss Forum, including a short leg to the Terminal Wharf, 2) Support adoption of a Standard Of Care within Puget Sound Harbor Safety Plan to include a local vessel traffic system, 3) Implement a communications program to keep Lummi fishers informed of vessels’ positions and intentions, 4) Establish a protocol with Lummi Nation to provide a communications system and equipment that will ensure the Lummi fishers receive advance notice of all vessel movements, and 5) Commit that commercial barge operations and vessel bunkering will not be allowed at the Terminal.

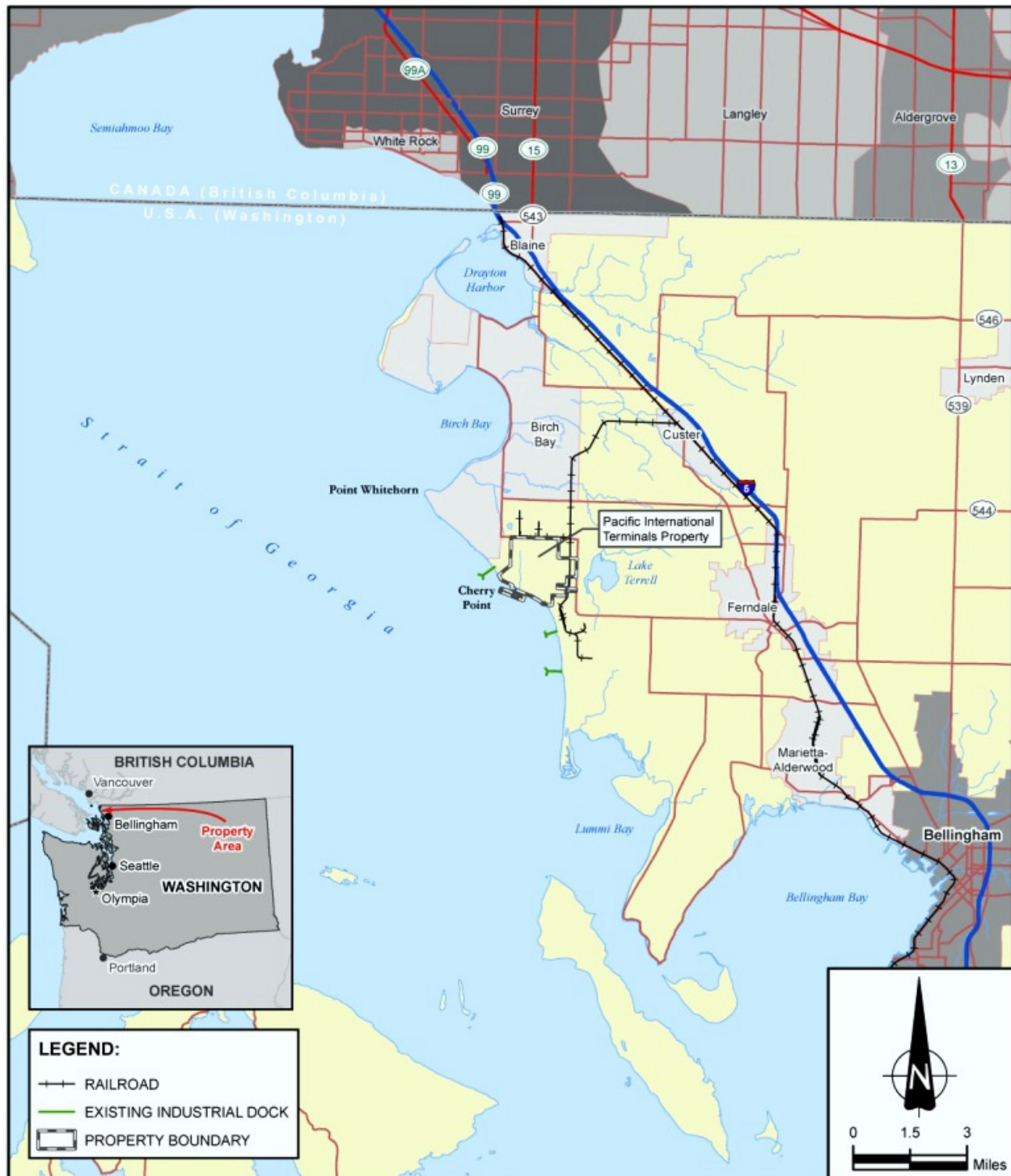


Figure 1 Project Location

2.0 AUTHORITY

The commitments included in this Plan will be implemented by PI Terminals in cooperation with tribal authority to the extent PI Terminals is able to act independently of regulatory standards and process. Where Plan Elements require regulatory approval, PI Terminals will pursue diligent implementation of those commitments. All commitments of the Plan shall be implemented in compliance with federal and state laws, regulations and authorities.

3.0 PURPOSE OF THE PLAN

The purpose of the Plan is to conduct operations of the Terminal in a manner that ensures access by tribal fishers to fishery resources which might be at the wharf and trestle location. This Plan includes a system of communication to active tribal fishers of impending arrival and departure of vessels calling at the Terminal to avoid conflicts between the movement of deep draft vessels and tribal fishing vessels. It provides for tribal fishing activities in direct proximity to the wharf and trestle, and it includes the provision of certain fixtures to aid in tribal fishing and the prohibition of certain activities by non-fishing vessels in proximity to the wharf and trestle.

It is expected that implementation of the Plan will enhance tribal fishing success in the area of the proposed wharf. The principal commitments of the Plan are described in the following Plan Elements.

4.0 PLAN ELEMENTS

4.1 Navigation during Approach and Departure to Promote Vessel Safety

A concern expressed by Lummi fishers, as detailed in their presentation during the 2008 Gear Loss Forum, is the potential for conflicts between vessels in transit to the proposed wharf and tribal fishing activity during fishery openings. A study of vessel traffic in Northern Puget Sound with and without the Terminal project shows that interference with Lummi fishing vessels will increase less than one-tenth of one percent (0.08%) if the project is developed over the current disruption of the small fraction (0.11%) caused by existing facilities. With the Terminal, total disruption would still be only a small fraction, just 0.19%. (See Tables 134 and 135, in *Vessel Traffic and Risk Assessment Study*, Glosten Associates, November, 2014.)

