APPENDIX A

MARKET FORCES AND REVENUE ESTIMATES FOR WHITTIER INTERMODAL DEVELOPMENT

Prepared by
Northern Economics Inc.

Whittier Intermodal Development: Market Forces and Revenue Estimates

Draft

has this been finalized

Prepared for

Alaska Railroad Corporation

and

~~**Peratrovich Nottingham and Drage**~~

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1 Introduction

In this report, we update an earlier evaluation by Northern Economics, Inc. of the market forces shaping overall demand for the passenger and freight services provided by the Alaska Railroad Corporation (ARRC) in Whittier, Alaska. Our goal is to describe the various market forces at work in Whittier as well as the complementary nature or points of conflict between the market forces. The report includes sections on the freight industry, cruise ship industry, and tour industry (including day cruise operators and small charter operators).

Our earlier analysis was conducted in 1999 before the Anton Anderson Tunnel opened to vehicle traffic on June 7, 2000. Since 1999, other changes have occurred, including ongoing construction of a new cruise ship dock and a 20,000 square foot Cruise Ship Embarkation Building by private developers. In this report, we describe some of the changes in market forces operating in Whittier since our 1999 report and identify potential market opportunities for the future.

This report also provides forecasts of revenues that may be earned in the freight, cruise, and day tour service markets in Whittier for the period of 2004 to 2025. Forecasts related to rail ridership, land leasing, dock usage, and other ARRC revenue sources are based on illustrative scenarios. For example, forecasts for rail ridership are based on assumptions about growth in the cruise ship industry and the tour and charter industry, acceptance of rail for transport to and from cruise ships, and other factors. The scenarios take into account the considerable uncertainty associated with looking 25 years into the future. They are designed to show potential impacts of various markets on ARRC revenues. Due to uncertainties surrounding the type of equipment that might be used and other factors, no attempt is made to estimate costs or net revenues ARRC might earn in the different markets.

A summary of our findings is presented in Table 1. Passenger rail revenue is attributable to both cruise ship and day tour customers who may choose to use the train for transportation into or out of Whittier. Dockage and boat fee revenues are revenues from day passenger boats that land and sail from Delong Dock. Currently the Delong Dock is the only dock owned and operated by the ARRC (the city also owns a portion of Delong Dock). Parking lot revenues are revenues from the new parking lot that is being developed on ARRC owned land by Alaska Recreation Incorporated.

Table 1. Summary of Annual Revenues for Major Revenue Items –

	Freight Transport Revenue	Passenger Rail Revenue	Dockage and Boat Fee Revenues	Parking Lot Revenues	Land Lease Revenues	Total Annual Revenues
2004	4,807,000	1,473,000	17,000	6,000	218,000	6,521,000
2005	4,860,000	2,602,000	17,000	14,000	1,249,000	8,742,000
2006	4,914,000	2,777,000	58,000	17,000	1,311,000	9,077,000
2008	5,022,000	3,046,000	69,000	25,000	1,446,000	9,608,000
2010	5,134,000	3,530,000	69,000	56,000	1,594,000	10,383,000
2015	5,590,000	4,443,000	117,000	91,000	2,034,000	12,275,000
2020	6,088,000	5,637,000	151,000	195,000	2,596,000	14,667,000
2025	6,630,000	7,247,000	164,000	261,000	3,314,000	17,616,000

Total ARRC annual revenues from various activities in the Whittier area are substantial and have the potential to increase substantially in future years. The following sections describe the freight, cruise

ship, and day tour markets of Whittier. Forecasts of potential revenues for ARRC are provided, along with explanations of the scenarios and assumptions that shape the forecasts.

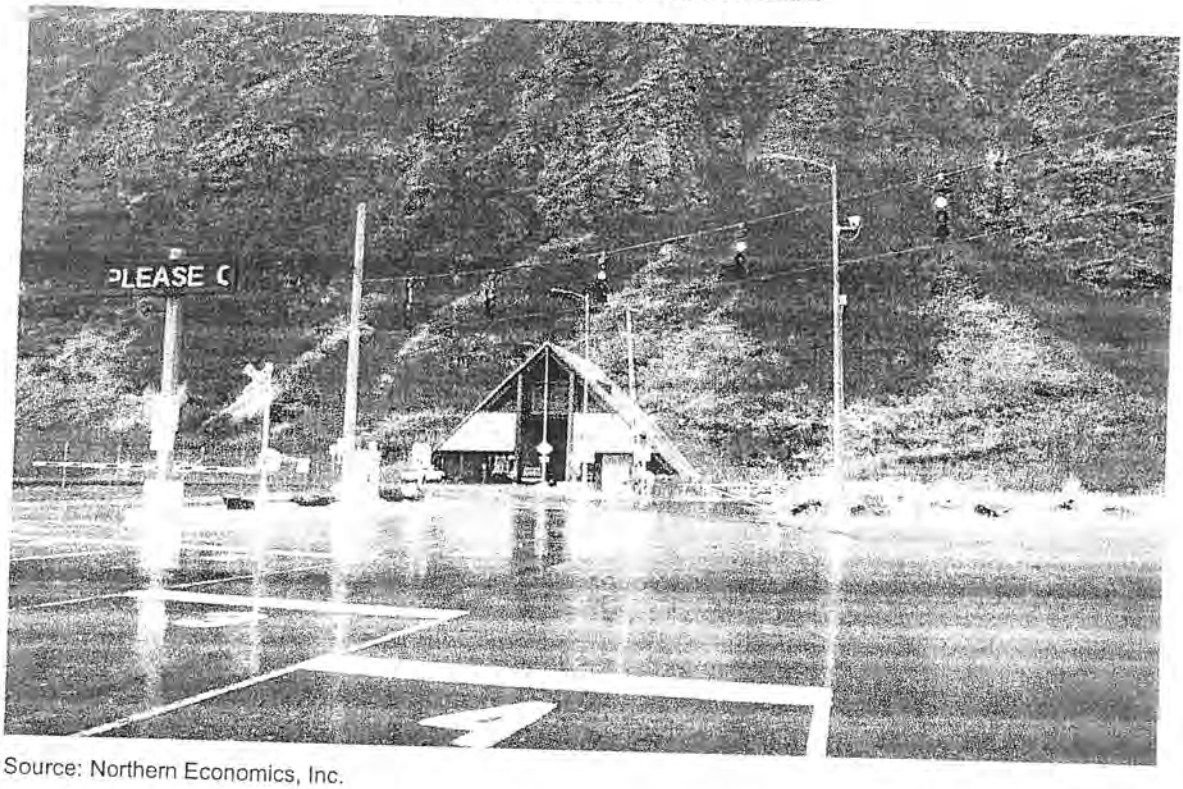
1.1 New Infrastructure and Other Development Activities in Whittier

1.1.1 Anton Anderson Memorial Tunnel

The biggest change in Whittier since 1999 is related to access. The Anton Anderson Memorial Tunnel and road connection opened to vehicle traffic in June 2000. The tunnel was reconstructed to accommodate both rail and highway vehicles. For the first time, residents and visitors were able to drive in and out of Whittier without having to load their vehicles on and off railroad cars. The Whittier tunnel is the longest rail and highway tunnel in North America and the first dual-use tunnel in the United States. The tunnel, including associated vehicle staging areas, and the section of the road commonly known as the Portage Glacier Highway between milepost 5.1, near Portage Creek, Alaska, and the Whittier Ferry Terminal, is designated as a toll facility (Title 17 Alaska Administrative Code 38.005). According to 17 AAC 38.020, the Department of Transportation does not collect tolls for passengers, motor vehicles, or freight traveling on ARRC. Toll collection began April 1, 2001.

The tunnel offers one-way travel for highway vehicles. Due to safety precautions, vehicles do not travel through the tunnel on a first come, first serve basis. Instead, vehicles travel according to their class. Passenger autos go first. Buses and commercial trucks travel through the tunnel at greater intervals in between because of their greater potential for fire load than cars. The number of buses in the tunnel at any one time is limited so there is always ample room for bus passengers in the safe houses along the tunnel. Commercial trucks go last, so that the fewest possible number of vehicles and people are behind slower moving trucks, and the maximum number of vehicles can move through the tunnel each cycle opening. A total of 800 cars can travel through the tunnel during each opening, 400 in each direction.

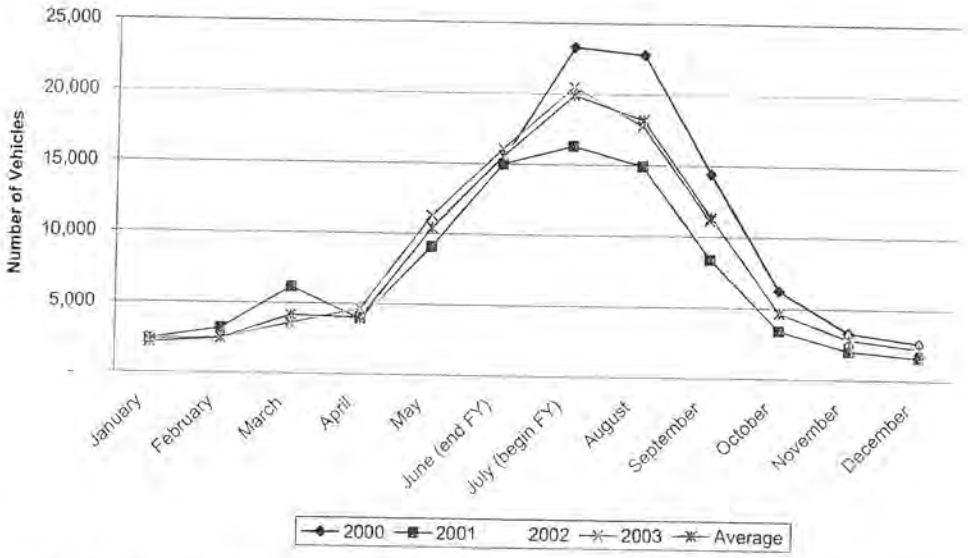
Figure 1. Anton Anderson Memorial Tunnel



Source: Northern Economics, Inc.

Figure 2 shows the total volume of traffic for all vehicle classes traveling through the tunnel. Of note when examining the following traffic counts, is that the Alaska Department of Community and Economic Development certified population count for Whittier in 2002 is 170 individuals. The high traffic counts in summer months attest to the importance and magnitude of the tours, charters, sport fishing, and other recreational activities to Whittier. Tolls were not charged for the first 10 months of operation, which accounts for the high vehicle counts during the summer of 2000.

Figure 2. Volume of Traffic through the Anton Anderson Tunnel, FY 2000 to FY 2003



Source: Facility Manager Gordon S. Burton, Alaska Department of Transportation and Public Facilities.

As of October 2003, the toll for private vehicles is $12, recreational vehicles tolls are either $20 or $35 depending on size and other factors, $125 for buses that carry 30 or more people, $125 for most tractor and trailer trucks, and $300 for oversize vehicles (see Table 2). Coupon books can be purchased that bring the cost for personal vehicles down to $10, buses that carry more than 30 people to $100, and tractor trailer trucks to $115.

Table 2. Tolls for Anton Anderson Memorial Tunnel

Vehicle Class	Toll	Book Of Ten Tickets	Book Of Thirty Tickets	Seasonal Pass
Class A – Passenger vehicles not pulling trailers; motorcycles, and motorcycles pulling trailers; trucks with a gross vehicle weight of less than 12,000 pounds and not pulling trailers; and recreational vehicles less than 28 feet and not pulling trailers.	$12	$100 ($10 per ticket)	$225 ($7.50 per ticket)	$550
Class B_1 – Recreational vehicles 28 feet or greater not pulling trailers; and recreational vehicles less than 28 feet pulling trailers; and passenger vehicles pulling trailers. Trailers in this class cannot be more than 8.5 feet wide or 14 feet high.	$20	$175 ($17.50/ ticket)	$450 ($15 per ticket)	—
Class B_2 – Recreational vehicles 28 feet or greater pulling trailers; vans and buses designed to carry more than nine but fewer than 30 people including the driver; trucks with fewer than four axles pulling trailers; and trucks with a gross vehicle weight of 12,000 pounds or more and fewer than four axles. Trailers in this class cannot be more than 8.5 feet wide or 14 feet high.	$35	$300 ($30 per ticket)	$750 ($25 per ticket)	—
Class C – Buses designed to carry 30 or more people including the driver.	$125	$1,150 ($115 per ticket)	$3,000 ($100 per ticket)	—
Class D – Trucks, including tractor and trailer combinations, with a gross vehicle weight of 12,000 pounds or more and four or more axles; motor vehicles, including any trailer and any load, if they are more than 8.5 feet wide, excluding mirrors, but not more than 10.0 feet wide and not more than 14.0 feet high and not more than 75 feet long; and any motor vehicle that is not otherwise classified in this section.	$125	$1,150 ($115 per ticket)	—	—
Class E – Motor vehicles, including any trailer and any load, if they are more than 10.0 feet wide, excluding mirrors, but not more than 11.0 feet wide; or 14.0 feet high, but not more than 15.0 feet high and not more than 75 feet long.	$300	—	—	—
Class F – Motor vehicles exempt from tolls, including Alaska Railroad Corporation motor vehicles, ADOT/PF motor vehicles, emergency vehicles, law enforcement vehicles, and other motor vehicles as determined to be appropriate by the commissioner for the best interest of the state.	$0	—	—	—
Class G – Government motor vehicles, other than government motor vehicles that fall within Class F, including a vehicle owned or operated by a government agency or school district and on official business, a school bus under contract with a school district and on official business, and other motor vehicles as determined to be appropriate by the commissioner for the best interest of the state.	$10	—	—	

Source: Anton Anderson Memorial Tunnel http://www.dot.state.ak.us/creg/whittiertunnel/schedule.htm. October 2003.

1.1.2 Private Development Projects

A new 600-foot floating dock for cruise ships and a 20,000 square foot Cruise Ship Embarkation Building (see Figure 3) are being built in Whittier, by Whittier Dock Enterprises LLC, an affiliate of Passage Canal LLC. Princess Cruise Lines is one of the partners in Whittier Dock Enterprises LLC, and, according to an informed source, has invested approximately $13 million in the new passenger

terminal and dock facilities. The Cruise Embarkation Building is built on land leased from the City of Whittier. The dock can accommodate a single cruise ship visit per day for ships up to 950 feet in length and 75,000 tons. Cruise passengers will arrive and/or leave Whittier by motor coach or rail. The development of a new dock large enough to accommodate large vessels was cited as a necessity for attracting cruise vessels to Whittier. A five-acre parking lot for buses and employees is planned.

A private condo-type marina with 150 slips is also under development by Passage Canal LLC. According to the web page for the Whittier Marina[1], Passage Canal Development LLC is the leaseholder from the City of Whittier and holds permits from state and federal agencies authorizing project construction. Peratrovich, Nottingham, and Drage, Inc. are assisting in all design and engineering matters as well as with permit compliance issues. The marina will be operated by Alaska Recreational Management, Inc., which has been operating parking and camping operations in Whittier since 2000.