Two types of vessels will be involved in wharf operations, deep draft bulk carriers and tugs to assist vessels during mooring and unmooring. A deep draft vessel is expected to arrive or depart to/from the wharf, on average, every 18 hours throughout the year. Commercial deep draft vessel traffic currently operates in the Cherry Point area calling at adjacent marine terminals. These vessels are required by United States Coast Guard (USCG) regulation and the requirements of the Puget Sound Harbor Safety Plan to transit within designated vessel traffic lanes and utilizing the Vessel Traffic Separation Scheme or "VTS". These lanes provide an approach to the Cherry Point area from Rosario Strait to the South and Boundary Pass to the West. Tribal fishers have declared that they presently tend to avoid conducting fishing operations in the existing routes commonly taken by commercial vessels between the designated traffic lanes and the existing marine terminals in the Cherry Point area.

To promote the safety of fishing vessels operating in the Cherry Point Area, all vessels calling at the Terminal will be required to utilize the same commercial traffic routes by vessels in transit to adjacent marine terminals. To implement this requirement, PI Terminals will actively promote establishment of an Inshore Traffic Zone (ITZ) as either a part of the Puget Sound Harbor Safety Plan as a Standard of Care (SOC), or as a Special

Operating Area (per 33 CFR Parts 160 and 161) by the USCG. Figure 2 shows the proposed location for an ITZ in the Cherry Point Reach. This layout follows a suggested layout generated during the 2008 Gear Loss Forum and would provide regulated Vessel traffic lanes where there currently are none.

The SOC (or Special Operating Area) would require that vessels arriving and departing the Terminal must transit through predetermined traffic lanes. This would confine traffic calling at the Terminal to use lanes already being used by deep draft vessels calling at Cherry Point. Use of these lanes will maintain the status quo between transiting traffic and existing tribal fishing activities and allow tribal fishers to expect with some certainty where they can elect to fish while being able to anticipate the potential presence of deep draft traffic.

Maneuvering and docking a vessel or unmooring and departure of a vessel from the Terminal is expected to require on the order of 1 to 1.5 hours per event. However, variability in arrivals, loading and departures schedule is expected to occur that will likely provide longer and shorter intervals between arrivals and departures. During the interval when vessel movements are not occurring, fishing activities in proximity to the operating side² of the wharf and trestle may occur.

At the final approach, and in unmooring and departing from the wharf, vessel travel speeds will be very slow and vessels will be assisted by tugs. When assist tugs are operating, and if they are outside of the designated VTS and ITZ lanes, the COLREGS Rules of the Road³ require that they avoid active fishers (COLREGS Rule 18(a)(iii)).

² "Operating side" denotes to side of the wharf to which vessels moor. No provision for mooring commercial vessels of any type will be made on the inner or shoreline side of the wharf.

³ International Regulations for Preventing Collisions at Sea, 1972

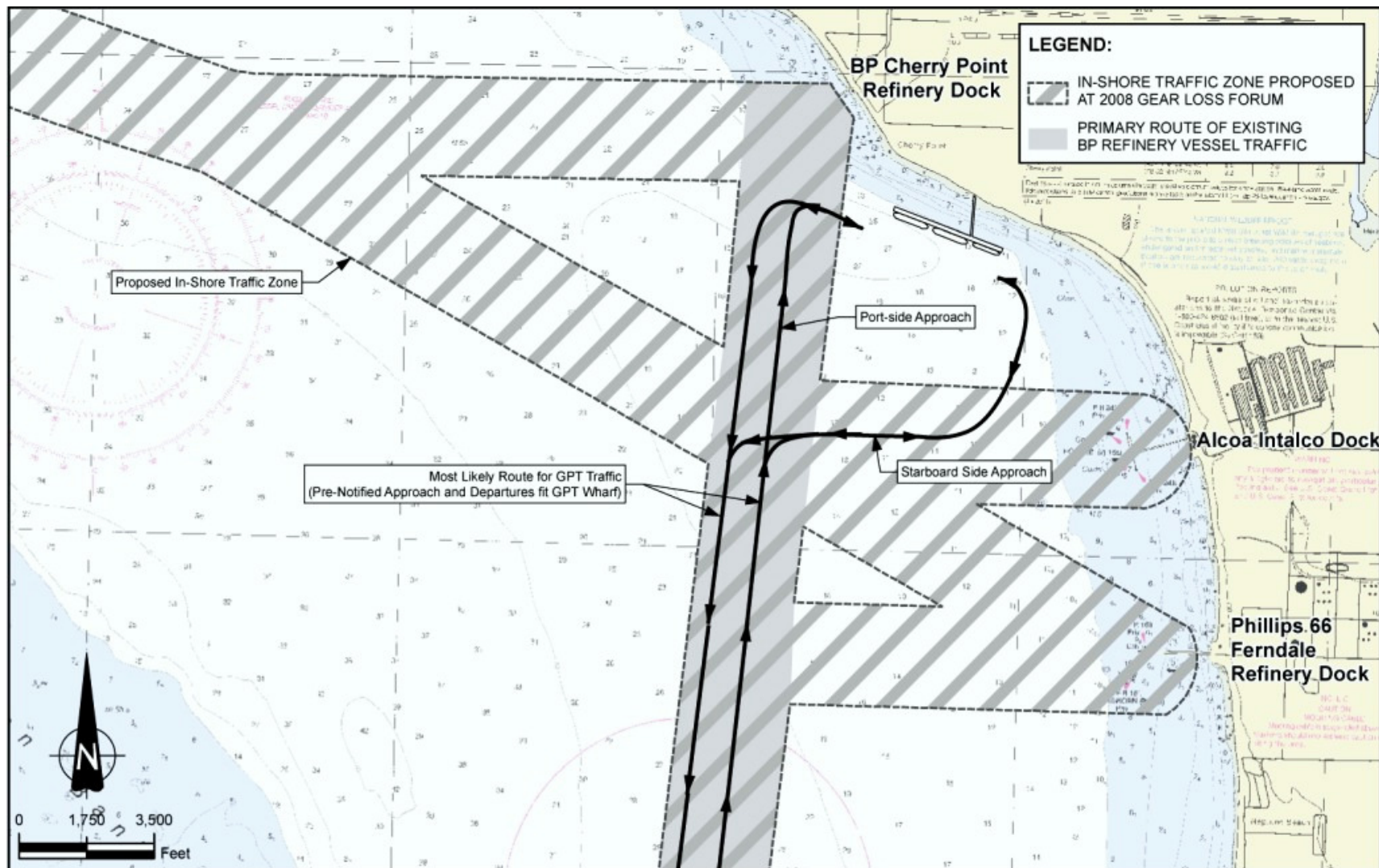


Figure 2 Vessel Traffic Arrival and Departure

Implementation of this Plan Element will confine vessel traffic calling at the Terminal to routes already avoided by tribal fisherman and increase safety for all vessel using the area. It will also provide access to areas for fishing in direct proximity to the wharf during most times of the day.

4.2 Advanced Notice and Communications Plan

To support Plan Element 4.1, and further enhance vessel safety for tribal fishing vessels and vessels calling at the Terminal, PI Terminals will establish and operate a system for advanced notification to tribal fishers of the position and movement of deep draft vessels and assist tugs calling at the Terminal. This would allow tribal fishers to appropriately plan and execute fishing activities.

Implementation of this element of the Plan is consistent with proposals made at the 2008 Gear Loss Forum⁴. It will be modeled after the current communication program effectively operating in Elliot Bay and the Duwamish Waterway (See *Puget Sound Harbor Safety Plan*, Section B- Fish Net Conflict Resolution) where tribal fishers are actively fishing in the Duwamish Waterway near Elliott Bay and in nearby marine waters. Elliot Bay and the Duwamish Waterway have significantly greater commercial shipping, ferry, enforcement and recreational boating traffic than the Cherry Point Reach.

In concert with the Lummi Nation, PI Terminals will establish a formal protocol to ensure that tribal fishers may receive advance notice, via mobile text message or VHF radio, of vessel movements into the Cherry Point Reach and in the vicinity of the Terminal. This will include the movement of both deep draft vessels and tugs. PI Terminals will establish a program to provide VHF communication and position/detection (e.g, GPS) equipment to registered and licensed Lummi fishers for shipboard installation. Such communication and position detection equipment will allow Lummi fishers to effectively utilize advanced notification information to monitor deep draft vessels that they wish to avoid during transits through the Cherry Point area to other fishing grounds and while fishing in the Cherry Point area.

Implementation of this plan element is expected to further enhance the safety of tribal fishers while fishing and to enhance the effectiveness of fishing activities through greater situational awareness.

4.3 Limitation of Vessel Types Vessels Calling at the Gateway Pacific Terminal

A concern expressed by Lummi fishers at the 2008 Gear Loss Forum is the loss of fishing gear, principally crab pots, due to the operation of commercial vessels in the areas fished. However, not all vessel traffic is the same. The Lummi fishers have stated the majority of their gear loss is attributable to tug-and-barge tow operations servicing the existing terminals, and not directly related to deep-draft vessels. Tug-and-barge tow operations waiting to approach and moor at the existing industrial wharfs at Cherry Point have been cited by Lummi fishers as a principal cause of crab fishing gear loss.

Routine cargo operations at the Terminal is limited to ocean-going bulk vessels and assist tugs. Work boats to assist in annual wharf maintenance and security activities will be utilized during annual maintenance cycles. The use of barges for bunkering, lightering, or movement of bulk cargoes will not be permitted by PI Terminals.

The *Vessel Traffic and Risk Assessment Study* (Glosten Associates 2014) makes the assumption that gear loss is ratable to vessel traffic and then projects out an estimated gear loss based on the number of vessels to arrive and depart from the Terminal. As the Terminal will not have tug and barge tow cargo operations, this type of gear loss from operations is eliminated.

⁴ 2008 Gear Loss Forum. Exhibit I (Jefferson presentation – loss reduction fishers and industry)

4.4 No Permanent Exclusion Zone

A concern expressed by the Lummi Nation is the formation of a permanent exclusion zone around the wharf and trestle within which fishing activities would be prohibited. No permanent exclusion zone is mandated by federal regulation for the Terminal, or will be created by PI Terminals.

PI Terminals will implement an Operational Safety Zone temporarily limiting the approach of vessels engaged in fishing to the direct proximity of deep draft vessels when vessels are approaching, mooring, and departing. The Operational Safety Zone will be established in consultation with the tribal fishing interests for the protection of fishers and equipment. Commercial deep draft vessels, tugs providing assistance, and fishing vessels would at all times be expected to observe to Collision Avoidance Regulations that regulate all shipping.

The implementation of a mutually agreed upon Operational Safety Zone is expected to promote the safety of tribal fishing activities operating in direct proximity to the wharf and trestle.

4.5 Fishing at the Location of the Wharf and Trestle

An expressed concern of Lummi fishers is the potential for interference with desired tribal fishing activities during designated fishing openings. PI Terminals will provide access for fishing in direct proximity to the Wharf and Trestle to facilitate continued access for fishing of fin-fish and shellfish species by tribal fishers at the location of, and in close proximity, to the wharf and trestle. The Plan Elements for facilitating tribal fishing operations in coordination with wharf operations is described for crabbing and net fishing in the following.

4.5.1 Crab Fishing

Crab fishing by tribal fishers will be permitted during designated fishery openings along the shoreward face of the wharf and underneath the trestle. Fishing using traps attached by a ground-line, as in normal fishing methods, will allow tribal fishers to draw crab located under the wharf and trestle to their traps. This is because the effective fishing area of a properly baited crab trap is understood to be approximately 300 feet in diameter. Figure 3 illustrates that the effective fishing area for crabs extends beneath the wharf, and crab traps placed near the outer margin of the wharf are able to attract crab from the entire area beneath the wharf.