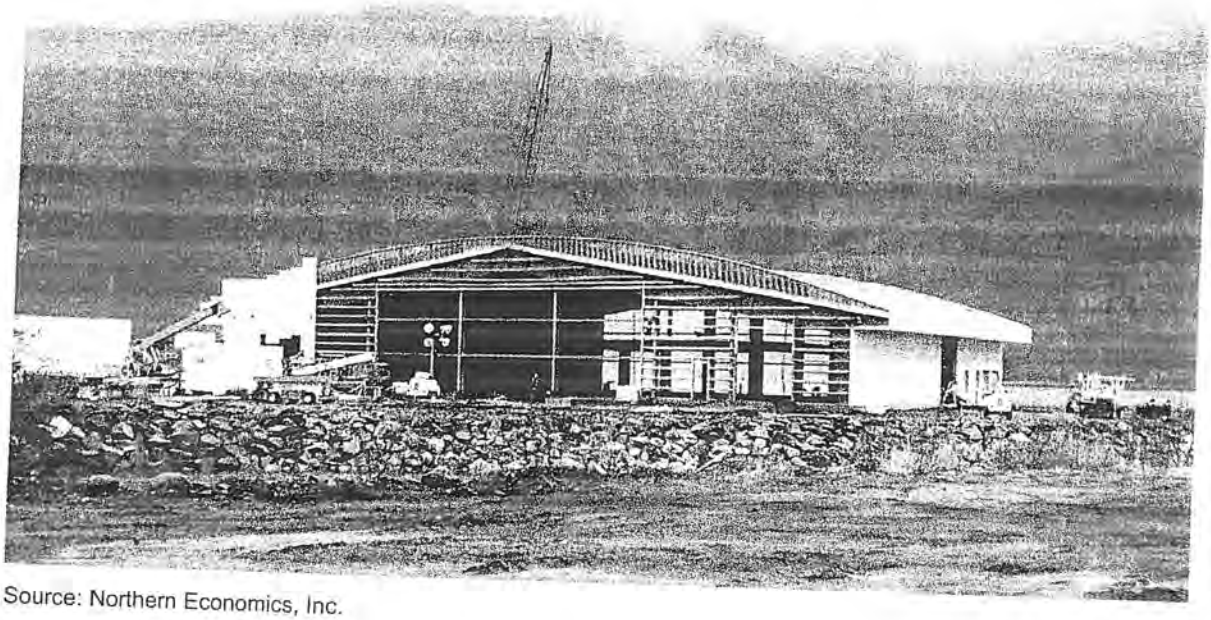
Passage Canal LLC also constructed a parking lot on Whittier Street at a reported cost of approximately one half million dollars. Reported plans for this lot include paving and installation of an oil/grease separator. Alaska Recreational Management, Inc. will manage the parking lot. RV camping has been moved from the Whittier waterfront to an upland site along Whittier Creek. Passage Canal LLC has plans for two other uplands projects. The firm plans to build commercial facilities to support day tour glacier operators using the new Whittier Marina. Construction of dry stack moorage facility is also contemplated on land it leases.

As of October 23, 2003, construction of a four-story, 25-room hotel in Whittier is scheduled to open in Winter 2003, but construction appears to have come to a halt (Figure 4). The Inn at Whittier was first scheduled to open in spring 2003.

Basic amenities such as water, sewer, and telephone are being extended to accommodate the businesses on the waterfront.

[1] http://www.whittiermarina.com/index-main.htm

Figure 3. New Cruise Embarkation Building under Construction, October 23, 2003



Source: Northern Economics, Inc.

Figure 4. The Inn at Whittier, October 23, 2003

Source: Northern Economics, Inc.

1.1.3 ARRC Projects

ARRC has completed several projects in Whittier since our earlier report. In summer 2003, ARRC completed construction of a $2.225 million facility in Whittier for year-round storage and maintenance of its heavy equipment such as graders and bulldozers. The Federal Transit Administration (FTA) provided 80 percent of the funding and ARRC provided 20 percent of the funding for construction of the 4,793 square foot maintenance building and for demolition and removal of the outdated Transit Shed.

ARRC has also constructed a 300-foot long pedestrian underpass traversing the rail yard connecting the town of Whittier to the waterfront with a $2.285 million budget for design, construction, and construction management. ARRC is also constructing a spur track that will increase the space available for arriving and departing trains. This new construction is in part due to the expectation that rail service will expand due to the arriving and departing passengers to the Whittier cruise terminal.

Improvements have also been made to the freight barge slip including the addition of two 34-foot dock structures alongside the slip, facilitating "pass-pass" unloading where the forklift on the barge passes containers to a forklift on the dock. Structural reinforcement and cathodic projections were carried out. These projects with an estimated budget of $42.26 million were funded by ARRC.

The Marginal Wharf was closed July 1, 2002. Using internal funds, ARRC is making improvements including fender piling, water, and electrical service to the DeLong Dock to accommodate tenants displaced by the closure of the Marginal Wharf. The DeLong Dock is owned by ARRC and the City of Whittier, but is operated by ARRC.

2 Freight

Barge traffic in and out of Whittier consists of a weekly ARRC/Alaska Railroad Marine Services rail barge and a Canadian National barge that calls in Whittier once every 11 or 12 days. The contract to pull three 420-foot rail barges between Whittier and Seattle for ARRC is currently held by Lynden Transport. The 425-foot single-deck barge that runs between Whittier and Prince Rupert, B.C., is pulled by Foss.

ARRC anticipates that planned freight activities can be accommodated with the acreage and facilities currently dedicated to freight operations. ARRC previously stated that no analysis needs to be conducted to compare the net benefits of using additional lands for freight activities versus other opportunities, such as supporting day tour activities or building a new berth for cruise ships.

2.1 Existing Freight Activity

ARRC/Alaska Railroad Marine Services (ARMS).

On February 28, 2001, ARRC signed a 10-year contract with Alaska Railbelt Marine LLC (ARM), a subsidiary of Lynden, Inc. chartering space for weekly, year-round service between Seattle and Whittier. Three 420-foot rail barges designed to carry about 50 rail cars each and other freight were constructed. The barges are equipped with rails so that the rail cars can be rolled on and off the barges. These rail barges provide a marine extension of the Alaska Railroad that links ARRC with freight-carrying railroads in the Lower 48 and Canada. In Whittier, the Alaska Railroad unloads the barges and the rail cars are then routed to their destination along the Alaska rail belt.

In spring 2002, the ARM barges were outfitted with steel-built rack systems to increase the vessel's cargo capacity. Cargo is stored in the airspace about the rail cars. ARM subleases space to Alaska Cargo Transport, which ships bulk cargo north and south through Whittier. The increased capacity provides benefits to the Alaska Railroad because increased capacity of the ARM vessels means more freight can move through Whittier.

A barge leaves Seattle every Wednesday and each barge takes approximately two weeks to complete the round trip, depending for the most part on weather. The ARM barges are towed by Western Towboat of Seattle. Table 3 presents data on arm freight activity for the first 10 months of 2003.

Canadian National Railway.

CN Aquatrain, a small division of the Canadian National Railway, has been shipping goods to Alaska between Prince Rupert Canada and Whittier, Alaska for over 40 years. CN Aquatrain makes about 32 rounds trips a year moving between 47 to 48 rail cars per barge trip. According to the CN AquaTrain web page, their clients in Alaska include ConocoPhillips Alaska, BP, Continental Nitrogen & Resources, Spenard Builders and Fort Knox Gold Mine. For example, tank cars of ammonium bisulfite are shipped from Beaumont, Texas to Fairbanks, Alaska, where it is used in the leaching process at the Fort Knox Gold Mine. The 830-mile trip from Prince Rupert to Whittier takes about four days and round-trip transit time is 10 days, including a stop in Anchorage. With the construction that could

result from building a natural gas pipeline, CN Aquatrain believes they are "likely to play an even larger role in the Alaskan economy."[2]

Barges for CN Aquatrain are leased from Foss Maritime in Seattle. CN personnel load the railcars onto the barges in Prince Rupert and ARRC workers unload the barges in Whittier and route them to their final destination. AquaTrain utilizes one of the largest railcar barges in the world, with eight 400-foot long tracks.

Table 3. Barge Related ARM Railcar and Tonnage Report January—October 2003

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Year To Date
North											
Railcars	180	139	119	177	150	173	157	139	119	152	1,505
Tons	15,402	12,289	9,875	14,690	9,814	11,107	12,808	12,106	10,221	13,475	121,787
South											
Railcars	46	35	41	52	30	26	20	37	65	49	401
Tons	2,319	1,798	2,779	3,565	1,674	1,873	1,227	2,155	4,109	2,972	24,471

Source: ARRC.

Table 4 shows the same information for the Canadian National AquaTrain. The cars that travel north generally go south the same month, but very rarely do they carry cargo south.

Table 4. Barge Related CN AquaTrain Railcar and Tonnage Report January—October 2003

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Year To Date
North											
Railcars	101	97	106	76	165	139	139	131	136	92	1,182
Tons	9,211	9,062	9,607	6,986	15,152	12,891	12,480	11,484	12,492	8,476	107,841

Source: ARRC.

Table 5 shows the number and tons of barge-related containers for January through October 2003. ACT, AML, and Dupont are the three largest container shippers of freight in Whittier.

[2] CN Aquatrain web page. Accessed at http://www.cn.ca/productsservices/aquatrain/en_KFAqautrain.shtml on October 28, 2003.

Table 5. Barge Related Containers, Number and Tons, January-October 2003

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Year To Date
ACT											
Containers	475	536	510	539	623	434	344	602	392	320	4,775
Tons	8,125	9,303	8,040	8,788	10,257	7,350	5,319	9,496	5,739	4,143	76,560
AML											
Containers	81	117	327	455	278	272	441	303	211	122	2,607
Tons	1,816	3,077	7,245	8,207	6,913	6,512	9,262	7,339	5,248	2,655	58,273
Dupont											
Containers	6	3	3	6	3	6	6	6	3	0	42
Tons	138	66	66	132	66	138	132	132	70		940
Other											
Containers	-	-	-	-	-	-	1	-	-	9	
Tons	-	-	-	-	-	-	25			225	
Total											
Containers	562	656	840	1,000	904	713	791	911	606	451	7,434
Tons	10,078	12,446	15,351	17,127	17,236	14,024	14,714	16,968	11,057	7,023	136,024

2.2 Related Transportation Activity and Revenues

2.2.1 Related Train Activity

ARRC/Alaska Railroad Marine Services (ARMS)

The weekly ARRC barge is currently supported by two to four trains, depending on the tonnage of freight. Some barges require only one train for unloading and one train for loading (for a total of two trains), while other barges require two trains for unloading and two trains for loading. The barges have a turnaround time of approximately 20 hours. Previous turnaround time was approximately 30 hours. This decrease means barges move faster and are very seldom late. The barges are not operating at full capacity

Canadian National

The Canadian barge is supported by two trains, one for unloading and one for loading. No changes are expected in the near future in terms of the number or size of trains.

2.2.2 Related Truck Activity

ARRC currently has a commitment from Lynden that 85 percent of Lynden's freight will be transported to and from Whittier on the railroad. Most of the freight that leaves Whittier on trucks is headed south down to the Kenai Peninsula where there are no rail lines.

Table 6 shows the vehicle counts for Class D Motor vehicles going through the Anton Anderson Tunnel for 2000 through October 2003. Class D includes tractor-trailer trucks. In our earlier report, it was assumed that truck traffic through the tunnel would increase, but no clear trends are shown in the table. Traffic counts for the first six months of operation are higher than the comparable months in the following years, but this is true for all types of vehicles because the tunnel was free for the first 20 months of operation.

Table 6. Vehicle Counts for Class D Motor Vehicles

	Number of Vehicles			
Year	2000	2001	2002	2003
January	-	103	20	49
February	-	148	52	74
March	-	167	71	75
April	-	113	96	142
May	-	227	264	282
June	563	316	333	305
July	357	227	374	365
August	331	167	238	313
September	465	127	301	150
October	211	79	177	N/a
November	147	43	172	N/a
December	95	42	136	N/a
Total	2,169	1,759	2,234	1,755

Class D includes trucks, including tractor and trailer combinations, with a gross vehicle weight of 12,000 pounds or more and four or more axles, motor vehicles, including any trailer and any load, if they are more than 14 feet high, and not more than 75 feet long; and any motor vehicles that is not otherwise classified in this section.
Source: Facility Manager Gordon S. Burton, Alaska Department of Transportation and Public Facilities.
N/a: Not Available

2.2.3 Freight Revenues

A simple forecast of freight revenue from 2004 to 2025 is provided in Table 7. This forecast is based on ARRC operating revenues, and expected population growth[3]. The high, base and low projections are based on high, base and low population growth projects. Figure 5 shows freight revenue growth in a graph format.

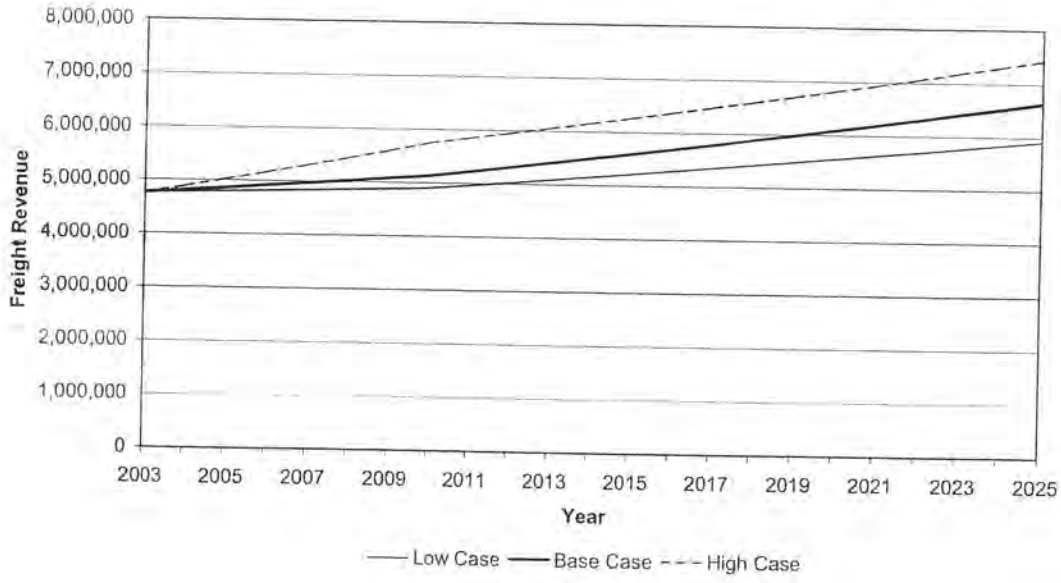
[3] Operating revenue obtained from Alaska Railroad Annual Report 2002 http://www.akrr.com/corporate/annual_reports.html.

Table 7. Possible ARRC Freight Revenue, 2003 to 2025

	Population Change (%)			Revenue ($)		
	Low	Base	High	Low	Base	High
2003				4,755,000	4,755,000	4,755,000
2004	0.43	1.1	2.75	4,776,000	4,807,000	4,886,000
2005	0.43	1.1	2.75	4,796,000	4,860,000	5,020,000
2006	0.43	1.1	2.75	4,817,000	4,914,000	5,158,000
2008	0.43	1.1	2.75	4,858,000	5,022,000	5,446,000
2010	0.43	1.1	2.75	4,900,000	5,134,000	5,750,000
2015	1.26	1.72	1.72	5,217,000	5,590,000	6,261,000
2020	1.26	1.72	1.72	5,554,000	6,088,000	6,819,000
2025	1.26	1.72	1.72	5,913,000	6,630,000	7,426,000

Notes: Dollar values are shown in 2003 dollars. No adjustment has been made for inflation. Population change is based on ISER's projection for statewide population.

Figure 5. Freight Revenue Forecast Using Statewide Population Projection, 2003 to 2025



3 Cruise Industry

3.1 Cruise Ship Passenger Volumes and Landings

According to the Northwest Cruise Ship Association (NWCA) Alaska cruise sales are rebounding. NWCA attributes this rebound to aggressive marketing and some of the lowest pricing ever. In 1992, approximately 265,000 passengers took Alaska cruises. By 2003, that number of passengers per season increased to 777,000 (Table 8).