Crab fishing will also be permitted on the operating side of the wharf, as illustrated on Figure 3. During crab fishery openings, tribal fishers will be encouraged to fish primarily during periods when a vessel is not present at a berth. Tribal fishers will temporarily be restricted from laying or recovering traps on the operating side of the wharf during periods when deep draft vessels are maneuvering to moor at the wharf or departing⁵.

Periods of vessel maneuver or time at berth may be determined by contacting the Terminal's Dock Supervisor, or the Lummi Nation designated contact person, as established in the communications protocol developed as part of Plan Element 4.2.

⁵ Approximately 2 to 3 hours of maneuvering time per call would be required. At 487 calls per year, approximately 972 to 1,461 hours per year or 11 to 17 percent of the available time access to the operating side of the wharf would be subject to maneuvering.

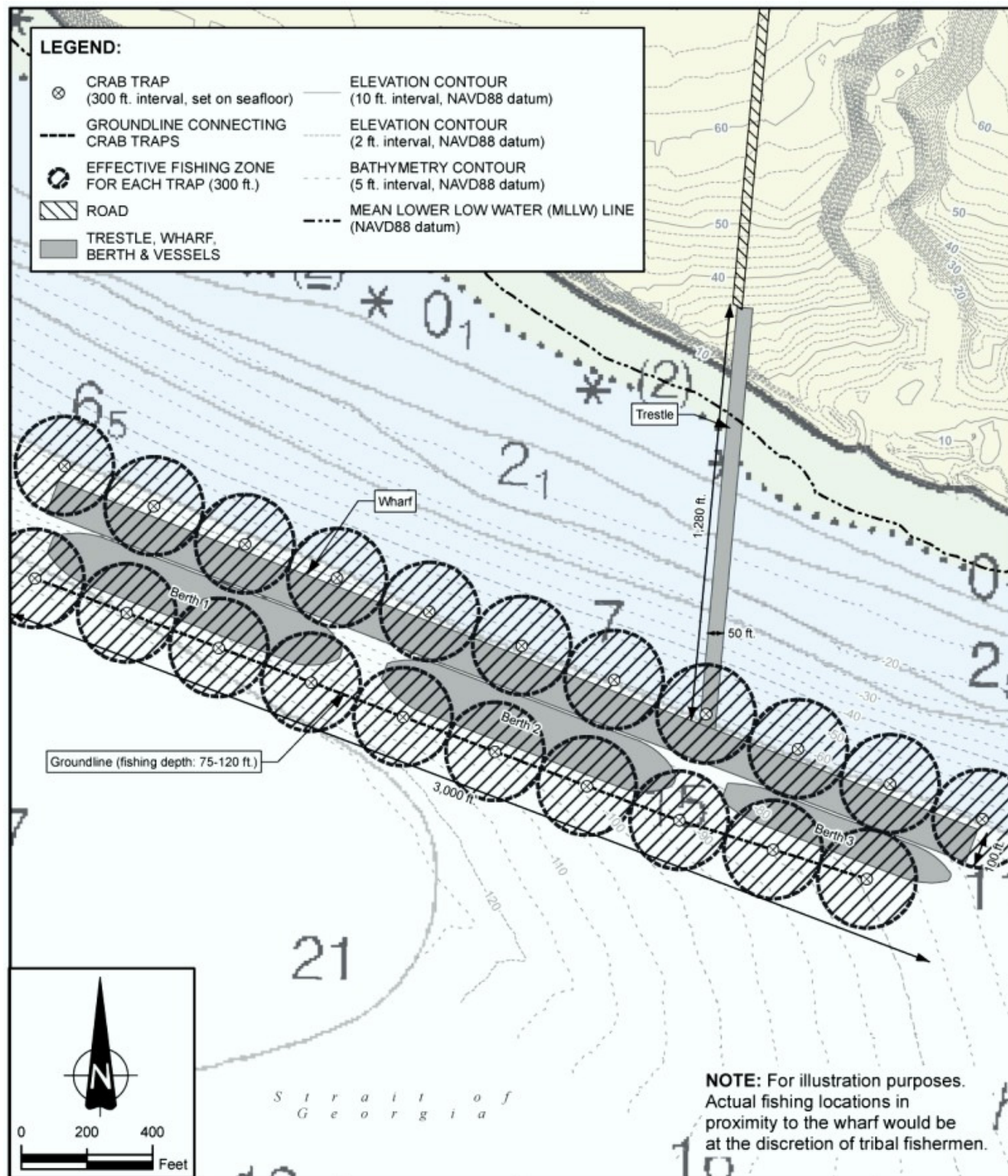


Figure 3 Example of Crab fishing accessing Wharf area

Because the wharf and trestle will not include any means of moorage for small vessels, tribal fishers will not be able to tie-up to the wharf or trestle during the waiting period between tending of crab traps.

4.5.2 Gill Net and Purse Seine Fishing

PI Terminals will install and maintain a pendant on the last piling at both the North and South end of the wharf to serve as an attachment point for gill nets deployed on the shore side of the wharf, if Tribal fishers initiate such fishing activities. No attachment points to establish a fixed net position (as opposed to a drifting net) are currently available to tribal fishers. Such a feature will enhance tribal fishing activities and will be reserved for the exclusive use of Tribal fishers. Both gill net and purse seine fishing are limited in shallow water by naturally occurring obstructions, therefore Tribal net fishing operations on the shoreward side of the wharf are not anticipated.

Purse seine, and to a lesser extent gill net fishing, require schooling up of a group of fish to maximize fishing effort. The presence of an obstacle to the along-shore movement of migrating salmon (reef, groin or wharf/trestle) is known to cause the migrating fish to move around such obstacles and during such movements become more tightly distributed and in some cases becoming an identifiable school. The installation of the wharf and trestle might cause such avoidance behavior in fish moving northward and cause schooling of fish as they move out and around the wharf. Such a pattern of movement, or “lead” which does not now likely exist would create a new and advantageous location for seine and gill net sets on the operating side of the wharf (see Figure 4). Nets set at the south end of the wharf would be expected to drift past the 3,000-foot-long wharf with the flood tidal current, which runs on the order of 1.5 knots. At that speed, nets set at the south end of the wharf would require approximately 30 minutes to clear the wharf (see Figure 4). Based on the reasonably short time period for seine and gill net operations in proximity to the operating side of the wharf, PI Terminals would not object to such operations providing that they are coordinated with the Terminal’s Dock Supervisor in accordance with communication protocol described in Plan Element 4.3.

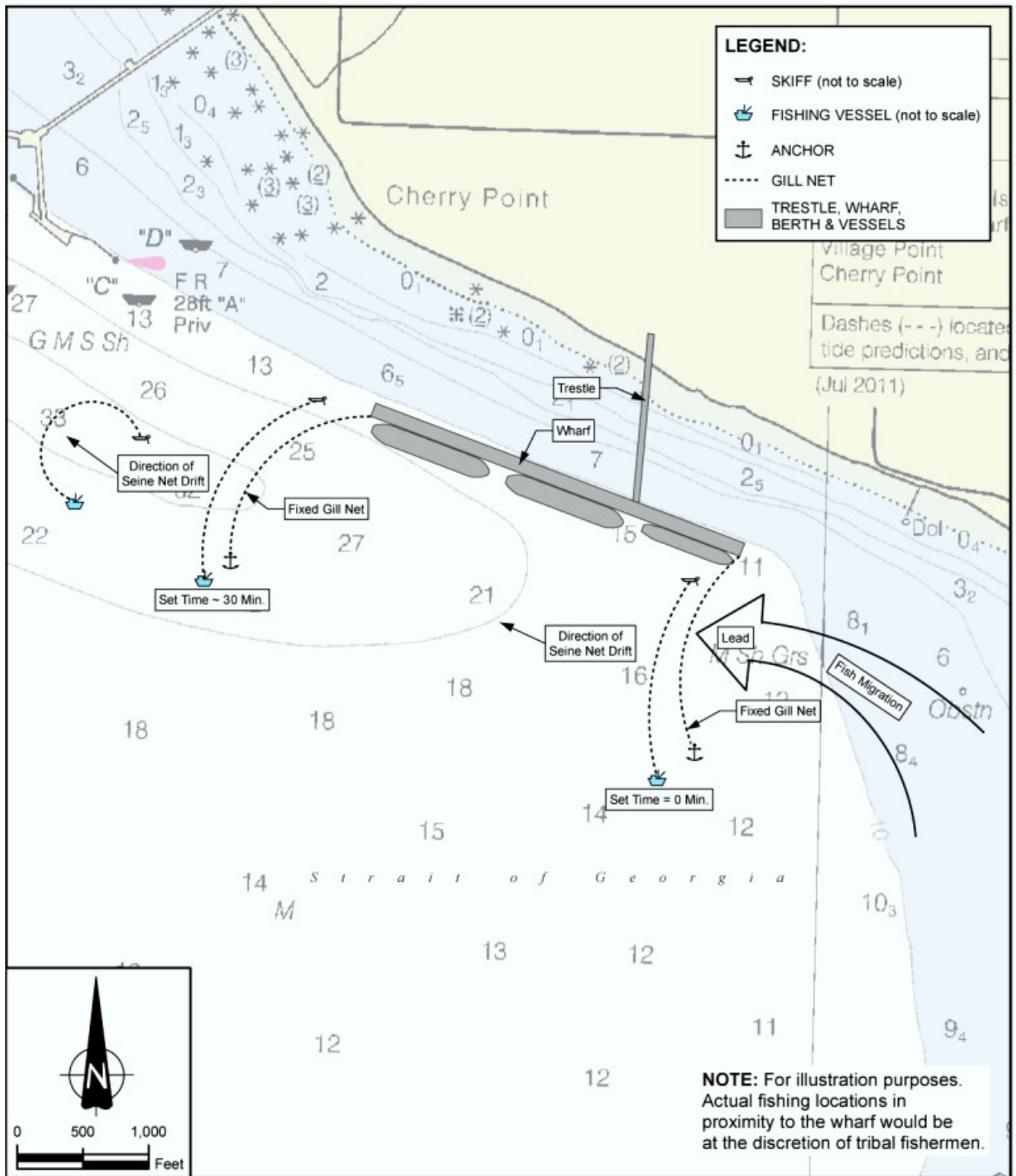


Figure 4 Illustration of Net Fishing at the Wharf

From: Skip Sahlin <Skip.Sahlin@SSAMarine.com>
Sent: Tuesday, December 22, 2015 10:17 AM
To: Randel Perry (Randel.J.Perry@usace.army.mil)
Cc: Muffy Walker (Michelle.Walker@usace.army.mil); Eugenio, Francis X NWS (Francis.X.Eugenio@usace.army.mil); Buck John (john.g.buck@usace.army.mil); Ari Steinberg; William Lynn (BLynn@gth-law.com); Tyler Schroeder (TSchroed@co.whatcom.wa.us); Alice Kelly (AKEL461@ECY.WA.GOV)
Subject: NWS-2008-260, Pacific International Terminals, Inc.
Attachments: 20151222 JARPA Pacific International Terminals (Final) Complete.pdf

Dear Mr. Perry,

Please find the attached re-submittal of a Joint Aquatic Resources Permit Application (JARPA) from Pacific International Terminals for the Gateway Pacific Terminal project. Please confirm receipt of attached JARPA application. We will also post the Cover Letter, JARPA Application and Attachments on the Co-Lead agencies SharePoint site for download and distribution.

Feel free to call or email Ari Steinberg or myself if you have questions or want to discuss the application.

REFERENCE PROJECT NUMBERS:
NWS-2008-260, Pacific International Terminals, Inc.