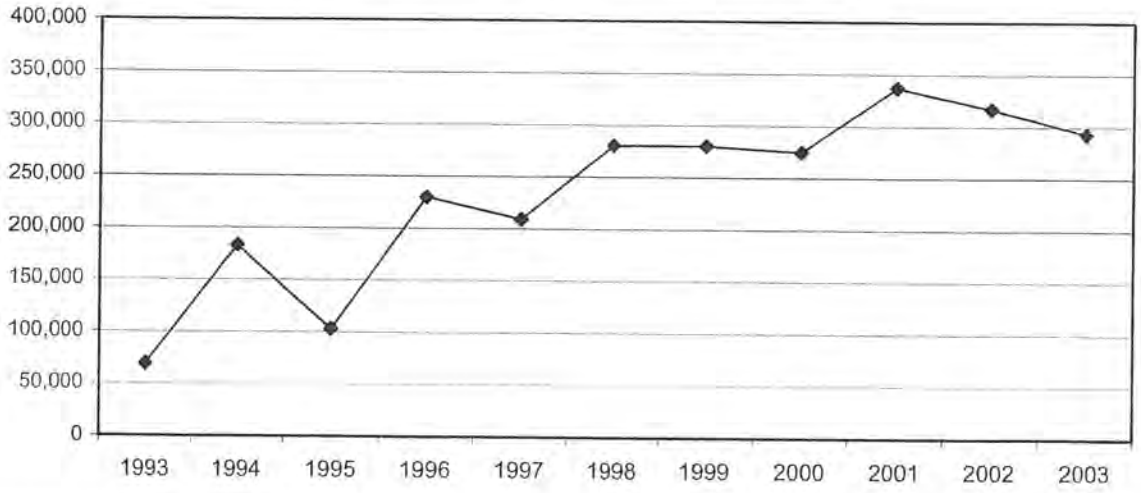
Table 8. Cruise Ship Passengers to Alaska, 1992 through 2003 (thousands)

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Number of Passengers	265	306	379	383	465	525	570	596	641	691	740	777

Source: Cruise Ship Agencies, October 2003.

A growing segment of the cruise market is composed of passengers who cruise in one direction, either north or south, across the Gulf of Alaska. Seward, Alaska has been the turn around point for these cruises. The typical Gulf of Alaska cruise (Vancouver B.C. to Seward, and return) has an average sailing schedule of 7 to 8 days one-way. Since 1993, the volume of passengers crossing the gulf has more than tripled, from approximately 70,000 in 1993, to over 337,000 in 2001, to roughly 290,000 in 2003 (Figure 6).

Figure 6. Passenger Counts for Seward, Alaska, 1993 through 2003



Source: Cruise Ship Agencies, October 2003.

In April 2003, the City of Whittier repealed a cruise-ship head tax and exempted ships above a certain length from any other fees including the seasonal sales tax and the $2.50 per passenger transport fee paid by day-cruise operators and charter vessels.

Princess Cruises is rerouting four ships from Seward to Whittier beginning summer 2004. These four ships will make 36 turn-arounds in Whittier, every Saturday and Sunday. Carnival Cruises is also planning to use Whittier as a turn-around point in summer 2004 for one ship and plans to land in Whittier eight times during the summer season (on alternate Wednesdays). Table 9 shows the date, day of the week, name of the ship, the ship's capacity, and arrival and departure times during summer 2004.

The first Princess ship will arrive on Saturday, May 15, and the last Princess ship, will leave from Whittier on Monday, September 13. Passengers on northbound trips from Vancouver, B.C. are expected to disembark around 9:00 a.m. Passengers boarding in Whittier for a south bound cruise will depart Whittier at 9:00 p.m. the same day. The Carnival ship's first arrival will be on May 26, 2004. If the Princess and Carnival ships operate at capacity arriving and departing from Whittier, approximately 177,300 passengers will be passing through Whittier in summer 2004.

Table 9. Cruise Arrivals and Departures for Whittier, Summer 2004

Date	Day of Week	Ship	Capacity	Arrive in Whittier	Depart from Whittier
May 15, 2004	Saturday	Coral Princess	1,974	9:00 a.m.	9:00 p.m.
May 17, 2004	Monday	Dawn Princess	1,998	9:00 a.m.	9:00 p.m.
May 22, 2004	Saturday	Island Princess	1,970	9:00 a.m.	9:00 p.m.
May 24, 2004	Monday	Sun Princess	2,022	9:00 a.m.	9:00 p.m.
May 26, 2004	Wednesday	Carnival Spirit	2,124	7:00 a.m.	9:00 p.m.
May 29, 2004	Saturday	Coral Princess	1,974	9:00 a.m.	9:00 p.m.
May 31, 2004	Monday	Dawn Princess	1,998	9:00 a.m.	9:00 p.m.
June 5, 2004	Saturday	Island Princess	1,970	9:00 a.m.	9:00 p.m.
June 7, 2004	Monday	Sun Princess	2,022	9:00 a.m.	9:00 p.m.
June 9, 2004	Wednesday	Carnival Spirit	2,124	7:00 a.m.	9:00 p.m.
June 12, 2004	Saturday	Coral Princess	1,974	9:00 a.m.	9:00 p.m.
June 14, 2004	Monday	Dawn Princess	1,998	9:00 a.m.	9:00 p.m.
June 19, 2004	Saturday	Island Princess	1,970	9:00 a.m.	9:00 p.m.
June 21, 2004	Monday	Sun Princess	2,022	9:00 a.m.	9:00 p.m.
June 23, 2004	Wednesday	Carnival Spirit	2,124	7:00 a.m.	9:00 p.m.
June 26, 2004	Saturday	Coral Princess	1,974	9:00 a.m.	9:00 p.m.
June 28, 2004	Monday	Dawn Princess	1,998	9:00 a.m.	9:00 p.m.
July 3, 2004	Saturday	Island Princess	1,970	9:00 a.m.	9:00 p.m.
July 5, 2004	Monday	Sun Princess	2,022	9:00 a.m.	9:00 p.m.
July 7, 2004	Wednesday	Carnival Spirit	2,124	7:00 a.m.	9:00 p.m.
July 10, 2004	Saturday	Coral Princess	1,974	9:00 a.m.	9:00 p.m.
July 12, 2004	Monday	Dawn Princess	1,998	9:00 a.m.	9:00 p.m.
July 17, 2004	Saturday	Island Princess	1,970	9:00 a.m.	9:00 p.m.
July 19, 2004	Monday	Sun Princess	2,022	9:00 a.m.	9:00 p.m.
July 21, 2004	Wednesday	Carnival Spirit	2,124	7:00 a.m.	9:00 p.m.
July 24, 2004	Saturday	Coral Princess	1,974	9:00 a.m.	9:00 p.m.
July 26, 2004	Monday	Dawn Princess	1,998	9:00 a.m.	9:00 p.m.
July 31, 2004	Saturday	Island Princess	1,970	9:00 a.m.	9:00 p.m.
August 2, 2004	Monday	Sun Princess	2,022	9:00 a.m.	9:00 p.m.

Date	Day of Week	Ship	Capacity	Arrive in Whittier	Depart from Whittier
August 4, 2005	Wednesday	Carnival Spirit	2,124	7:00 a.m.	9:00 p.m.
August 7, 2004	Saturday	Coral Princess	1,974	9:00 a.m.	9:00 p.m.
August 9, 2004	Monday	Dawn Princess	1,998	9:00 a.m.	9:00 p.m.
August 14, 2004	Saturday	Island Princess	1,970	9:00 a.m.	9:00 p.m.
August 16, 2004	Monday	Sun Princess	2,022	9:00 a.m.	9:00 p.m.
August 18, 2005	Wednesday	Carnival Spirit	2,124	7:00 a.m.	9:00 p.m.
August 21, 2004	Saturday	Coral Princess	1,974	9:00 a.m.	9:00 p.m.
August 23, 2004	Monday	Dawn Princess	1,998	9:00 a.m.	9:00 p.m.
August 28, 2004	Saturday	Island Princess	1,970	9:00 a.m.	9:00 p.m.
August 30, 2004	Monday	Sun Princess	2,022	9:00 a.m.	9:00 p.m.
September 1, 2004	Wednesday	Carnival Spirit	2,124	7:00 a.m.	9:00 p.m.
September 4, 2004	Saturday	Coral Princess	1,974	9:00 a.m.	9:00 p.m.
September 6, 2004	Monday	Dawn Princess	1,998	9:00 a.m.	9:00 p.m.
September 11, 2004	Saturday	Island Princess	1,970	9:00 a.m.	9:00 p.m.
September 13, 2004	Monday	Sun Princess	2,022	9:00 a.m.	9:00 p.m.
Total Passengers			88,668		

Source: Personal communications with Princess Cruises staff (October 2003), and Carnival Cruises staff (October 2003).

Comments about these new opportunities from cruise companies and others contacted for this report can be summarized as follows:

- Carnival Cruises will reroute their one cruise vessel that had previously docked in Seward to Whittier for the 2004 and 2005 summer seasons. Carnival Cruise lines has no plans to add an additional vessel to this cross-Gulf route within the next two years (their schedules have been set).
- Princess Cruises has two to three ships in construction at this time. Dependent upon customer demand, one or two of these ships may be added, or replace other ships, in the Alaska cross-Gulf fleet.
- Princess anticipates it will be necessary to have 54 landings of cruise ships at the Whittier Dock within the next two years, in order to receive an adequate return on the $13 million they are investing in the Whittier Cruise terminal development project (note: it was not established that these 54 landings would be by Princess ships only).
- Some crew members are expected to receive a day off while their ship is in port at Whittier. It is possible that these crew members will need transport into Anchorage, if they choose not to remain in Whittier for a full day. At this time, it is unknown how many cruise members will have the day off while in Whittier, and of that number how many may need transportation to or from Whittier.
- Cruise passengers are expected to spend very little time in Whittier, as it will merely be a transportation hub for arriving or departing cruise ships.

3.2 ARRC Potential Growth and Revenue Impact Attributable to Cruise Industry

The "wait-and-see" attitude that many cruise lines have with regards to future customer demand, means that no firm estimates of the number of cruise ships that might be expected to call in Whittier beyond 2004 are available. However, considering the large capital investment in the new cruise dock and terminal, and the continued growth in the Alaska cruise industry, considerable growth is expected to occur in the near term for cruise ship dockings in Whittier.

3.2.1 Passenger Growth

According to data provided by the Cruise Ship Agencies (October 2003) over the past ten years, the annual average growth has been 15.5 percent. However, over the past six years, annual average growth has been approximately one percent.

Table 10 presents potential cruise passenger growth at a 1 percent level, a 15.5 percent, and a mid-range 8 percent growth rate. Each growth rate starts at the expected 2004 passenger total of 177,300.

Table 10. Potential Cruise Passenger Growth

	1 Percent Growth	15.5 Percent Growth	8 Percent Mid-Range Growth
2004	177,000	177,000	177,000
2005	179,000	205,000	192,000
2006	181,000	237,000	207,000
2008	185,000	316,000	241,000
2010	188,000	421,000	281,000
2015	198,000	865,000	414,000
2020	208,000	1,779,000	608,000
2025	219,000	3,656,000	893,000
2030	230,000	7,515,000	1,312,000

Princess Cruises is hoping to have 54 landings within the next two to three years. Since they are one of the main investors in the cruise ship terminal, we expect that they will reach their goal of 54 landings by 2006. Due to the nature of the cruise industry and its dependency on generating customer demand, it is difficult to predict growth after 2006. Therefore, a mid-level growth rate is used rather than the low or high rates of growth, for growth occurring after 2006.

Table 11 presents the expected growth for cruise passengers and calls per year for Whittier, using the rationale described above.

Table 11. Expected Growth of Cruise Passengers and Calls/Year

	Number of Passengers	Calls per Year
2004	177,000	42
2005	200,000	48
2006	226,000	54
2008	264,000	61
2010	308,000	70
2015	453,000	98
2020	665,000	139
2025	977,000	195
2030	1,436,000	276

Calls per year, per week, and the estimated capacity for cruise ships landing at Whittier, are provided in Table 12. The capacity of ships is expected to increase, however, because more ships are currently being constructed in the 2,600 range. The number of these ships that will be added to the fleet docking at Whittier is unknown.

Table 12. Potential Cruise Vessel Call Schedule

	Calls per Year	Calls per Week	Capacity
2004	42	2.3	2,100
2005	48	2.7	2,100
2006	54	3.0	2,100
2008	61	3.4	2,160
2010	70	3.9	2,200
2015	98	5.5	2,300
2020	139	7.7	2,400
2025	195	10.9	2,500
2030	276	15.3	2,600

The widening of the tunnel for vehicle transportation has assisted Whittier in becoming a viable option for cruise ship calls. Future options for transporting passengers to and from cruise vessels include motor coaches and rail service. At this time, it is anticipated that besides the regular train that arrives and departs Whittier once per day (197 capacity), an additional 300 passenger capacity train will be added for days that the Princess and Carnival cruise ships are in Whittier. According to the ARRC, Princess Cruises has agreed to have at least 200 cruise passengers at each landing and sailing transported to and from Whittier via rail.

If one 300-passenger train is filled to capacity, approximately 36 motor coaches will still be needed to carry the remaining passengers to or from Whittier. Cruise industry representatives have expressed concern about delays associated with moving that many motor coaches through the tunnel. For example, the time it takes to move 36 motor coaches through the tunnel could negatively affect the ability of small business operators to transport their customers into or out of Whittier.

3.2.2 Gross Revenues Related to the Cruise Ship Industry

There are several potential sources for revenues related to the re-emergence of cruise ships to the Whittier area. Potential sources include dock related revenues, passenger transport revenues, retail sales, and land leases. Each source is described, and revenue potential is determined and quantified when possible.

3.2.2.1 Dock Related Revenues

A dock with space for a single cruise vessel could support seven vessel calls per week, translating to one vessel call per day. However, the preference of most cruise ship customers, as reported by industry sources, is to sail and land on the weekends. Thus, it is unlikely that vessel calls will occur everyday of the week. Further, as described earlier, 15 calls per week are expected. By 2025, cruise ship docking space will need to be expanded to accommodate this number of calls.

However, considering the circumstances surrounding Princess Cruises' decision to return to Whittier and to invest in a privately owned cruise ship dock and terminal facility, it is unclear what demand there may be for a future ARRC cruise ship dock in Whittier until 2015 or later. The fact that the new cruise ship dock and terminal are privately owned and that there will be no head fees and taxes related to the usage of the dock and facilities for the cruise line, was an appealing factor for relocation and investment of Princess Cruises in the Whittier facilities.

The new dock developed by Whittier Dock Enterprises is not owned by ARRC like the previous cruise ship dock at Whittier. The City of Whittier owns the property; therefore, no dock-related revenues are expected from the new dock for the ARRC. It is unclear what future opportunities may exist for the ARRC with regards to the restoration of the Marginal Wharf or other location that could suit the docking of a large cruise ship. However, according to ARRC, there are no plans to construct or restore a dock suitable for cruise ships.

3.2.2.2 Passenger Transport Revenues

The forecasts for rail ridership presented in this report are based on assumptions about growth in the cruise industry and the tour and charter industry as presented in the previous section. The forecasts of rail ridership for the cruise market are based on illustrative scenarios that take into account a wide range of factors, including the considerable uncertainty associated with looking 25 years into the future. While scenarios describe a potential future state, they are not precise predictions of the future. Instead, scenarios help to envision alternative futures, provoke strategic thought, identify underlying assumptions, illuminate uncertainties, and establish a framework for a shared vision of the future.

Passenger volumes on trains between Whittier and the Anchorage International Airport could be between 200 and 300 passengers per train. The maximum capacity of the train is 300, and Princess Cruises has agreed to minimum ridership of 200 per train. At this time, it expected that the ARRC will have one additional train (the Glacier Discovery) on each day that a cruise ship port call is scheduled in Whittier. It is assumed that if demand for rail transport grew, additional trains could be added.

No firm estimate of revenue per train passenger is available. For the purposes of this report, a rough estimate of $20 revenue per person each way is used. This is based on the knowledge that in 1999, cruise lines estimated that transporting passengers between Anchorage and Seward by motor coach costs, on average, $12.50 each way for each passenger. Although there are no cost estimates for transporting passengers between Whittier and Anchorage by motor coach, it is assumed that costs for transporting passengers between Anchorage and Whittier would be less, but not significantly less than

transporting between Seward and Anchorage, with the addition of tolls and waiting times. Therefore, the cost of $12.50 each way for each passenger is assumed to be a similar cost for transporting customers to and from Whittier and Anchorage.

Transportation by rail versus motor coach is considered an upgrade for cruise passengers; therefore, it is rationalized that customers will be charged a higher fair for riding the train, and it may be expected that the revenue per passenger on the train will be higher than that for passengers of a motor coach. Table 13 shows possible passenger volumes for rail with revenues at $20.00 per passenger per one-way trip. The $20.00 per passenger per trip charge is kept constant through 2025, assuming that it will maintain its value by increasing at the rate of inflation.

Table 13. Annual Revenue from Transporting Cruise Passengers by Rail

	Number of Calls	Number of Trains	Passengers per Train	Annual Revenues ($)
2004	48	96	260	499,000
2005	54	108	260	562,000
2006	61	122	260	634,000
2008	70	140	260	728,000
2010	98	196	260	1,019,000
2015	139	278	260	1,446,000
2020	195	390	260	2,028,000
2025	276	552	260	2,870,000

No attempt has been made to consider revenue-maximizing strategies in terms of ticket prices and passenger levels. For example, it is possible that train sets used to transport cruise ship passengers to and from the Anchorage International Airport or downtown Anchorage could also be used to transport day tour passengers the opposite direction. However, there is not enough information at this time on scheduling requirements or equipment to know if such dual use is feasible. Separate estimates for revenues related to transporting day tour passengers are provided in a subsequent section.

As the number of cruise ship calls increases, the number of trains required to transport customers to and from Whittier will also increase. This could provide ARRC an opportunity to increase train ridership, as well as expand services provided to cruise ship customers, such as add-on tours to other rail destinations in Alaska. Growth in calls, and the number of cruise passengers in general, could affect the infrastructure needs of the Whittier area. It could eventually become necessary to build a second tunnel to accommodate the increased demand for travel into and out of Whittier via trains, buses, and vehicles associated with growth in both cruse ship dockings, day tour customers, and other visitors to Whittier.

3.2.2.3 Retail Sales

Retail sales have not been established for the ARRC or forecasted at this time. It is likely that ARRC revenues from retail activities are diminutive at this time, however it is possible that this area of revenue could increase in the future. For example, if economic activity increases in Whittier due to the renewed cruise ship activity, the ARRC could benefit by leasing land or building space for retail shops adjacent or close to the cruise ship docks.

3.2.2.4 Land Leases-

The ARRC has 25 acres that are managed by the city and leased to private entities. The ARRC also leases five acres directly to the city, which is the land on which the main residence of the city is housed. The majority of residents in Whittier live in a large condominium complex that sits on this acreage.

Existing ARRC land leases call for 8 percent to 10 percent of appraised value. In Whittier, leases are currently $1.00 per square foot per month. In 2005, leases will be increased to 10 percent of fair market value. The current fair market value is $2.73 per square foot per month, and in 2005, the fair market value may be approximately $3.01 per square foot per month[4]. Whittier manages all lands owned by the ARRC, and the ARRC and city share the revenues from the leases. Private entities pay the city to lease lands from the railroad, and the railroad is then paid a percentage of city revenues earned through the leases. Currently the ARRC is paid 20 percent of city revenues from land leases. In 2005, this will increase to 40 percent.

The projected lease revenue is provided in Table 14, assuming a three percent rate of inflation and a two percent lease rate increase. The percentage paid to the ARRC and the potential ARRC gross revenues are also presented. The ARRC gross revenues are based on receiving a percentage of the city's revenues as explained above. The land available for lease remains constant at 25 acres per year. The five acres leased to the city by the ARRC is not considered in this analysis due to the expectation that this lease is negotiated under unique circumstances.

Table 14. ARRC Land Lease Revenues

	Lease Rate (per square ft.)	Lease Revenue Paid to ARRC (%)	ARRC Gross Revenue ($)
2004	1.00	20	218,000
2005	2.87	40	1,249,000
2006	3.01	40	1,311,000
2008	3.32	40	1,446,000
2010	3.66	40	1,594,000
2015	4.67	40	2,034,000
2020	5.96	40	2,596,000
2025	7.61	40	3,314,000

3.2.2.5 Summary of Revenues Related to Cruise Industry

Table 15 provides an estimate of total annual revenues related to cruise industry activities. Both ARRC passenger revenues and land revenues have the potential to increase beyond the levels forecasted here, dependent upon the growth of the cruise ship industry, as well as other related activities in the Whittier area.

[4] Assumes an annual three percent increase due to inflation, plus an annual two percent increase for a lease rate increase.

Table 15. Summary of ARRC Revenues

	ARRC Passenger Revenues	Land Lease Revenues	Total Revenues
2004	499,000	218,000	717,000
2005	562,000	1,249,000	1,811,000
2006	634,000	1,311,000	1,945,000
2008	728,000	1,446,000	2,174,000
2010	1,019,000	1,594,000	2,613,000
2015	1,446,000	2,034,000	3,480,000
2020	2,028,000	2,596,000	4,624,000
2025	2,870,000	3,314,000	6,184,000

4 Day Tour Activities

Several day tour activities take place in Prince William Sound and Whittier. Prince William Sound is a very popular destination for glacier viewing, as well as sea kayaking, fishing, and sightseeing in general.

4.1 Day Tour Operators

Large day tour operators are those that have large capacity boats and take multiple trips each week. Small day tour operators are considered to be those boats with a typical capacity of six passengers. Whittier has a variety of large and small day tour operators.

4.1.1 Large Day Tour Operators

At present, there are six major tour operators in Whittier—Phillips Cruises and Tours, Major Marine Tours, Cruise West, Prince William Sound Tours, CIRI, and Honey Charters. These operators see a mixture of opportunity and obstacles in Whittier, but expect growth to exceed five percent annual growth in the near term.

Descriptions of these six major operators are provided below.

Phillips Cruises and Tours. Phillips Cruises and Tours has one vessel with a capacity of 350 passengers. The speed of the vessel would allow Phillips to offer three trips per day, with a total capacity of 1,050 people per day. Phillips currently offers one trip per day, which is coordinated with ARRC shuttle schedules. They have an average passenger ridership of 250 to 275 per day. Phillips Cruises and Tours will be docking their boat next to the cruise ship dock next season.

Major Marine Tours. Major Marine has one vessel operating in Whittier with a capacity of 175 people and currently offers one tour per day. Their average customer load is 150 per trip. Major Marine is not planning additional sailings or a new, larger vessel in the near future. Major Marine Tours will also be docking their boat next to the cruise ship dock next season.

CIRI/Alaska Heritage Tours. This tour operator has a capacity of 150 per day, for either a 4-hour or 6-hour tour of the sound.

Prince William Sound Tours. Prince William Sound Tours has one vessel operating in Whittier. This vessel has a capacity of 100 people, but averages 75 people on their daily trip.

Cruise West. Cruise West has two vessels, with a combined capacity of 125, and average daily passengers of 100. These vessels are used for overnight trips of three to four days in length, and depart from Whittier twice per week during the summer season.

Honey Charters. Honey Charters has three boats with an overall capacity of 75 people. Honey Charters attributes over 90 percent of their business to providing shuttle service for sea kayakers. Therefore, they take an average of three trips per day during the summer season.

Growth in the day tour market could include new operators, but could also include growth of existing operators. In 1999, it was reported that the Whittier harbormaster had received calls from operators interested in providing new tour services in Whittier, some for vessels in the 80-passenger range. Currently, Passage Canal LLC is constructing a private marina that will provide 150 additional slips to house small to mid-size boats in Whittier. The availability of additional dock space is expected to

provide opportunity for more tour boat companies to operate out of the Whittier area, as well as opportunity for existing operators to expand their fleets.

4.1.2 Smaller Day Charter Operators

Numerous small charter operators take small groups on fishing trips and tours, provide water taxi service for kayakers, and offer other services. There were 30 such tour operators in 1999, and as of summer 2003 there were 33 small charter operators. With an average capacity of six passengers, approximately 200 people per day could come to Whittier for small day charter activities given the number of operators in 2003.

4.2 Related ARRC Revenues

Existing tour and charter volumes are approximately 750 people per day for larger day tour operators, and approximately 200 for smaller operators, for a total day tour capacity of approximately 950 passengers These passengers currently arrive by train, automobile, or motor coach, typically from Anchorage.

When contacted for comment, several tour operators mentioned that the current rail schedule with the mid-day arrival (12:20 p.m.), conflicts with their scheduled tour times. This translates into fewer customers using rail transport as a means to and from Whittier. Further, some of the tour operators offer motor coach transport to and from Whittier as part of their ticket price. Some tour operators have also voiced concern over conflicts between different modes of visitor transportation, and the coordination of vehicles, buses, trucks and trains through the tunnel. There is particular concern over how the transport of cruise ship passengers in and out of Whittier will affect their ability to move their own customers in and out of Whittier.

Many passengers on day tours will travel to and from Whittier by private automobile or motor coach. Still, the opportunity exists for the ARRC to transport a significant portion of the passengers by rail. Most of the operators interviewed for this report expressed interest in transporting their customers via train, especially if it is possible to coordinate train schedules with their tour schedules.

4.2.1 Rail Passenger Revenue Related to Day Tour Operators

Although day tour operators serve approximately 950 customers per day, this could increase rapidly, dependent upon customer demand and the ability of current operators to increase their capacity through additional trips each day, as well as additions to the fleet. Currently it is estimated that annual growth in day tour ridership will be five percent[5]. Table 16 shows possible passenger volumes, ARRC ridership, and potential net revenues. Revenues per person are estimated at $20 per passenger one-way ($40 round trip).

[5]Based upon conversations with Whittier day tour operators.

Table 16. Potential Annual ARRC Revenues

	Day Tour Passengers	ARRC Ridership (per day)	Round Trip Ticket Revenue ($)	Annual Revenue ($)
2004	998	150	40	756,000
2005	1,047	157	40	791,000
2006	1,100	165	40	832,000
2008	1,155	173	40	872,000
2010	1,212	182	40	917,000
2015	1,273	191	40	963,000
2020	1,337	201	40	1,013,000
2025	1,404	211	40	1,063,000

Notes: Assumes an average annual growth rate of 5 percent in passenger volumes, 15 percent of day tour passengers ride trains, and based upon 18-week seasons (126 days).

In order for these forecasted revenue levels to be reached, additional train capacity would be necessary. This would likely mean larger trains, with additional trains transporting customers to and from Whittier on a daily basis.

Gross Revenues Related to Day Tour Industry

As described in the ARRC Projects section, the Marginal Wharf has been condemned so no dockings are allowed. Instead, some boats that were docking at the Marginal Wharf are now using the Delong Dock. The Delong Dock is owned by both the City of Whittier (50 percent) and ARRC (50 percent). The ARRC recently spent $500,000 upgrading the Delong Dock, and currently receives all revenues associated with the dock. After the ARRC recoups its expenditures on the dock, the city will begin to receive revenues from their part ownership of the dock.

Displaced fishermen that no longer had a place to dock after the Marginal Wharf closed use the Delong Dock. The only day tour operator that used the Marginal Wharf, and that is now using Delong Dock, is Cruise West/Alaska Heritage. Other day tour operators use the Whittier Small Boat Harbor, which is owned and operated by the city. Cruise West has 2 vessels with a capacity of 125 passengers. Each averages 100 passengers and sails twice a week.

The ARRC charges day cruise vessels in Whittier the same passenger service charge and dockage fees as outlined in the ARRC / Seward dock tariff. Day tour operators using Whittier docks pay a $1 per passenger fee for each time a passenger crosses the dock ($1 per person for passengers departing Whittier, and $1 per person for passengers arriving Whittier). In addition, operators pay a 3 percent sales tax to the City of Whittier. The dockage fee for vessels up to 300 feet in length is $1.00 per foot per 24-hour period, with a $50.00 minimum charge.

The following tables are provided for discussion purposes. Table 17 shows potential passenger volumes at the Delong Dock, and Table 18 shows the associated revenues for the period 2001 to 2020. The first table starts with the existing number of vessels that use the Delong Dock and allows for reasonable growth in the average capacity of vessels. Currently, only Cruise West uses the Delong Dock as a launching dock for their multi-day trips. It is assumed that more tour boats will move to the Delong Dock as demand for tour boat trips increases. This scenario also assumes that two of these boats will provide trips on a daily basis, while four additional boats will provide multi-day trips similar to those offered by Cruise West. The forecasts also presuppose that the capacity and length of vessels will increase with time, and thus the average capacity of vessels will increase too.

Table 17. Day Tour Passenger Volumes at ARRC Dock

	Number of Boats	Average Capacity	Number of Sailings/Week	Average Length of Vessel
2004	2	65	4	100
2005	2	65	4	100
2006	3	85	11	125
2008	4	85	13	125
2010	4	85	13	125
2015	6	85	22	125
2020	7	100	24	150
2025	8	100	26	150

Table 18. Day Tour Revenues at ARRC Dock

Year	Annual Dockage Revenues	Annual Boat Passenger Fee Revenues	Total Annual Revenues
2004	7,200	9,360	16,560
2005	7,200	9,360	16,560
2006	24,750	33,660	58,410
2008	29,250	39,780	69,030
2010	29,250	39,780	69,030
2015	49,500	67,320	116,820
2020	64,800	86,400	151,200
2025	70,200	93,600	163,800

Note: Based on an 18 week summer season.

4.2.2 Parking Lot Revenues

Another source of revenue for the ARRC attributable to day tour activities is the parking lot that is being developed on leased ARRC land by Alaska Recreation Incorporated. This land is owned by the ARRC, managed by the City of Whittier, and leased to a private entity, Alaska Recreation Incorporated. The parking lot is expected to have a capacity of 700 to 800 spaces, and is adjacent to a campground that will be managed by Alaska Recreation Incorporated as well.

According to employees of the City of Whittier, the lease for the parking lot and adjacent camping facility will be based on a predetermined formula. The ARRC will earn 20 percent of revenues from the leased land for the first 2 years, and then 40 percent of this revenue after 2005. The city's lease is based on the sliding fee schedule. For the first $10,000 (of gross revenues), the city earns 1.5 percent, for each additional $10,000, the city's share increases by .5 percent.

The development of a parking lot in Whittier is directly related to the opening of the Whittier Tunnel to highway traffic in June 2000. Highway traffic includes passenger and recreational vehicles, as well as truck and bus traffic.

Table 19 presents the vehicle counts by month, since the opening of the tunnel to vehicles in June 2000, to the latest available information, September 2003. This table only includes passenger and recreational vehicles (excludes trucks and buses).

Table 19. Vehicle Counts by Month, 2000 to 2003

Month	2000	2001	2002	2003
January	-	2,311	1,639	2,269
February	-	2,895	1,642	2,390
March	-	5,879	2,648	3,455
April	-	3,799	3,329	4,474
May	-	8,795	10,402	10,927
June	14,495	14,521	15,351	15,645
July	22,528	15,922	18,874	20,008
August	22,118	14,628	16,808	17,304
September	13,866	8,206	11,059	10,893
October	6,028	3,331	4,135	4,549*
November	3,163	1,983	2,930	3,223*
December	2,515	1,554	2,323	2,555*
Total	76,258	75,831	91,140	106,702

Source: Facility Manager Gordon S. Burton, Alaska Department of Transportation and Public Facilities.
Notes: *Data unavailable, based on 10 percent growth over prior year.

The number of passenger and recreational vehicles traveling through the tunnel increased on average by 10 percent annually from 2001 to 2003. Growth is not expected to continue at this 10 percent rate indefinitely, but could until issues of congestion and space become limiting factors, constraining the flow of traffic into and out of Whittier. Based upon these expectations, forecasts for passenger and recreational vehicles are provided by month in Table 20.