Sincerely,
Skip Sahlin
(800) 422-3505 | (206) 654-3510
1131 SW Klickitat Way | Seattle, WA 98134

From: Denise Smith <DMSmith@co.whatcom.wa.us>
Sent: Friday, December 11, 2015 10:26 AM
To: Tyler Schroeder
Subject: October & November GPT hours

Importance: High

Please log your hours so I can get both invoices done.
Thanks
D

Denise Massey Smith
Administrative Assistant
Whatcom County Planning and Development Services
5280 Northwest Drive
Bellingham, WA 98226
360-778-5906

Disclaimer: *The information contained in all correspondence with a government entity may be disclosable to third party requesters under the Public Records Act.*

From: Perry, Randel J NWS <Randel.J.Perry@usace.army.mil>
Sent: Tuesday, December 22, 2015 11:19 AM
To: Skip Sahlin
Cc: Walker, Michelle NWS; Eugenio, Francis
X NWS; Buck, John G COL NWS; Ari Steinberg; William Lynn (BLynn@gth-law.com);
Tyler Schroeder
(TSchroed@co.whatcom.wa.us); Alice Kelly
(AKEL461@ECY.WA.GOV)
Subject: RE: NWS-2008-260, Pacific International Terminals, Inc.

Document received

Randel Perry
Army Corps of Engineers, Seattle District
Regulatory NW Field Office
Bellingham, WA
(360) 734-3156 (office)
(360) 393-2867 (cell)

From: Skip Sahlin [<mailto:Skip.Sahlin@SSAMarine.com>]
Sent: Tuesday, December 22, 2015 10:17 AM
To: Perry, Randel J NWS <Randel.J.Perry@usace.army.mil>
Cc: Walker, Michelle NWS <Michelle.Walker@usace.army.mil>; Eugenio, Francis X NWS
<Francis.X.Eugenio@usace.army.mil>; Buck, John G COL NWS <John.G.Buck@usace.army.mil>; Ari Steinberg
<Ari.Steinberg@SSAMarine.com>; William Lynn (BLynn@gth-law.com) <BLynn@gth-law.com>; Tyler Schroeder
(TSchroed@co.whatcom.wa.us) <TSchroed@co.whatcom.wa.us>; Alice Kelly (AKEL461@ECY.WA.GOV)
<AKEL461@ECY.WA.GOV>
Subject: [EXTERNAL] NWS-2008-260, Pacific International Terminals, Inc.

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Feel free to call or email Ari Steinberg or myself if you have questions or want to discuss the application.

REFERENCE PROJECT NUMBERS:
NWS-2008-260, Pacific International Terminals, Inc.

Sincerely,
Skip Sahlin
(800) 422-3505 | (206) 654-3510
1131 SW Klickitat Way | Seattle, WA 98134

From: Kelly, Alice (ECY) <AKEL461@ECY.WA.GOV>
Sent: Wednesday, December 23, 2015 1:21 PM
To: Tyler Schroeder
Subject: RE: SSA JARPA

I got a public disclosure request from Tom for the JARPA.

Do you know how Tom knew there was an updated JARPA?

-----Original Message-----

From: Tyler Schroeder [<mailto:tschroed@co.whatcom.wa.us>]
Sent: Wednesday, December 23, 2015 1:10 PM
To: Randel J NWS Perry; Kelly, Alice (ECY)
Cc: Baldi, Josh (ECY)
Subject: FW: SSA JARPA

FYI, I will respond when I get back into the office but wanted to forward it onto the both you. The County has already responded to the proposed revised layout when the Alternatives Report was submitted in last year.

Here is the link to that response; <http://whatcomcounty.us/DocumentCenter/Home/View/2696> . There may be some information in regards to the "Port Operations and Safety Plan to Facilitate Tribal Fishing" that needs to be incorporated into the permit application to the County but I will need to do more research on that.

This brings up the point on whether or not we will be coordinated a press release or media response with this latest submittal.

Talk to you both in a week or so and enjoy your holidays!

Tyler R. Schroeder
Whatcom County Executive Office's Project Manager

Whatcom County Executive's Office
311 Grand Avenue, Suite 108
Bellingham, WA 98225
Ph 360 778 5207

Disclaimer: Public documents and records are available to the public as required under the Washington State Public Records Act (RCW 42.56). The information contained in all correspondence with a government entity may be disclosable to third party requesters under the Public Records Act.

-----Original Message-----

From: Tom Ehrlichman [<mailto:tom@dykesehrlichman.com>]
Sent: Wednesday, December 23, 2015 11:43 AM
To: Tyler Schroeder
Cc: Barbara Dykes Ehrlichman
Subject: SSA JARPA

Tyler,

Does SSA's resubmittal of its JARPA yesterday also change or constitute a replacement of their current applications to Whatcom County for the Cherry Point facility (shoreline and major development)?

Please also forward us copies of any letters or emails from SSA clarifying or commenting on this very question.

As always many thanks for your effort to conduct a transparent process by sharing this type of information with us and the public.

Tom Ehrlichman

Sent from Tom Ehrlichman's mobile device.

From: Kelly, Alice (ECY) <AKEL461@ECY.WA.GOV>
Sent: Wednesday, December 23, 2015 1:25 PM
To: Tyler Schroeder
Subject: RE: SSA JARPA

He left me a voicemail a few weeks ago with a question about "the permitting process". It seems he knew more than we did.

Is the County going to post the new JARPA on your website?

-----Original Message-----

From: Tyler Schroeder [<mailto:tschroed@co.whatcom.wa.us>]
Sent: Wednesday, December 23, 2015 1:22 PM
To: Kelly, Alice (ECY)
Subject: RE: SSA JARPA

Nope, news travels fast. That why I sent it onto you. First time I have heard from Tom in many months....

Tyler R. Schroeder
Whatcom County Executive Office's Project Manager

Whatcom County Executive's Office
311 Grand Avenue, Suite 108
Bellingham, WA 98225
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Sent: Wednesday, December 23, 2015 1:10 PM
To: Randel J NWS Perry; Kelly, Alice (ECY)

Cc: Baldi, Josh (ECY)
Subject: FW: SSA JARPA

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Whatcom County Executive Office's Project Manager

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Sent: Wednesday, December 23, 2015 11:43 AM
To: Tyler Schroeder
Cc: Barbara Dykes Ehrlichman
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Please also forward us copies of any letters or emails from SSA clarifying or commenting on this very question.

As always many thanks for your effort to conduct a transparent process by sharing this type of information with us and the public.

Tom Ehrlichman

Sent from Tom Ehrlichman's mobile device.



**Pacific International
Terminals**
A Carrix Enterprise

1131 SW Klickitat
Way Seattle
Washington 98134
800/422-3505
tel 206/623-0179
fax www.carrix.com

November 2, 2015

J.E. "Sam" Ryan, Director
Whatcom County Planning & Development Services
5280 Northwest Drive
Bellingham, Washington 98226

RE: Assignment of Agreement for Reimbursement of Whatcom County's Costs and Fees

Dear Ms. Ryan:

We represent Pacific International Terminals, Inc. which is a party to the Agreement between Whatcom County, Pacific International Terminals, Inc., and BNSF Railway Company for Reimbursement of Costs and Fees, dated June 12, 2012, Whatcom County Contract No. 201205029 ("Agreement"). The Agreement pertains to the reimbursement of costs and fees incurred by the County in preparing and processing permitting documents related to the Gateway Pacific Terminal project.

This is to advise you that the interests of Pacific International Terminals, Inc. in the Gateway Pacific Terminal project, and the real property where the terminal will be located, are being transferred to Pacific International Holdings, LLC, a wholly owned subsidiary of Pacific International Terminals, Inc. The undersigned will continue to have signature authority for this new entity.

Under paragraph 3.12, the Agreement binds "all successors and assigns to Pacific International Terminals, Inc." We do not believe a formal amendment of the Agreement is necessary. However, if you would like to sign an amendment, we have included a proposed amendment that would formally substitute Pacific International Holdings, LLC for Pacific International Terminals, Inc. under the Agreement. By copy of this letter, we are also providing BNSF with notice of this change and requesting an executed copy of the amendment if you believe it is necessary.

You should anticipate that future communications concerning these matters will be from Pacific International Holdings, LLC, rather than from Pacific International Terminals, Inc. Your communications should be addressed to the new entity, as well.

We would appreciate it if you would make any changes in your file necessary to note this development and to advise appropriate staff representatives. If you have any questions concerning this, please contact the undersigned.

PACIFIC INTERNATIONAL TERMINALS, INC.

Bob Watters
Its:

Enclosure

cc: Skip Kalb, BNSF Railway
Ari Steinberg, Pacific International Terminals

From: Tyler Schroeder <tschroed@co.whatcom.wa.us>
Sent: Thursday, December 17, 2015 2:21 PM
To: Arden Landry; Tawni Helms
Subject: FW: Pacific International Terminals Entity Change
Attachments: Whatcom County Pacific International Terminals LLC Notification.pdf

FYI, this amendment may be coming into our office in the next couple of weeks. I have discussed it with Royce and it can be prepared for Jack's signature when ready. No rush on the amendment just wanted to let the both of you know in case it comes in when I am out of the office.

Thanks,

Tyler R. Schroeder
Whatcom County Executive Office's Project Manager



Whatcom County Executive's Office
311 Grand Avenue, Suite 108
Bellingham, WA 98225
Ph 360 778 5207

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From: Tyler Schroeder
Sent: Thursday, December 17, 2015 2:19 PM
To: 'Ari Steinberg'
Cc: skip.kalb@bnsf.com; Bill Lynn (BLynn@gth-law.com); James M. Lynch (jim.lynch@klgates.com); Royce Buckingham
Subject: RE: Pacific International Terminals Entity Change

Ari,

In review of the letter recognizing the change in entity to the agreement for reimbursement contract, Whatcom County would like to have the attached amendment signed by all parties. Please prepare signature of the amendment and send signed copies to my attention at the address below. My understanding is that we had 3 signature copies so that all parties kept an original. Thanks and I look forward to the signed amendment as soon as you are able to get this accomplished. Once I have the copies I will send back the signed originals with the County signature.

Please let me know if you have any questions.

Thanks,

Tyler R. Schroeder
Whatcom County Executive Office's Project Manager



Whatcom County Executive's Office
311 Grand Avenue, Suite 108

Bellingham, WA 98225
Ph 360 778 5207

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From: Ari Steinberg [<mailto:Ari.Steinberg@SSAMarine.com>]

Sent: Tuesday, November 03, 2015 5:48 PM

To: Tyler Schroeder

Subject: Pacific International Terminals Entity Change

Tyler,

As we discussed yesterday here is the letter sent to Sam Ryan this morning.

Let me know if you have questions.

Thanks,

Ari

From: Tyler Schroeder <tschroed@co.whatcom.wa.us>
Sent: Wednesday, December 16, 2015 10:48 AM
To: Jenifer Young (JYoung@parametrix.com); letitia@wheelerconsulting.net
Cc: Tony.Woody@CH2M.com; alice kelly
(alice.kelly@ecy.wa.gov); Randel J NWS Perry
Subject: FW: Rail Crossing Study Analysis Chapter
Attachments: AnalysisChapter.docx; Skagit Rail Crossing Study (2).pptx

FYI

Tyler R. Schroeder
Whatcom County Executive Office's Project Manager



Whatcom County Executive's Office
311 Grand Avenue, Suite 108
Bellingham, WA 98225
Ph 360 778 5207

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From: Mark Personius
Sent: Friday, December 11, 2015 9:22 AM
To: Joe Rutan; Roland Middleton
Cc: Gary Davis; Tyler Schroeder; Jon Hutchings
Subject: FW: Rail Crossing Study Analysis Chapter

FYI. Rail Crossing Study done for Skagit Council of Governments.

From: Shambaugh, John E. [<mailto:ShambaJ@wsdot.wa.gov>]
Sent: Thursday, October 29, 2015 7:35 AM
To: Carlson, Todd; Drye, Jay; Harrison, Todd; Swires, Dina
Cc: Koidal, Mike; Stacey, Tom F.; Sjostrom, Elizabeth
Subject: FW: Rail Crossing Study Analysis Chapter

For your review and consideration I have attached a document we received from SCOG regarding at-grade rail crossing. I have also attached the PowerPoint presentation that was sent our last week, which is referenced in the email below. Please let me know if you have any comments or questions and I will gather them up and forward them to SCOG.

John Shambaugh
WSDOT NW Region/Mount Baker Area
Skagit, Island, San Juan and Whatcom Counties
Phone: 360.757.5981

From: Gabe Philips [<mailto:gabep@scog.net>]
Sent: Wednesday, October 28, 2015 3:52 PM
To: Paul Randal-Grutter ; Mark Freiburger PE [mfreiburger@ci.sedro-woolley.wa.us]; Love, Mikael; Marv Pulst (marvp@burlingtonwa.gov); Shjarback, Eric; Shambaugh, John E.
Subject: Rail Crossing Study Analysis Chapter

Attached is the Analysis Chapter of the Skagit Rail Crossing Study. Parametrix presented the findings at last week's Transportation Policy Board meeting and there was a lot of interest from the Board members. Please let me know if you have any comments.

SCOG staff will be meeting with Parametrix next week to identify potential mitigation strategies. We expect the report to be complete by the end of November.

Gabe Philips
Transportation Planner
Skagit Council of Governments
(360) 416-6678
gabep@scog.net

NOTICE OF PUBLIC DISCLOSURE: This email account is public domain. Any correspondence to or from this email account may be a public record. As such, this email, in whole or in part, may be subject to disclosure pursuant to RCW 42.56, regardless of any claim of confidentiality or privilege asserted by an external party.

From: Tyler Schroeder <tschroed@co.whatcom.wa.us>
Sent: Wednesday, December 09, 2015 7:40 PM
To: Jenifer Young
Subject: Re: GPT/Custer Spur: SEPA: Transportation
Attachments: image003.png; image005.png; image006.png

Webex will have to do. Should work fine!

Tyler

Sent from my mobile phone

On Dec 9, 2015, at 6:43 PM, Jenifer Young <JYoung@parametrix.com> wrote:

Hi Tyler, per our discussion I've scheduled 10-noon on the 18th for our meeting. Unfortunately, Letitia can't make it in person that day, though she could call in. She's available in person the 15th and the 21st, but I can't do either of those and I'm not sure about Tony. OK with you if we set up a WebEx?

Thanks!

Jenifer

Parametrix

ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

Jenifer Young

Division Manager, Environmental Planning & Compliance

719 2nd Avenue, Suite 200

Seattle, WA 98104

206.394.3718 | desk

206.369.5764 | cell

JYoung@Parametrix.com

From: Tyler Schroeder [<mailto:tschroed@co.whatcom.wa.us>]

Sent: Wednesday, December 9, 2015 12:11 PM

To: Jenifer Young

Subject: FW: GPT/Custer Spur: SEPA: Transportation

Jenifer,

Can we schedule a meeting with Mainline and the CH transportation group to discuss this report with Whatcom County Public Works? I would like to see if Dec. 18th between 9-noon and 1-3, or sometime during those times.

Thanks,

Tyler R. Schroeder

Whatcom County Executive Office's Project Manager

<image003.png>Whatcom County Executive's Office
311 Grand Avenue, Suite 108
Bellingham, WA 98225
Ph 360 778 5207

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From: Tyler Schroeder
Sent: Wednesday, December 02, 2015 8:21 AM
To: Joe Rutan; Mike Donahue; Rodney Vandersypen
Cc: Jon Hutchings; Sandy Petersen
Subject: FW: GPT/Custer Spur: SEPA: Transportation

Joe, Mike and Rodney,

Attached is the Draft GPT Rail Study and Technical Transportation Report. You have reviewed the rail study but the TTR is classifying the grade crossing and looking at impacts. Please focus review on the local sections of the study since this is a statewide analysis. The comments are due back by Dec. 22nd, which is a quick turnaround and there is an excel spreadsheet for comment tracking.

If you would like a meeting to discuss this in more detail I am open for that, just let me know.

Please Note: This report is still deliberative draft and is not releasable to the public. Please do not share this report.

Tyler R. Schroeder
Whatcom County Executive Office's Project Manager

<image005.png>Whatcom County Executive's Office
311 Grand Avenue, Suite 108
Bellingham, WA 98225
Ph 360 778 5207

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From: GPTSubmittalReviewCo@ch2m.com [<mailto:GPTSubmittalReviewCo@ch2m.com>]
Sent: Tuesday, December 01, 2015 10:28 AM
To: Tyler Schroeder; AKEL461@ECY.WA.GOV; Randel.J.Perry@usace.army.mil
Subject: GPT/Custer Spur: SEPA: Transportation

GPT/CUSTER SPUR: SEPA REVIEW TRANSMITTAL FORM	<image006.png>
TO: Tyler Schroeder, Whatcom County	FROM: GPT SEPA Review GPTSubmittalReviewCo@ch2m.com

(tschroed@co.whatcom.wa.us);

Alice Kelly, Department of
Ecology

(AKEL461@ECY.WA.GOV);

Randel Perry, USACE

(Randel.J.Perry@usace.army.mil)

DATE SENT: Tuesday, December 1, 2015

COMMENTS Tuesday, December 22, 2015
DUE:

DOCUMENT TITLE: Transportation Technical Report

TYPE OF REVIEW: Co-Leads Review

INSTRUCTIONS:

Comments are due 15 business days after this email is received. Please use the attached spreadsheet; if you do not have comments to add, a "no comments" response must be submitted.

For any questions regarding the SEPA document review process, please email us at GPTSubmittalReviewCo@ch2m.com.