Table 20. Forecasted Vehicle Counts for Passenger and Recreational Vehicles by Month, 2004 to 2025

Month	2004	2005	2006	2008	2010	2015	2020	2025
January	2,496	2,745	3,020	3,654	4,422	5,643	6,931	8,034
February	2,629	2,892	3,181	3,849	4,657	5,944	7,300	8,463
March	3,801	4,181	4,599	5,564	6,733	8,593	10,553	12,234
April	4,921	5,414	5,955	7,205	8,719	11,127	13,666	15,842
May	12,020	13,222	14,544	17,598	21,294	27,177	33,376	38,692
June	17,210	18,930	20,823	25,196	30,488	38,911	47,787	55,399
July	22,009	24,210	26,631	32,223	38,990	49,762	61,114	70,848
August	19,034	20,938	23,032	27,868	33,721	43,037	52,855	61,273
September	11,982	13,181	14,499	17,543	21,227	27,092	33,272	38,572
October	5,003	5,504	6,054	7,325	8,864	11,313	13,893	16,106
November	3,545	3,900	4,290	5,191	6,281	8,016	9,845	11,413
December	2,811	3,092	3,401	4,115	4,980	6,355	7,805	9,048
Total	117,372	129,109	142,020	171,844	207,932	265,379	325,919	377,829

Table 21 presents possible revenues from the parking lots for the parking lot operator (Alaska Recreation Incorporated), City of Whittier, and ARRC. Note that ARRC revenue from the parking lot will increase significantly from 2005 to 2006. This is due to the planned increase for percentage of

city revenues the railroad is allowed to collect on land that is owned by the railroad but managed by the city. In 2006, it will increase from 20 percent to 40 percent.

Based upon traffic flows prior to the development of the parking lot, it is anticipated that in the short term, approximately 15 percent of vehicles will pay to use the parking facilities. As the number of cars traveling to Whittier increases, it will be necessary for more people to use the parking lot facility; thus, the percentage of vehicles using the parking lot will increase with time (to approximately 30 percent). It is expected that revenues to ARRC from parking will be limited due to the space available for parking, as well as the other factors that are limiting the flow of vehicle traffic into and out of Whittier.

Table 21. Possible Net Parking Lot Revenues for ARRC

	2004	2005	2006	2008	2010	2015	2020	2025
Vehicles parking	23,474	25,822	28,404	34,369	51,983	66,345	97,776	113,349
Revenue for city	29,900	35,921	43,180	62,498	140,309	226,716	487,781	653,732
Revenue for ARRC	5,980	14,368	17,272	24,999	56,124	90,687	195,113	261,493

Notes: It is assumed that demand for parking will increase in the future dependent upon growth of vehicular travel to Whittier. Parking lot revenues are based on sliding fee scale for city and subsequent percentage paid to ARRC (20 percent 2004, 40 percent 2005 and after.

Retail Sales and Other Activities

Day tour operators interviewed for this report said they had minimal need for on-shore office or ticket facilities. The larger operators said a 16-foot by 24-foot facility would be nice. The smaller operators said a kiosk or cubicle for one part-time person would be nice, but not necessary.

Day tour activities would also support retail shops, food and beverage establishments, and likely result in the demand for office space. The ARRC could benefit from the corresponding land lease arrangements.

4.2.3 Possible Total Revenues from Day Tour Activities

The following table presents a summary of the annual revenues from major revenue sources that are related to day tour activities. Passenger rail revenues are by far the largest potential source of revenues for the ARRC.

Table 22. Revenues from Day Tour Activities

Year	Rail Passenger Revenues	Parking Lot Revenues	Dockage and Passenger Fee Revenues	Total Annual Revenues
2004	756,000	5,980	16,560	778,540
2005	791,000	14,368	16,560	821,928
2006	832,000	17,272	58,410	907,682
2008	872,000	24,999	69,030	966,029
2010	917,000	56,124	69,030	1,042,154
2015	963,000	90,687	116,820	1,170,507
2020	1,013,000	195,113	151,200	1,359,313
2025	1,063,000	261,493	163,800	1,488,293

5 References

Tryck Nyman Hayes "Port of Anchorage Intermodal Marine Facility Design Study Report"

Northern Economics Inc., "Market Analysis for ARRC Anchorage International Airport Rail Station. July 1999

Table 23. Companies and individuals contacted for this report

Market Area	Organization	Contact Person	Phone No.	Contacted
Cruise Industry				
	Princess Tours	Bob Stone	(206) 728-4202	x
		Don Rosenberger	(206) 728-4202	x
		Dean Brown	(206) 728-4202	x
	Holland America	Bill Pedlar	(206) 281-3535	x
		Pil Broderick	(206) 281-0573	
	Royal Caribbean / Celebrity	Mike Bonner	(305) 539-6270	x
	Norwegian Cruise Lines	Capt. Langset	(305) 436-4956	msg
	Commodore Cruise Lines	Michael Smith	1-800-832-1122 x2128	msg
	Radisson Cruises	Paul Goodwin	1-800-477-7500 x326	msg
	Cruise Line Agencies	Greg Lebeau (Kenai office)	562-8808 (Anch.) 252-6090 (Kenai)	x
Tour Companies				
	CIRI/Alaska Heritage Tours	Kelly Bender	777-2822	x
	Phillips Tours	Brad Phillips	276-8023	x
	Allen Marine	Grant Johnston	276-5959	x
	Major Marine	Ron Major	274-7300	x
	Alaska Sightseeing / Cruise West		276-1305	x
	Premier Alaska Tours	Peter Grinwald	279-0001	msg
	Lazy Otter Charters	Mike Bender	345-3775	msg
	Auklet Charter Services	David Janka	(907) 424-3428 or 253-3428	x
	Honey Charters		(907) 472-2493	msg
Freight				
	Crowley Marine	Jim Dwight	(206) 443-8100	x
		Craig Toranga	257-2822	x
	Samson Tug & Barge	Mike Halco	(206) 767-7820	x
		Jerry Morgan	(206) 767-7820	x
	Northland Services	Ed Spawnhurst	1-800-426-3113	x
	Lynden Transport	Dave Haugen	245-1544	x
	Lynden Logistics	Mark Anderson	245-1544	x
	Dojer Inc.	Jerry Protzman	472-2499	x
	Great Pacific Seafoods		248-7966	x
Other				
	DOTPF	Tom Moses	269-0401	x
	Whittier	Rick Hohnbaum	(907) 472-2327	x
		Boat Harbor	(907) 472-2330	x
	Passage Canal LLC	Jim Barnett	346-2755	x

APPENDIX B

PHASE I ENVIRONMENTAL SITE ASSESSMENT FOR WHITTIER INTERMODAL DEVELOPMENT

Prepared by
Larsen Consulting Group

Doug
Kenley -
Larson

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APPENDICES

1.0 INTRODUCTION

1.1. PURPOSE

The purpose of this report is to present the findings of the Phase 1 Environmental Site Assessment (ESA) for the Alaska Railroad Terminal area in Whittier, Alaska. The ESA was performed as specified by American Society for Testing and Materials (ASTM) Standard E1527 – 97: Standard Practice for Environmental Site Assessments: Phase 1 Environmental Site Assessment Process. This report was prepared in accordance with the proposal presented by Larsen Consulting Group (LCG) to Peratrovich, Nottingham & Drage, Inc. (PN&D) on October 20,1999 and the Peratrovich, Nottingham & Drage, Inc., Work Order No. 1 dated October 27, 1999.

The scope of the ESA, as outlined in the ASTM standard, included conducting appropriate inquiry into previous ownership and uses of the property and surrounding area to identify the potential for contamination at the site. The purpose of the ESA is to satisfy one of the requirements to qualify for an "innocent landowner defense" to Comprehensive Environmental Response, Compensation, and Liability (CERCLA) act liability. The primary goal of the ESA was to identify recognized environmental conditions, including the presence or likely presence of hazardous substances or petroleum products that are either stored on site, or that may be potentially contaminating the soil or groundwater at the site or in the immediately surrounding area.

1.2. LIMITATIONS AND EXCEPTIONS OF ASSESSMENT

LCG's services were performed, within the limits imposed by our client, using the degree of care and skill ordinarily exercised under similar circumstances by reputable environmental professionals in the State of Alaska. The work conducted did not include any invasive investigations, such as drilling or excavation, and did not include soil or water sampling. The investigation was based solely on a review of existing available information, and information gathered during the site visit and interviews. No other warranty or representation, either expressed or implied, is made as to the findings and professional advice presented in this report.

1.3. LIMITING CONDITIONS

Reported spills of approximately 10 million gallons of hazardous materials or petroleum products occurred in the Harbor Expansion Area during the Good Friday earthquake of 1964. Appendix A provides the location of the tank farm site and Harbor Expansion Area. The nature and extent of this spill is of such magnitude that the contamination generated by the event overshadows any contamination that may have occurred after 1964. Thus, it is difficult to determine the level of contamination, if any, resulting from a post-1964 spill event due to the extreme levels of existing contamination throughout the area.

1.4. METHODOLOGY USED

This ESA was performed in accordance with the ASTM Standard referenced above and was accomplished in three phases including: 1) completing a records and historical

sources review, 2) conducting interviews with Alaska Railroad and City officials, and 3) completing a site reconnaissance to observe existing conditions and document potential sources of contamination. This report was prepared utilizing the comprehensive knowledge obtained when performing the three phases of the project, and our experience completing similar projects.

A systematic approach was used for the site reconnaissance. The railroad terminal area was divided into four sections consistent with available drawings for the project area including the far west area, the central west area, the central east area, and the far east area. Drawings depicting each area were obtained from PN&D and are attached in Appendix B. These drawings included the most recent information available for the project site. During the site visit, 11" X 17" drawings of each section and of the overall project site were available for reference and were used to document existing features.

Ms. Deborah Allen, PE and Ms. Samantha Spindler, EIT of LCG conducted the site visit on October 22, 1999. During the site visit, a reconnaissance of each section was conducted. Land use, locations of fuel storage tanks, evidence of contamination, etc. were noted on the drawings or in the field notes, as appropriate. Locations of facilities such as buildings, and visible utilities such as manholes and fire hydrants were observed to verify the accuracy of the site map. Differences noted between the drawings and the observed site conditions were recorded.

2.0 SITE DESCRIPTION

Observations during the site reconnaissance, information gathered during the records/historical sources review, and facts gathered during the course of interviews with the Alaska Railroad and City of Whittier Officials were used to compose the information presented in this section.

2.1. LOCATION AND LEGAL DESCRIPTION

The City of Whittier is located on the northeast side of the Kenai Peninsula, at the head of the Passage Canal. The community is located on the western shores of Prince William Sound and is 75 miles southeast of Anchorage. The City encompasses an area of approximately one square mile at the base of mountains that rise steeply to elevations of over 3,500 ft. The local tide range occasionally exceeds 16 ft. The geographical coordinates for Whittier are 60° 46' N Latitude, 148° 41' W Longitude. Whittier lies in Section 24, Township 008 North, Range 004 E, of the Seward Meridian. The City is located within the Anchorage Recording District.

2.2. SITE AND VICINITY DESCRIPTION

The project site consists of the Alaska Railroad Terminal in Whittier, which is located on a relatively flat, fan-shaped delta adjacent to the coastline. The train tracks run parallel to the coastline. The terminal covers a total approximate area of 51 acres. Refer to Appendix B for drawings depicting the project area.

2.3. DESCRIPTIONS OF STRUCTURES, ROADS, AND OTHER IMPROVEMENTS ON SITE

The terminal area is bordered by Whittier Street on the west side and by Depot Road on the southeast side. The coastline of Prince William Sound is immediately adjacent to the northern boundary of the terminal area.

2.3.1. *Marine Docks*

Delong Dock is located on the east end of the project site. Historically, the dock was used to transfer jet fuel from barges to land and through the pipeline between Whittier and Anchorage. According to Alaska Railroad personnel, the dock is no longer in use. As noted during the site visit, the fueling facility consisted of four 12-inch diameter jet fuel pipelines, two that were marked as out of service. The facility is reported to be owned by the U.S. Army. The ownership of the dock facility is in the process of being transferred to the City of Whittier and to the Alaska Railroad Corporation.

The barge slip, which is located on the northeast portion of the project site, is a docking facility for incoming and outgoing freight barges.

The Whittier small boat harbor is located near the western end of the terminal area. Shoreside Petroleum is located along the shore at the western end of the small boat harbor adjacent to the Alaska Railroad terminal property, and operates a commercial fuel dock to supply marine traffic.

2.3.2. *Large Structures*

The Transit Shed is located on the north side of the project area. The shed is divided into 4 bays that are accessed from the marginal wharf on the north side of the building. The two eastern-most bays are leased out for storage. Both of these areas were observed to contain some drums with unknown contents. The adjacent area is leased to Crowley Marine as their Whittier headquarters. During the site visit, the Crowley area appeared to resemble a mechanical shop. There were several drums of unknown contents stored in the area, various tools and parts, and disassembled equipment. No floor drains or water or sewer services were observed for this area during the site visit, although access was limited to the leased properties and an exhaustive search was not performed. The remaining area at the western end of the building is utilized by the railroad as their on-site headquarters. Persons in the office confirmed the presence of sewer and water service to the office area during the site visit.

The Transit Shed may have had an on-site sewer system that consisted of a leachfield that discharged into the harbor at one time. Although rumored, evidence of the existence of this system has never been found to the knowledge of the Alaska Railroad Officials.

A large building leased to Great Pacific Seafoods is located on the south side of the project site. During the site visit, the facility was locked, and the windows were boarded-up. Therefore, the interior of the building was not inspected. Great Pacific oversees the following operations:

1. Off-loading fish from the railroad dock adjoining the Transit Shed called the marginal wharf.

2. Processing and packaging fish at the facility for shipping.

3. Shipping the fish to the Anchorage company headquarters.

2.4. Information Reported by Users Regarding Environmental Liens or Specialized Knowledge or Experience

Alaska Railroad and City of Whittier Officials indicated that there are no environmental liens on the property to the best of their knowledge.

2.5. Current Uses of the Property

The property is currently used as a railroad yard/terminal area for the Alaska Railroad Corporation and is owned by the State of Alaska. Passengers and freight are on/off loaded and freight is stored on the project site. The Transit Shed on the property is used as an office for the railroad with the majority of the building leased to other entities for storage as discussed in Section 2.3.2. The Alaska Railroad Real Estate Official was requested to obtain a list of the lessees for the project site. Refer to Appendix C for the list of lessees.

Delong Dock is located on the west end of the project site. It is currently not in use and is owned by the U.S. Army. The ownership of this property is in the process of being transferred to the City of Whittier and to the Alaska Railroad Corporation. The City of Whittier is to obtain ownership of the tide land surrounding the dock, and the Alaska

Railroad is to obtain ownership of the dock itself. Appendix D contains the legal document transferring the ownership of Delong Dock.

2.6. Past Uses of the Property

The project site was developed in the 1940s by the Federal Government, Department of the Army as a year-round terminal for the Alaska Railroad.

In 1985, the Alaska Railroad changed ownership from the federal government to the State government as per the regulations sited in 45 CFR 501 and AS 42.40. Appendix E includes the Interim Conveyance documenting the change of ownership. The project site has been used as a railroad terminal area/yard continuously since its initial development.

2.7. Current and Past Uses of the Adjoining Properties

Observations during the site reconnaissance, along with information and references gathered during interviews with Alaska Railroad and City of Whittier officials were used to establish the current and past uses of the properties adjoining the project site. Appendix A provides a drawing labeling the structures on and adjoining the project site, as well as other pertinent features observed during the site visit. The following sections provide more detailed descriptions of the properties adjoining the railroad yard.

2.7.1. *Northern Adjoining Properties*

The project site is adjoined on the northwest by property owned by the Alaska Railroad Corporation. This property is classified by the Alaska Railroad as non-operational lands and is leased to the City of Whittier under Alaska Railroad Corporation Contract No. 7531. Refer to Appendix F for a map illustrating the Alaska Railroad non-operational lands currently leased to the City of Whittier.

The leased land adjoining the project site to the northwest is referred to as the Harbor Expansion Area. The area primarily consists of the small boat harbor and contains structures for commercial and municipal purposes. The harbormaster's office, a used oil disposal facility, the Alaska Marine Highway terminal area and docks, a freight outfit, and various commercial venders are located in this area. There is also automobile and boat storage within this area.

Prior to 1964, the harbor expansion area was occupied by four major facilities. including the U.S. Army petroleum, oil, and lubricant tank farm; Union Oil petroleum, oil, and lubricant tank farm; a small cluster of U.S. Army camp buildings; and the Columbia Lumber Company Mill. The site is discussed and illustrated in the document *Environmental Investigations, Harbor Expansion Area, Whittier, Alaska for the Alaska Railroad Corporation* prepared by Golder Associates in 1996. A United States Geological Survey (USGS) map prepared based on an aerial photo taken in 1950 was reviewed. The tank fuel farm is illustrated on the map. Refer to Appendix G for a figure illustrating the Whittier portion of the USGS map and Appendix H for a copy of the Golder report.

The 1964 earthquake destroyed the existing waterfront facilities at the small boat harbor. The Alaska Department of Environmental Conservation (ADEC) sited the resulting spill

to be approximately 10 million gallons of petroleum products. Following the earthquake, the army demolished the tank farm and other facilities in the harbor expansion area. Union Oil relocated all salvageable materials, removed all debris from the site, and terminated its lease in the spring of 1966.

The small boat harbor was re-built in the early 1970s, and was expanded in 1980 to its current capacity of 332 berths. The northern portion of the expansion area was filled and graded for parking and storage of boats and vehicles. Appendix I provides copies of 1973 and 1982 aerial photographs that document area development during those periods. Whittier serves as a gateway to Prince William Sound from the Cook Inlet area for sport fishermen and hunters, and for other recreational users because of the relatively short travel distance between Anchorage and Whittier.

The Alaska Railroad cleaned up a site adjacent to the railroad loading ramp and the transit shed containing PCB-contamination shortly after acquiring the property from the federal government in the mid-1980s, according to David Nyman, Alaska Railroad Environmental Engineer for 1985 - 1988. Several hundred barrels of PCB-contaminated soils and a building containing PCB-filled transformers were removed. The contamination was related to federal government activities at the site. Appendix J contains documentation of possible PCB contamination and a location map of the PCB contaminated sites. The documentation states that there was contamination in the Old Union Oil Building. Note that Alaska Railroad Officials do not know the location of this building, although it is suspected that it is the Transit Shed.

Shoreline Petroleum, located on the east side of the Harbor Expansion Area, stores and distributes fuel for automobiles and for marine traffic in the small boat harbor. There are two gas pumps and four approximately 10,000-gallon fuel storage tanks. The tanks were aboveground and double-walled. Two of the tanks were labeled diesel fuel, one was labeled unleaded gasoline, and the fourth tank was labeled #1 fuel oil. Surface staining of the soil was noted in front of both diesel tanks during the site visit. Several drums were observed in the area in front of the tanks, and one of the tanks was dented. The tank farm was partially surrounded by chain-link fencing. The fill stand was located approximately 50 feet northeast of the tank farm and consisted of two pumps. A slight fuel odor was noted in the area surrounding the fill stand. The fuel dock that serves marine traffic is located on the shore of the small boat harbor.

Effluent from the City sewage treatment system is discharged to the harbor through an ocean outfall located in the east side of the Harbor Expansion Area.

2.7.2. *Southwest Adjoining Properties*

The project site is adjoined on the southwest by property owned by the Alaska Railroad Corporation. This property is classified as non-operational lands and is leased to the City of Whittier under Alaska Railroad Corporation Contract No. 7531. Refer to Appendix F for a drawing illustrating the Alaska Railroad non-operational lands leased to the City of Whittier.

The leased land adjoining the project site to the southwest is currently abandoned and is partially used for boat and vehicle storage. Previously, this was the site of the Koppers Creosote Plant, which treated timber railroad ties. Soils contaminated with creosote and other chemicals associated with wood treatment were found and documented in a 1969

report; however, this report but was not available for LCG's review. The extent of the contamination is unknown, but there was a threat to the potable groundwater resources as reported by Ecology and Environment, Inc. in their 1986 site inspection report. U.S. Environmental Protection Agency (EPA) and ADEC investigations indicated there was no contamination of the potable water sources for the City of Whittier as noted in a memo dated December 8, 1986. Refer to Appendix K for a copy of the memo. No evidence of any remediation efforts at the site was uncovered during research.

During the site visit, the land in this area appeared relatively undisturbed except for some areas near the road that appeared to have been filled with gravel. The remaining area was vegetated with grasses, willows, and alders. Standing water was noted in low areas.

2.7.3. *South and Southeast Adjoining Properties*

The properties adjoining the project site to the south and southeast consist of the city pump houses and maintenance buildings, the Anchor Inn Hotel and Restaurant, Alaska Railroad property leased to the City (Whittier Manor), Long's Marine, and boat/vehicle storage. Refer to Appendix D for the property ownership records from the City of Whittier. Appendix F provides a map illustrating the Alaska Railroad non-operational lands leased to the City of Whittier.

Two fuel storage tanks, one aboveground and one underground, were observed adjacent to the City maintenance building. Various heavy equipment and vehicles were parked outside the building.

Long's Marine is an automotive and marine repair service shop. There is a large horizontal used oil storage tank located adjacent to the shop. It is unknown whether the tank is in use.

The City septic tanks are located on land adjoining the project site to the southeast. The septic tanks are west of the Whittier Manor as shown on the figure in Appendix A. The septic tank effluent is discharged through an ocean outfall located in the east side of the Harbor Expansion Area.

2.7.4. *Northeast Adjoining Properties*

The coastline of Prince William Sound adjoins the project site to the northeast.

3.0 RECORDS REVIEW

3.1. STANDARD ENVIRONMENTAL RECORD SOURCES

3.1.1. *Federal Records*

The United States EPA maintains the databases for the National Priority List, the Resource Conservation and Recovery Act (RCRA) Corrective Action and RCRA Treatment, Storage, and Disposal Facilities List, the RCRA Generators List, and the Emergency Response Notification System List. Investigations into these databases related to the City of Whittier resulted in the following:

The National Priority List has no listings for the City of Whittier.

The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) contained no listings within the project search area.

The RCRA Corrective Action and RCRA Treatment, Storage, and Disposal Facilities List has no listings for the City of Whittier.

The RCRA Generators List is a list of reported Large Quantity Generators with their EPA Identification Number, location, and quantity of RCRA hazardous waste generated. Appendix L provides the RCRA Generator listings on reported hazardous waste generators in the State of Alaska. The only listing for the City of Whittier includes the ADEC-City of Whittier Impound Yard, which reported 1.32 RCRA tons of hazardous Waste generated. No acute hazardous waste was reported to be generated in Whittier.

The Emergency Response Notification System (ERNS) List is a list that records calls and reports to the National Response Center. The database for ERNS holds records from 1990 to the present. Appendix L provides the ERNS listings on reported incidents located in Whittier. There are two reported incidents on the project site in which the National Response Center was notified:

1. On July 19, 1999 a tank truck was overfilled from a rail tank car. Approximately 40 gallons of diesel fuel was spilled on the soils of the railroad yard. The suspected responsible party was Shoreside Petroleum.

2. On April 12, 1998 a fuel pipe developed a leak. Approximately 7 gallons of diesel fuel was spilled on the soils of the railroad yard. The suspected responsible party was Shoreside Petroleum.

3.1.2. *State Records*

ADEC maintains databases for contaminated sites, reported spills, active and permanently closed underground storage tanks (USTs), and active and permanently closed leaking underground storage tanks (LUSTs). Investigations into these databases indicated the following for the City of Whittier:

The Contaminated Sites Database is the State of Alaska's equivalent to the National Priority List. The database contains records for reported contaminated sites from March

24, 1964 to July 14, 1998. Currently, it contains the most recent accumulated information on contaminated sites available from the State of Alaska. There were eleven records on contaminated sites for the City of Whittier. A summary of these sites is included in Appendix M. Listings specific to the project site include the following.

- Approximately 40 gallons of Diesel fuel was spilled on the soils of the railroad rail yard. The suspected responsible party was Shoreside Petroleum.
- A contaminated area of 8' X 16' was reported on the project site in 1992.
- Twenty-five gallons of diesel fuel were spilled on the railyard soils as a result of overfilling a tank truck from a rail car.

There are three reported sites in the Whittier area in which the contamination was substantial:

1. Approximately 10 million gallons of diesel fuel was spilled on the soils of the Small Boat Harbor Expansion area as a result of the 1964 earthquake.
2. Creosote and chemical contamination associated with wood treatment at the Koppers Creosote Plant were documented in a 1969 report. The extent of the contamination is unknown, but there was a reported threat to the potable groundwater resources.
3. In 1995, 113,000 gallons of fuel spilled in the Military Fuel Tank Farm within the secondary containment area (Appendix G). Some of the fuel escaped the containment area and was detected in nearby monitoring wells. Approximately 95-99 % of the fuel was recovered during cleanup and remediation efforts. Potential impact to the groundwater resources in the area of the spill is of concern.

The Alaska Spills Database is a database for all spills reported between July 1995 and the present. Spill records prior to July of 1995 are available through ADEC, but it is difficult to find specific records and isolated spills in particular locations because records were not consolidated prior to establishment of the database.

The database reported spills ranging from 1 gallon to 400 gallons of a petroleum product. In 1995, there was a 100-gallon spill of an "other" substance reported. Appendix M provides a listing of the spills reported in Whittier.

The List of Active and Permanently Closed LUST Sites is a series of lists that records active and closed leaking underground storage tanks in the State of Alaska. The *active LUST list* contains one record for the City of Whittier. The location of this record is given as Whittier – BLDG 17-302. No other information was provided in the record, and the location of the tank is unknown. Additional information on this LUST has been requested from ADEC. Tim Stevens of ADEC responded that little information was available on this listing.

The *permanently closed LUST list* contains no records for the City of Whittier.

The List of Active and Permanently Closed Registered UST Sites is a series of lists that includes a record of active and closed underground storage tanks that are

registered with the State of Alaska. Presently, the lists available are identical to the LUST lists for Whittier. ADEC was contacted and is attempting to remedy the problem.

3.2. Physical Setting

The physical setting of Whittier was inferred from a 7.5 minute United States Geological Survey Map and from the 1996 Golder Associates *Environmental Investigations of the Harbor Expansion Area in Whittier, Alaska* (Appendix H).

The City of Whittier is located on the northeast side of the Kenai Peninsula, at the head of the Passage Canal. Whittier is on the western shore of Prince William Sound and encompasses an area of approximately one square mile at the base of mountains that rise steeply to elevations over 3,500 ft. The local tide range occasionally exceeds 16 ft.

Whittier glacier is located approximately one-half mile south of the community and terminates at an elevation of 1,000 ft. Whittier Creek flows from the glacier terminal moraine down the mountainside, to the delta and into the harbor.

The Alaska Railroad Terminal in Whittier is located on a fan-shaped delta adjacent to the coastline. There is considerable groundwater flow on the project site because the run-off from the adjacent mountains passes through the deltaic deposits on its way to the harbor.

3.3. Historical Use Information

Based on information gathered from the interviews with Alaska Railroad Officials and from the *Environmental Investigations of the Harbor Expansion Area in Whittier, Alaska* performed by Golder Associates, it was inferred that the project site was developed in the 1940s by the Federal Government, Department of the Army as a year-round terminal for the Alaska Railroad.

In 1985 the Alaska Railroad changed ownership from the federal government to the State of Alaska as per the regulations sited in 45 CFR 501 and AS 42.40. Refer to Appendix E for the Interim Conveyance documenting the change of ownership. The project site has been used as a railroad terminal area and railyard continuously since development.

Aerial photos from 1973 and 1982 verify that the project site has been utilized as a railroad terminal area throughout the period and to the present. Appendix I provides copies of the aerial photos.

USGS maps were obtained based on aerial photos taken in 1950 and 1976. The tank fuel farm that resulted in the 10 million gallon spill in the 1964 earthquake is shown on the map based on the 1950 aerial photo, and the Harbor Expansion Area is noted on the map based on the 1976 aerial photo. Appendix G provides figures prepared using scanned images of these USGS maps.

3.4. Additional Historical and Current Land Use Sources

The Whittier Alaska Walking Map, the Alaska Railroad Land Lease Map, and the R&M Land Status Map provided additional information regarding the current land use in the

City of Whittier. Appendix M includes copies of the walking map and the R&M Land Status Map. Refer to Appendix F for the Alaska Railroad Non-Operational Lands Lease Map.

The report titled *Environmental Investigations of the Harbor Expansion Area in Whittier, Alaska* (Appendix H) dated January 1996 and prepared by Golder Associates provided information about the historical land use of the project site and the surrounding area.

4.0 INFORMATION FROM SITE RECONNAISSANCE AND INTERVIEWS

4.1. OFFICIALS INTERVIEWED

4.1.1. *David Haywood, Public Safety Officer for the City of Whittier*

David Haywood has been the public safety officer in Whittier for 2 years. Mr. Haywood provided general knowledge about the current conditions in the area. His historical knowledge was somewhat limited because he has only lived in the community for 2 years.

4.1.2. *Charlene Arneson, Harbormaster for the City of Whittier*

Charlene Arneson has lived in Whittier since 1964. She moved to Whittier just after the Good Friday earthquake. Ms. Arneson provided general current and historical knowledge of the City of Whittier, including the project site. She noted that she seldom crosses the project site but does work in the areas adjoining the project site. She also noted that, in general, there is a frequent occurrence of sheen on the harbor waters during the summer months; however, Ms. Arneson suspects that this contamination is related to groundwater flow through contaminated soils resulting from the 10-million gallon spill that occurred during the 1964 earthquake.

4.1.3. *David Nyman, Environmental Engineer for the Alaska Railroad, 1985 – 1988*

David Nyman worked for the Alaska Railroad for the period between 1985- 1988. This period was just after the railroad transferred from federal to state ownership. Mr. Nyman was knowledgeable about the occurrence of PCB-containing transformers on the project site. He noted that the clean-up operations for the PCB contamination during the late 1980s were completed in accordance to ADEC and the US EPA regulations, and that reports documenting the operations were created.

4.1.4. *Susan Schrader, Alaska Railroad Environmental Engineer, Current*

Susan Schrader is currently working for the Alaska Railroad as an environmental engineer. She has worked for the railroad since 1994. The interview with Ms. Schrader was performed jointly with Mike Fretwell, Alaska Railroad Real Estate and Dave Hamre, Alaska Railroad Project Manager for the Whittier Intermodal Transportation Project. Ms. Schrader was knowledgeable about most of the events of environmental concern that occurred on the project site since the Alaska Railroad has been state owned. She also was knowledgeable about some of the current and past locations of fuel tanks on and around the project site. She noted that due to the physical setting of the Whittier terminal area, the groundwater flows relatively quickly. Thus, she noted that contamination could migrate onto the project site that did not necessarily originate on the project site.

4.1.5. *Mike Fretwell, Alaska Railroad Real Estate*

Mike Fretwell is currently working for the Alaska Railroad in the Real Estate Department. Mr. Fretwell was knowledgeable about the transfer of the railroad from federal to state ownership. He noted that the land ownership was transferred as per an Interim Conveyance in accordance with 45 CFR 501 and AS 42.40. He also provided general information about the project site.

4.1.6. *Dave Hamre, Project Manager for the Alaska Railroad Intermodal Project*

Dave Hamre is currently working for the Alaska Railroad as a Project Manager for the Whittier Intermodal Project. He provided a document that summarizes the testing results for asbestos and lead in the Whittier Transit Shed performed in 1999. A copy of the report is included in Appendix O.

4.1.7. *Carry Williams, City Manager for the City of Whittier*

Carry Williams is currently the City Manager for Whittier. Numerous attempts have been made to arrange an appointment for an interview. At the present time, an interview appointment has not been established.

4.1.8. *Scott Pexton, Alaska Department of Environmental Conservation*

Scott Pexton of ADEC provided information about the Creosote Plant Contamination and the status of the 1964 spill event. He referred LCG to Jeff Brownlee, the project manager for remediation projects in Whittier with the Army Corps of Engineers.

4.1.9. *Jeff Brownlee, Alaska Department of Environmental Conservation*

Jeff Brownlee is currently working with the Army Corps of Engineers on the Power Plant Tank Demolition and the proposed Whittier Pipeline Testing. He noted that the harbor expansion contamination area is on hold for remediation until 2002. At that time, the extent of the contamination will be investigated and necessary remediation efforts will be identified.

4.2. HAZARDOUS SUBSTANCES

4.2.1. *Contamination*

Building materials in the Transit Shed tested positive for lead and asbestos in 1999 according to Alaska Railroad officials. Removal operations are proposed but are not yet definite. Refer to Appendix O for testing results and the removal proposal.

The former Koppers Creosote Plant for the treatment of timber railroad ties was located adjacent to the property to the southwest. Soils contaminated with creosote and chemicals associated with wood treatment were found and documented in a 1969 report. The extent of the contamination is unknown, but there was a reported threat to the potable groundwater resources in the area. U.S. Environmental Protection Agency investigations performed in 1981 and 1986 indicated there was no evidence of contamination of the potable water source.

Small areas of stained soil at various locations on the project site have been observed by several persons interviewed, and were observed during the site reconnaissance. Typical areas noted for stained soils are as follows:

1. Near underground fuel storage tanks where vents or fill pipes have broken, water has infiltrated, and the product has floated out of the tank.

2. On/in between the railroad tracks as a result of equipment failure.

3. Vehicle/boat storage areas as a result of small leaks or fueling operations from fuel jugs.

4. Near the tanks at the aboveground diesel fuel storage tanks at Shoreside Petroleum. A petroleum odor was also noted at the vehicle fill stand.

Soils stained with oil, PCBs, or occasional debris have been observed during previous excavations as noted throughout this report. Some of this contamination and related debris may have resulted from the 1964 earthquake.

4.2.2. *Hazardous Substances in Connection with Unidentified Uses*

Various hazardous substances such as methanol and solvents were found in the Transit Shed after the State of Alaska took over ownership of the railroad. At the time, the railroad had a policy of consolidating these substances for disposal in Anchorage. Railroad officials reported that the railyard and terminal area were cleaned up as much as possible when the state took over. However, many hazardous substances were left by the federal government and undocumented contamination likely occurred prior to state ownership. Alaska Railroad Officials state that, they are aware and in control of all hazardous substances present at the project site. During the site visit, areas of the Transit Shed leased to other parties were observed to contain drums; however, the contents of the drums were not known.

4.2.3. *Fuel Distribution*

Shoreside Petroleum presently stores and distributes fuel for automotive and marine vehicles on the west side of the Harbor Expansion Area. Refer to the project site plan in Appendix A for the exact location of the facility. The facility consists of a fuel dock for marine traffic, two gas pumps located on the shore, and four aboveground storage tanks. Bulk fuel is stored in tank cars on the Alaska Railroad siding. The location of the tank cars is indicated on the Site Plan in Appendix A.

Dave Nyman noted that there was an old fueling site for the Alaska Railroad located on the south side of the Transit Shed. Alaska Railroad Officials indicated that there currently are no fueling areas for the railroad on the project site. The locomotives fuel in Anchorage.

4.3. Hazardous Substance Containers and Unidentified Substance Containers

4.4. Storage Tanks

4.4.1. *Fuel Storage Tanks*

Dave Nyman noted that there was an aboveground fuel storage tank near the south side of the transit shed when the state took over the railyard. The tank was likely a heating fuel tank that was removed when natural gas service was installed in Whittier.

Susan Schrader stated that in 1991 the railroad removed an underground storage tank and replaced it with a 500 gallon above ground storage tank. This tank was not observed during the site visit.

An above ground fuel storage tank was located in front of the City maintenance building and appeared to be in use. The tank is likely used to fuel City vehicles. An underground fuel storage tank was located adjacent to the rear of the City maintenance building. Vent pipes and an access port were observed during the site visit. The area was heavily overgrown and no soil staining was observed. The tank is likely a heating oil tank that was abandoned when natural gas was installed.

A small fuel storage tank was noted adjacent to the Anchor Inn. Another small fuel storage tank was noted near the Great Pacific Seafood's Building. The approximate locations of each of these fuel storage tanks are shown on the figure in Appendix A.

In the 1940's, the U.S. army built a permanent power plant. A tank supplied fuel for the power plant. The 1.5 million-gallon field constructed tank was set into an excavated rock bluff lined with a few inches of fuel saturated sand. The power plant tank site is located about 480 feet east of the Anchor Inn restaurant. Refer to Appendix A for the tank site location.

The power plant was demolished in the 1970's when power was routed to Whittier from Portage. The tank was recently demolished and disposed of properly. The underlying sandbed, consisting of approximately 118 cy of contaminated soils, was removed and thermally treated. Further contamination is not expected due to the impermeable nature of the rock bluff.

The pipelines that were used to fill the tank from Delong Dock and supply the power plant are scheduled to be tested during the spring of 2000. The scope of work includes: (1) drilling boreholes and collecting soil samples to determine the level of soil contamination in the pipeline corridors, and (2) tapping the pipeline and collecting samples to determine the pipeline contents.

4.4.2. *Bulk Fuel Rail Cars*

Shoreside Petroleum stores fuel in bulk fuel rail cars stored on a siding on the southwest portion of the project site as shown in Appendix A. At the time of the site visit, seven cars were observed.

4.4.3. *Septic Tanks*

The City septic tanks are located on land adjoining the project site to the southeast. The septic tanks are west of Whittier Manor as shown on the figure in Appendix A. The effluent is discharged through an ocean outfall located on the east side of the Harbor Expansion Area.

4.4.4. *Used Oil Storage Tanks*

Several of the persons interviewed mentioned that there was, at one time, a waste oil disposal tank located in the Harbor Expansion Area. This disposal tank was removed when the used oil disposal facility was constructed.

A used oil tank is located adjacent to Long's Marine on the property adjoining the project site on the southeast.

4.4.5. *Heating Oil Tanks*

Dave Nyman noted that there was, at one time, a heating oil tank located on the west side of the Transit Shed. There were likely other heating oil storage tanks located throughout the site and adjacent areas in the past such as those discussed in Section 4.1.1. The tanks were probably removed when natural gas service was installed in the community.

4.5. INDICATIONS OF PCBS

The Alaska Railroad, in cooperation with the U.S. Environmental Protection Agency, performed remediation operations on several sites contaminated with PCBs. Several hundred barrels of PCB-contaminated soils and a building containing PCB-filled transformers were removed during the late 1980s after the State of Alaska took over ownership of the railroad. The contaminated substances were shipped to the lower 48 for proper disposal. All concrete remaining in place was cleaned and epoxy sealed.

David Nyman reported that documentation of the remediation operations was prepared. Appendix I contains documentation of possible PCB contamination and a location map of the PCB contaminated sites. The documentation states that there was contamination in the Old Union Oil Building. Note that Alaska Railroad Officials do not know the location of this building, although it is suspected to be the Transit Shed.

Interviews with Alaska Railroad Officials and Dave Nyman revealed that there were PCB contaminated transformers in the transit shed and approximately five transformer vaults containing PCB-filled transformers. The transformers were completely removed from the Transit Shed. The vaults were fully remediated, but it is unknown whether all of the vaults were removed. The general location of the vaults can be found in Appendix J.

During the site visit, existing electrical transformers were observed. All transformers noted were labeled "No PCBs".

4.6. Indications of Waste Disposal

During the site visit, there was little indication of solid waste disposal on the project site or surrounding area. Railroad officials noted that occasionally there is solid waste abandoned on or near the project site. The waste is cleaned up in a timely manner. During the site visit, small quantities of miscellaneous materials such as scrap metal, trash, etc. were noted on the terminal site. In general, the area was clean and relatively free of debris and solid waste. The railyard adjacent to the north side of the railroad tracks appeared to have been recently regraded.

The City of Whittier has all of the solid waste, contaminated substances, and recyclable products hauled out of the City by Southwest Peninsula Sanitation. There are several garbage dumpsters available throughout the city for deposition of solid waste. All solid wastes are disposed of outside of the community as there is currently no landfill in Whittier. A concrete vault in front of Whittier Manor, where an old heating oil tank car was recently removed, is filled with garbage such as paper plates and pop cans.

Alaska Railroad officials mentioned that there was some incident where Great Pacific Seafoods might have been releasing fish by-products into the storm water system. Very little details were available.

The old city dumpsite was briefly mentioned during interviews with railroad and City officials. The location was reported to be in the vicinity of the Whittier Airport, which is located to the west of the project site. The dump was not reported to be near the project site.

4.7. Physical Setting Analysis

The Alaska Railroad Terminal in Whittier is located on a fan-shaped delta adjacent to the coastline. There is considerable groundwater flow on the project site because the run-off from the adjacent mountains passes through the fan-shaped delta on its way to the harbor. Because of this physical setting and the likely swift groundwater movement from the mountains to Prince William Sound, contamination could easily migrate to other, previously uncontaminated, areas.

For example, one city official recalled that an oil sheen was observed in the harbor early last summer. The source of the contamination was not found, but it was suspected that the contamination was leached from an unknown source into the harbor. The contamination was contained with booms and cleaned-up under direction of the city. Due to proximity to the 1964 spill, the sheen may have been the result of groundwater washing product into the harbor, or may be related to more recent spill events.

4.8. Any Other Conditions

Stockpiles at several locations and recently backfilled areas were noted during the site visit. Investigations revealed that excavations were recently performed to improve the wastewater collection system, and that the stockpiled soils resulted from these sewer improvements.

Boat and vehicle storage areas were noted at various locations adjacent to the project area during the site reconnaissance. These areas were observed to be relatively clean and free of solid waste and signs of contamination except as otherwise noted throughout this report.

5.0 CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

This investigation was performed in three components in accordance with the procedures outlined in ASTM Standard E1527-97:

1) Review of Records and Historical Sources

2) Conducting Interviews with Railroad and City Officials, and

3) Site Reconnaissance.

This report was prepared based on the comprehensive knowledge obtained during completion of these three components of the Environmental Site Assessment. The findings of the investigation are summarized in the following paragraphs.

- The site was developed in the 1940s by the Corps of Engineers for the U.S. Army to be a year-round terminal for the Alaska Railroad. The area has been used as a railroad terminal area/yard continuously since development. The Terminal area changed from federal to state ownership in accordance with 45 CFR 501 and AS 42.40 under the Interim Conveyance dated January 5, 1985.

- Following the ownership transfer, the Alaska Railroad Corporation instigated a policy to clean-up hazardous and solid wastes and to remediate contaminated areas at the railyard. Extensive clean-up operations were performed in an attempt to remove existing hazardous wastes and contamination. A summary of these removal operations is as follows.

  - PCB containing transformers were found on the project site and removed in the late 1980s. Contaminated soils were removed and shipped to the lower 48 states for proper disposal. Concrete surfaces were scrubbed and sealed with epoxy.

  - Various hazardous substances, such as methanol and other solvents, were found in the Transit Shed. These chemicals were removed for proper disposal off site.

  - Hazardous substances that are currently used on site are controlled by the railroad.

- During previous excavation activities at the railyard and in the surrounding area, soils contaminated with fuel, PCBs, or debris have been found.

- During the site visit, the project site area was observed to be relatively clean and free of solid waste, and minimal signs of contamination were observed. Sources of contamination were not observed on the project site during the site reconnaissance. Interviews with the Alaska Railroad Officials confirmed that established hazardous and solid waste prevention and clean-up policies exist for the railroad terminal area.

- Reported spills of approximately 10 million gallons occurred as a result of the 1964 earthquake in the Harbor Expansion Area. Investigations related to this spill are documented in the 1996 Golder Associates report titled *Environmental Investigations of the Harbor Expansion Area in Whittier, Alaska* (Appendix A). Because of the magnitude of this spill, it is difficult to differentiate the levels of contamination that may have resulted from any subsequent spills.

- Due to the considerable groundwater flow that is reported to occur throughout the project site, contamination could migrate onto the site from upgradient properties.

- The City of Whittier manages the handling, storage, and disposal of solid and hazardous waste. There is a used oil disposal facility available free of charge to the public. Commercial users must pay for the service. There are dumpsters at several locations in the City for disposition of solid waste. All solid and hazardous wastes are shipped out of Whittier for appropriate disposal.

Based on the findings presented in this report, it can be concluded that the Alaska Railroad has undergone extensive effort to minimize the contamination present on the project site related to previous activities, primarily by the federal government. Additionally, the Alaska Railroad had procedures in place to manage and control the storage and use of hazardous substances in the terminal area. Contaminated soils underlying the surface may be present throughout the site due to the historical events and land uses documented in this report.

DISCUSSION

Because of the history of the site, including the 10 million-gallon fuel spill, previous PCB contamination, and use of the area as a railyard for over 50 years, hydrocarbon or other contamination could be found at nearly any location. The Alaska Railroad has maintained a policy of remediating contamination as it is found, however, no extensive investigations to delineate the type and extent of contamination have been performed at the project site. The 1996 Golder investigation (Appendix H) only covered adjacent areas.

A detailed investigation covering the entire site would be required to verify the type and level of contamination that may be present at any particular location. Depending upon the scope of the Phase II investigation, costs could be substantial.

RECOMMENDATIONS

It is recommended that Phase II investigations be conducted as needed at the site of proposed construction projects. For example, a limited drilling program could be conducted at each development location in the Master Plan currently being prepared by PN&D. Verifying the presence or absence of contamination for each individual project would indicate to the Alaska Railroad whether handling contaminated soil and/or groundwater would be required during construction. This would allow the railroad to avoid construction claims associated with encountering unanticipated conditions during construction.

As noted in the October 21, 1999 report (Appendix O), both asbestos and lead based paint were confirmed to be present in the transit shed. Costs for asbestos removal were

estimated to be approximately $129,000. Costs for removal of lead based paint were not included; however, these costs should be fairly minimal assuming that the paint is remediated during building demolition, in which case the paint could be disposed of as part of the demolition debris. Removal of both the asbestos and lead based paint should be completed as soon as practicable.

6.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS PARTICIPATING IN PHASE I ENVIRONMENTAL SITE ASSESSMENT

This work for this project was performed and this report was prepared in accordance with generally accepted environmental practices in the State of Alaska at the time of this writing. The report was prepared by Larsen Consulting Group, Inc. under the direction of the undersigned in accordance with the procedures outlined in the *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E 1527-97).

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7.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS PARTICIPATING IN PHASE I ENVIRONMENTAL SITE ASSESSMENT

Ms. Deborah S. Allen. PE has over 15 years of engineering related experience in Alaska, including 10 years as a civil and environmental engineer. Her responsibilities have included project management, sanitary engineering, design, specification writing, geotechnical investigations, hazardous substance investigations, computer programming, water resource assessment, and report preparation. Throughout her career, Ms. Allen has participated on the following projects.

- PL-81 Pipeline Demolition, U.S. Air Force, Elmendorf Air Force Base, Alaska – Project Manager for preparation of design drawings and specifications for the demolition of the PL-81 pipeline. The project included demolishing nearly two miles of abandoned jet fuel and aviation gas pipelines and associated valve pit structures. The project was completed both on Elmendorf Air Force Base and within the Port of Anchorage. Prepared drawings and specifications to remove the pipeline, construct a parking area and bike trail, and restore the asphalt pavement. The entire project was completed in three months.

- UST Removal, Municipality of Anchorage, Department of Property and Facility Management – Senior Reviewer for a variety of underground storage tank (UST) removal and release investigations projects that were conducted at various municipal facilities throughout the City.

- Environmental Investigation, Kiska Island, U.S. Army Corps of Engineers, Alaska – Project Engineer for an environmental field investigation at Kiska Island in the Aleutian Chain. Project responsibilities included documenting and evaluating potential transportation routes and methods for future investigation and remediation activities at sites where potential contamination was encountered. More than 30 operable units were investigated for hazardous materials related to Japanese and American activities during World War II. Unexploded ordnance experts cleared each area prior to Dames & Moore's work. This remote site project was staged from a boat anchored in Kiska Harbor.

- ST-32 Pipeline Demolition, U.S. Air Force, Elmendorf Air Force Base, Alaska – Project Manager for the environmental investigation and design for the removal of the ST-32 fuel pipeline. The project included the demolition of nearly 3 miles of fuel pipeline along with more than 40 associated valve pit structures. The environmental investigation included drilling at each of the valve pits and conducting a soil vapor survey at 100-foot intervals along the pipeline alignment. An environmental report was prepared to document suspected contamination to assist prospective contractors in bid preparation. A complete design package was prepared including drawings, technical specifications, and an engineer's estimate of construction costs. The entire project was completed in just over two months to allow for bidding prior to the end of the federal fiscal year.

- Unexploded Ordnance Evaluation and Risk Analysis, Attu Island, U.S. Army Engineer Division, Huntsville – Project Manager for an Engineering Evaluation/Cost

Analysis (EE/CA) for unexploded ordnance (UXO) at Attu Island. The project included formulating and evaluating alternatives, including the project alternative, based on site history; previous site visits; estimated quantities of UXO; estimated risk to human life, property, and the environment; and a risk analysis performed for the higher priority sites. Results of the EE/CA were presented in a summary report that included a description of, and cost estimate for, implementing each alternative. After completion of the EE/CA, an Action Memorandum was prepared to identify the selected alternative and to serve as a decision document for the COE. Both the EE/CA report and the Action Memorandum were prepared in accordance with EPA guidelines and regulations.

- Soil Stockpile Characterization, U.S. Air Force, Elmendorf Air Force Base, Alaska – Project Manager for a bioremediation project to treat petroleum, oil, and lubricant (POL) contaminated soils. The project included the daily operation, monitoring, and maintenance of a lined bioremediation facility, including soil moisture and temperature monitoring, operation of air injection equipment, and collection and laboratory analysis of soil samples to monitor the progress of the remediation program. Interim reports were prepared periodically to apprise the USAF of the progress of the project. The project also included the characterization and mapping of 18 POL contaminated soil stockpiles to obtain estimates of the quantity of soil present, as well as the type and level of contamination in each stockpile. The goal of the mapping and sampling program was to provide adequate data to allow the Air Force to prepare a plan for the ultimate treatment and disposal of the soil.

- Site Assessment and Remediation Work Plans, National Park Service, Denali National Park, Alaska – Staff Engineer responsible for preparing remediation work plans and cleanup cost estimates for 17 properties within the historic Kantishna Mining District in Denali National Park. A comprehensive work plan was provided that included design drawings and construction/bid specifications for remediation using bioremediation (landfarming) and thermal treatment (incineration) for petroleum contaminated soils. Additional background samples and leachability analyses will be performed in areas suspected of being impacted by metals, arsenic, and/or cyanide.

- Environmental Assessment, National Park Service, Denali National Park – Field Engineer for a large Level I and Level II environmental assessment for hazardous materials on approximately 200 patented and unpatented lode and placer mining claims covering more than 4,700 acres in the old Kantishna mining district. Responsibilities included site reconnaissance and evaluation, soil and ground water sampling, and report preparation.

- Environmental Assessment, Federal Deposit Insurance Corporation, Tudor Centre, Anchorage – Project Engineer responsible for a Phase II environmental assessment of a shopping center. Responsibilities included installing and sampling three ground water monitoring wells and two soil borings, as well as preparing a report presenting the investigation findings.

- Remediation Work Plan, Arctic Coiled Tubing, Prudhoe Bay, Alaska – Project Manager for the preparation of a comprehensive work plan to remediate hydrocarbon contaminated soils at an oil field support facility on the North Slope of Alaska. Key

aspects of the work plan included consideration of soil temperature and moisture content because of the low mean annual temperature in the area (10°F), and the resulting effect of reduced biological activity. The work plan included provisions for interim soil sampling and analysis to monitor the progress of the remediation program. A detailed cost estimate to implement the work plan was prepared, and the entire plan was submitted to the Alaska Department of Environmental Conservation for approval.

- UST Removal, Brown & Root, Anchorage, Alaska – Project Engineer for the removal of three USTs and associated piping including two 10,000-gallon gasoline and one 500-gallon waste oil tanks. Specific project duties included monitoring tank removal and closure operations, collecting soil and groundwater samples for laboratory analysis, monitoring backfill operations, and preparing a summary report presenting the results of the field work. Subsequent work included characterizing the soil, which was removed from the excavation, and arranging for treatment and ultimate disposal of the impacted soils.

- Environmental Assessment, Tesoro Alaska Petroleum Company, Anchorage – Project Engineer responsible for a Phase I environmental assessment of a warehouse in Anchorage, including historical data review, site visit and interviews, and preparation of a report presenting the findings of the investigation.

- Environmental Assessment, Tesoro Alaska Petroleum Company, Anchorage – Project Engineer responsible for a Phase II environmental assessment of a warehouse in Anchorage, including supervising the installation of four monitoring wells, soil and ground water sampling for field screening and laboratory analysis, and preparing a report presenting the subsurface investigation findings.

ACADEMIC BACKGROUND

B.S. (1990) Civil Engineering, University of Alaska Anchorage

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers

CERTIFICATIONS/TRAINING

Nuclear Testing Equipment (Densometer) Certificate
First Aid and Adult CPR
HAZWOPER 40 Hour OSHA Training
HAZWOPER 8-hour OSHA Supervisor Training

REGISTRATIONS

Professional Engineer, Alaska (1994), CE #8747

8.0 REFERENCES

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R & M Consulting, Inc. *City of Whittier, Land Status Map.* Prepared for the Alaska Railroad Corporation. January 1999

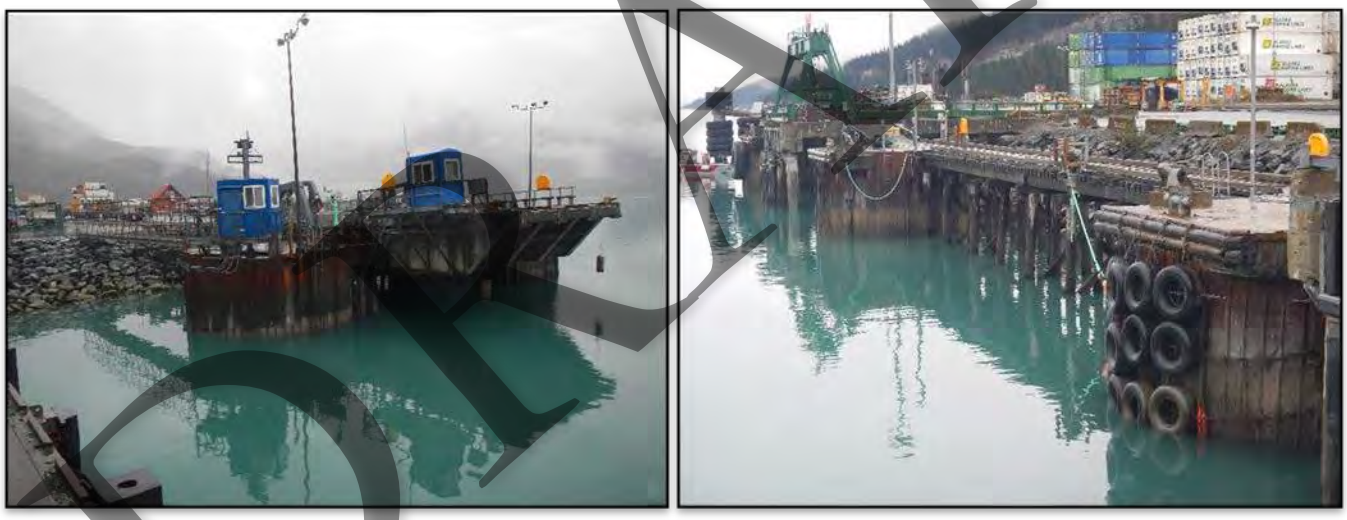
G.5. 2020 Structural Condition Assessment of Whittier Marine Terminal – Report of Findings and Recommendations

December 10th, 2020

2020 STRUCTURAL CONDITION ASSESSMENT OF WHITTIER MARINE TERMINAL

Report of Findings and Recommendations

Whittier, AK



Prepared For:

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ATTN: Elizabeth Greer
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EXECUTIVE SUMMARY

The inspected structures of the Whittier Marine Terminal were generally in poor condition, with condition assessment ratings ranging from critical to good. Structures/areas in poor, severe, or critical condition are listed below. A summary and general recommendations is in Section 1.3 and a detailed list of observations and recommendations are provided in Section 5 of this report.

- Winch Cells #1, #2 & #3 (1-Critical)
- Timber Finger Dock/Trestle and Mooring Bollard (West End) (1-Critical)
- Marginal Wharf (2-Serious)
- Barge Railcar Transfer Ramp Closed Cells, Timber Trestle & Catwalk (3-Poor)

Structures/areas in poor, serious, or critical condition should be inspected at a minimum of every 2 years due to their condition and frequency of use. Structures/areas in good, satisfactory, or fair condition should be inspected a minimum of every 4 years due to their condition. Inspection frequency recommendations are based on the structure material, coating/protection, condition severity, and environment.

1. GENERAL OVERVIEW AND SUMMARY

1.1 Introduction

This overview highlights the condition of the Whittier Marine Terminal structures in Whittier, AK. In addition, any high priority repair items are summarized within.

PND Engineers, Inc. (PND) provided a visual, above water condition assessment of the Alaska Railroad Corporation's (ARRC) Whittier Marine Terminal on October 6th (above deck) and October 10th, 2020 (below deck via boat). The above water condition assessment was conducted in accordance with *ASCE Manuals and Reports of Engineering Practice No. 130 (MOP 130),* **Waterfront Facilities Inspection and Assessment**, 2015. Global Diving and Salvage (GDS) provided a routine underwater dive inspection on October 6th and 7th, 2020.

See Figure 1 below for satellite view of inspected structures/areas:

- Marginal Wharf
- Turning Dolphin #4 (East end of Marginal Wharf)
- Barge Railcar Transfer Ramp Closed Cells, Trestle and Catwalk
- Barge Pass-Pass Concrete Docks #1 (East) and #2 (West)
- Timber Finger Dock/Trestle and Mooring Bollard (West end of Trestle)
- Winch Cells #1 (West), #2 (Middle) and #3 (East)
- Transfer Bridge
- Turning Dolphin #1 (East of Transfer Bridge)

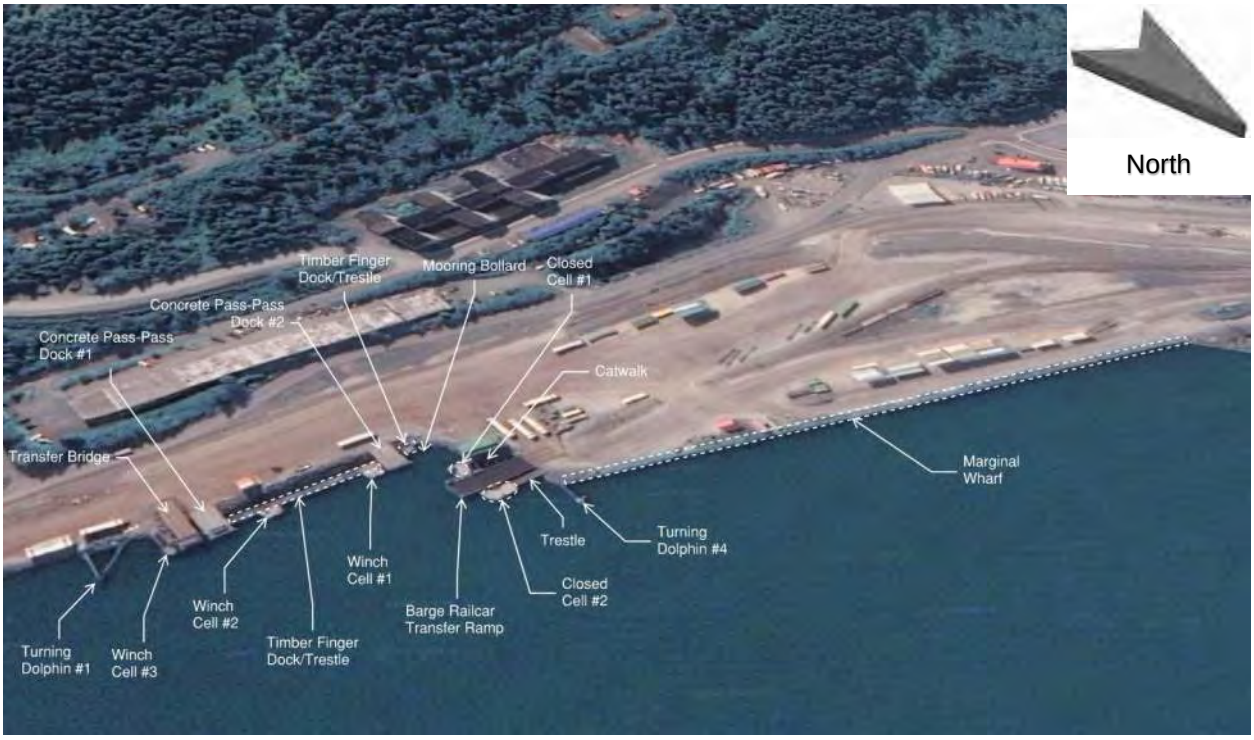

Figure 1 Satellite View of Inspected Components, Courtesy Google Earth

1.2 Qualifications of Inspectors

An above water investigation of all the ARRC dock structures in Whittier was completed by PND and an underwater inspection was completed by GDS. The investigation was conducted by highly qualified crews from both PND and GDS. The crews were composed of professional and technical personnel experienced in both inspection and assessment of the structural members. The following summarizes the site crew's credentials:

Table 1-1 Qualifications of Inspectors

Personnel	Credentials
Michael Beglin, P.E.	• PND Engineers, Inc. • Senior Engineer • 10 years experience in structural design and inspection
Mark Kobylinski, P.E.	• PND Engineers, Inc. • Senior Engineer • 11 years experience in structural design and inspection
Taylor Mortensen, E.I.T.	• PND Engineers, Inc. • Staff Engineer
Wade St. Clair	• Global Diving & Salvage • Supervisor • 11 year of experience in marine structures dive inspection
Weston Durocher	• Global Diving & Salvage • Diver • 10 years experience in marine structures dive inspection
Casey Lilijedahl	• Global Diving & Salvage • Diver • 9 years experience in marine structures dive inspection
Anthony Smith	• Global Diving & Salvage • Tender • 3 years experience in marine structures dive inspection

1.3 Summary and Recommendations

After a thorough on-site inspection and condition assessment, an overall rating has been assigned to each structure/area on the property. All ratings are based on the rating guidance established in the MOP 130 manual. A brief summary of recommended high priority actions is provided in this section. A more detailed list of all ratings, deficiencies, and repair recommendations on each major component of each structure (per area) is included in Section 5. Condition assessment ratings are for the overall structure (as opposed to each element/component) and are based on scale from 1 to 6. The condition assessment rating assigned to each structure/area is as follows: