# Seward Marine Terminal Expansion Planning




## *Passenger Traffic Study*

**April 2017**

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## Seward Marine Terminal Expansion Planning

# PASSENGER TRAFFIC STUDY

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With support by:

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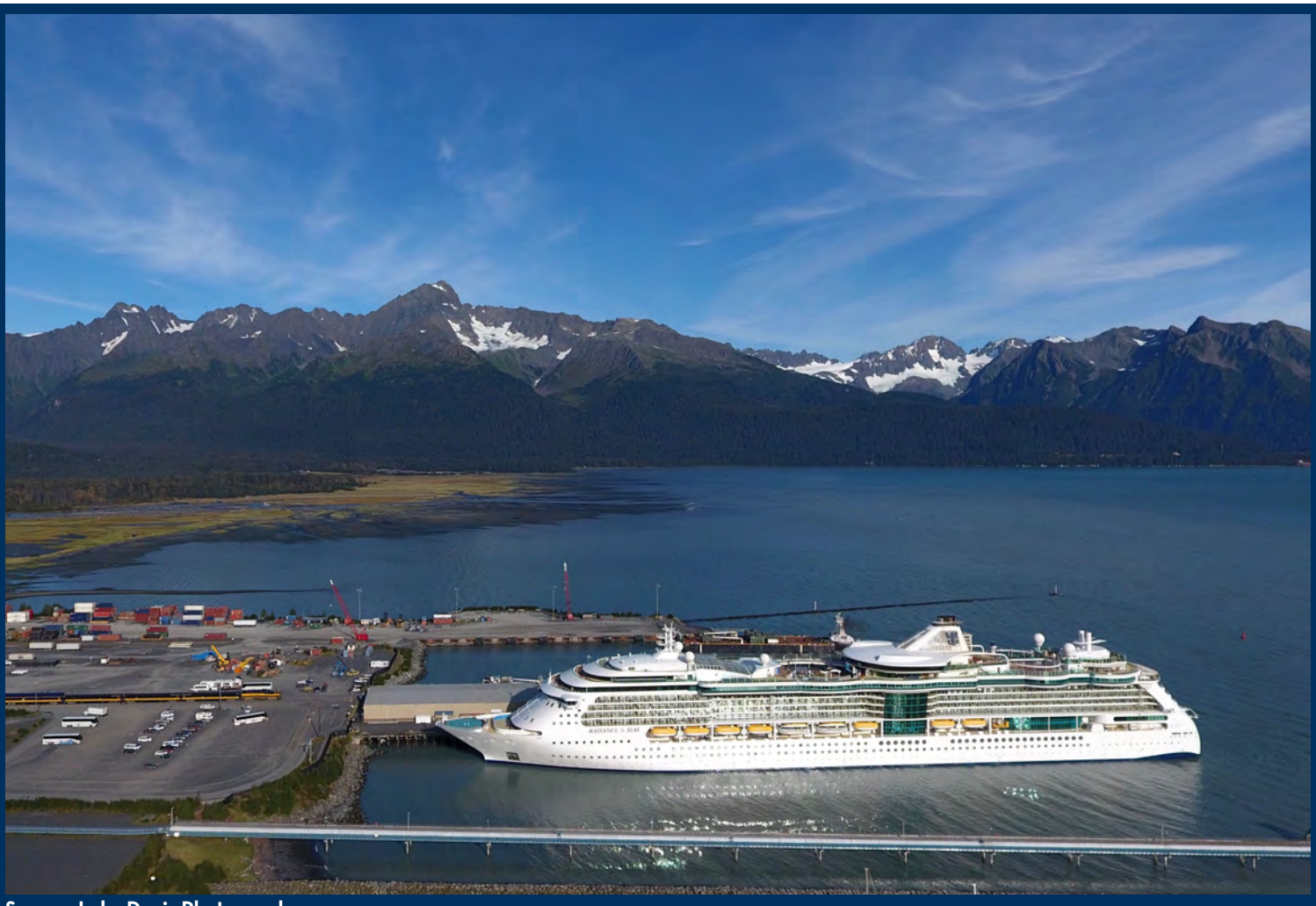

**Source: Luke Davis Photography**

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# Acronyms

| | |
|---|---|
| ADA | The Americans With Disabilities Act of 1990 |
| AMHS | Alaska Marine Highway System |
| ARRC | Alaska Railroad Corporation |
| CLIA | Cruise Lines International Association |
| DOT&PF | Alaska Department of Transportation and Public Facilities |
| FAA | Federal Aviation Administration |
| FRP | fiberglass reinforced polymer |
| HAP | Holland America Princess |
| LNG | liquefied natural gas |
| LT | Long Ton |
| MARAD | United States Department of Transportation Maritime Administration |
| MI | mile(s) |
| MLLW | Mean Lower Low Water Level |
| SLF | Seward Loading Facility |
| SMIC | Seward Marine Industrial Center |
| TIGER | Transportation Investment Generating Economic Recovery |
| USACE | United States Army Corps of Engineers |
| USCG | United States Coast Guard |
| USDOT | United States Department of Transportation |
| USFWS | United States Fish and Wildlife Service |


**ARRC Passenger Cars (Source: Judy Patrick Photography, 2017)**

# Executive Summary

## Introduction

The Alaska Railroad Corporation (ARRC) provides scheduled passenger train services between Anchorage and Seward. Though the amount of passenger traffic ARRC has handled to and from Seward over the past two decades has remained substantial, it has been subject to economic impact and periodic shifts as major intermodal partners including cruise lines and Alaska Department of Transportation and Public Facilities ferries have shifted their ports of call to other regional locations. ARRC maintains two separate passenger facilities in Seward that are 0.6 miles apart, both serving very different transportation needs.

The Passenger Traffic Study leverages data collection and direction provided by the project visioning process to assess the existing ARRC passenger facilities in relation to current and future demands. Where gaps are identified between existing facilities and future requirements, options have been identified to address the needs. These options have been vetted to evaluate their feasibility as part of the overall planning effort. The Seward Marine Terminal site is shown in Figure ES-1, with passenger facilities highlighted in blue.


**Figure ES-1: Seward Marine Terminal Site and Passenger Facilities**

The Passenger Traffic Study forms one component of the Seward Marine Terminal Expansion Planning effort, which is guided by the following vision statement:

> ***"Reimagining travel and trade to enhance economic vitality and increase opportunities in the region by balancing port, rail, and real estate to meet transportation demands."***

Other components of the planning effort are detailed below.

- The **Freight Traffic Study** considers ARRC facility needs in relation to current and future freight market demands at the Seward Marine Terminal.
- The **Transportation Connectivity Study** considers the intermodal connections that occur at the site (i.e. passenger and freight), and the various connections within the site and from/to other significant transportation facilities in Seward and Southcentral Alaska.
- The **Project Visioning Report** summarizes stakeholder outreach and public involvement activities undertaken for the planning effort.
- The **Economic Analysis Report** details the baseline for economic activities influencing business at the Seward Marine Terminal, looking at local, regional, state and national trends.

All of these studies and reports will inform the development of the Seward Marine Terminal Expansion Master Plan, which will set out a 20-year plan for the development of the Seward Marine Terminal.

## Background and Issues

The Seward Marine Terminal is owned and operated by ARRC. It was established at its current location at the head of Resurrection Bay in 1964, following the Good Friday earthquake. The first asset constructed at the site was the dock now referred to as the Passenger Dock and the associated building known as the Dale R. Lindsey Intermodal Terminal building. The passenger dock and terminal now primarily provide facilities for a range of cruise lines that land at Seward during the summer cruise season. Since the 1960s activities have grown at the site with the addition of the Seward Loading Facility in 1984, which primarily provides for the loading of coal; the Freight Dock, which was constructed in 2000; and a range of other buildings and facilities that cater to passenger, freight, and real estate activities at the site.

The Seward Depot is located separately from the dockside facilities, approximately 0.6 mile to the west of the terminal site along Port Avenue, near the intersection of Port Avenue and Fourth Avenue. The Depot provides the arrival point for the Coastal Classic train, which offers scheduled passenger services between Anchorage and Seward from mid-May to mid-September every year.

ARRC is aware that the passenger dock is nearing the end of its serviceable life. This, coupled with changes to the global and state economy, was the catalyst for ARRC to apply for a grant from the Transportation Investment Generating Economic Recovery, or TIGER Discretionary Grant Program, to invest in a comprehensive master planning effort for the Seward Marine Terminal. ARRC was fortunate to receive a generous award to proceed with this planning effort in 2014.

A comprehensive analysis of ARRC's facilities at the Seward Marine Terminal was undertaken to understand the quality of the facilities, whether they were meeting existing needs, and what improvements were required.

Extensive community involvement and engagement was undertaken to understand current challenges, deficiencies and concerns around passenger movement and public transportation at the Seward Marine Terminal. Input was gathered from individuals and businesses who use and have a relationship to the facilities, including internal

stakeholders from across ARRC departments, and external stakeholders comprised of current ARRC customers, local elected officials, Seward citizen planning commissions, and commercial property owners and leaseholders near the Seward Marine Terminal. Over the course of more than 60 stakeholder meetings, extensive information was gathered about the use of the site, and facilities and improvements that could occur.

A market analysis was conducted to understand what ARRC's passenger market is, both in terms of train operations and cruise operations. This analysis indicates positive historic growth for the Coastal Classic scheduled passenger service, and positive historic growth for cruise ship operations. For cruise operations, the Seward Marine Terminal competes with the Port of Whittier, which is the only other Port offering cruises that cross the Gulf of Alaska from the Inside Passage. In order to remain competitive with Whittier, it will be important for Seward to address issues with the passenger dock and terminal in a comprehensive and timely manner.

A number of key issues were identified, and the major highlights are as follows.

- **Passenger Dock**: A 2013 assessment of the passenger dock found significant corrosion and deterioration of the structural supports. It is characterized as being near the end of its serviceable life, and must either be remediated or reconstructed. With recent maintenance, the remaining life of the passenger dock is projected to be seven years from 2015.
- **Dale R. Lindsey Intermodal Terminal:** The terminal is constructed on the passenger dock. Dependent on whether the dock is remediated or replaced, the terminal may need to be demolished and a new facility constructed.
- **Seward Depot:** The current building has insufficient space for passengers between the 5:00 pm check-in and 6:00 pm boarding of the Coastal Classic.
- **Train Services:** There are no scheduled or chartered services available with a direct connection to Denali National Park. This is an impediment to some cruise line operators and passengers, who wish to connect with Denali as quickly as possible.

# Approach

To address the passenger traffic issues and needs at the Seward Marine Terminal, 82 individual options were identified by the project team. Through an iterative screening process, a total of 25 options were identified for further consideration. A comprehensive screening process was carried out to vet the options, involving multiple iterations of matrix based screening, workshops, and presentations to ARRC executives.

# Improvement Options

The following 25 improvement options were recommended for further consideration. These options may be considered as stand-alone, independent projects or may be combined with others to form more comprehensive solutions for each facility.

## Seward Depot

- **Option P-DE1 - Improve Existing Railroad Depot:** Improve the railroad depot to enhance passenger experience.
- **Option P-DE2 - Terminal and Depot Consolidated Facility:** Combine the depot and terminal near the current terminal location; relocate new fencing; and consider level platform loading.
- **Option P-DE3 - Depot Expansion and Traffic Reconfiguration:** Acquire physical possession of the land between the depot and Leirer Road; demolish existing three buildings; expand depot; and reconfigure traffic circulation.

## Dale R. Lindsey Alaska Railroad Intermodal Terminal

- **Option P-TE1 - Terminal and Depot Consolidated Facility:** Combine the depot and terminal near the current terminal location using either an all-season building construction or providing for sections of the building to have a lightweight glass construction where they are only used in the summer season; relocate new fencing; and consider level platform loading.
- **Option P-TE2 - Retain Existing Terminal on Passenger Dock and Retrofit Replacement Dock:** Retain the existing terminal building and upgrade to meet future needs.
- **Option P-TE3 - Independent Luggage Handling Facilities:** Provide improved luggage handling drop-off for independent travelers or day visitors switching between trains and cruises that are not accommodated by package plans.
- **Option P-TE4 - Terminal Electronic Signage:** Install electronic signage at the terminal to provide public service announcements and also use as a potential revenue generator (e.g., for advertisers, community activities, tours).
- **Option P-TE5 - Luggage Sorting Area in Terminal:** Create a dedicated area for sorting luggage in the terminal prior to loading it onto cruise ships.

**Photo ES-1: The Coastal Classic Train Arriving at the Seward Depot (Source: DOWL, 2016)**

**Photo ES-2: Dale R. Lindsey Intermodal Terminal Building at Seward (Source: Judy Patrick Photography, 2012)**

## Passenger Dock

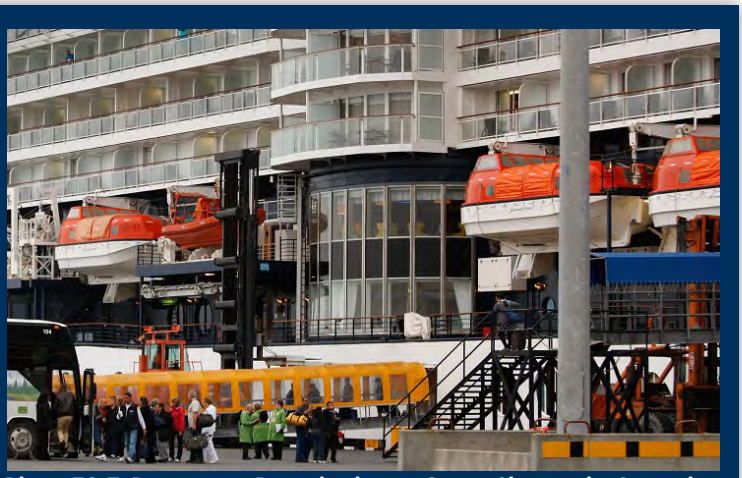

**Photo ES-3: Passengers Disembarking a Cruise Ship on the Seward Passenger Dock**
**(Source: Judy Patrick Photography, 2012)**

- **Option P-PD1 - Multi-purpose Dock Construction, Fill:** Replace existing passenger dock with multi-purpose dock designed for freight operations on the east side and passenger operations on the west side. Provide a concrete slab surface.
- **Option P-PD2 - Minimal Sheet Pile Dock:** Replace existing passenger dock with a sheet pile dock that meets the minimum needs of cruise ships.
- **Option P-PD3 - Widened Sheet Pile Dock Retaining Existing Terminal Building:** Salvage existing terminal building and construct a sheet pile dock to replace the existing passenger dock.
- **Option P-PD4 - Minimal Pile Supported Dock Retaining Existing Terminal Building and Existing Foundation Piles Reinforced:** Salvage the existing terminal building and construct a pile supported dock that meets the minimum needs of cruise ships.
- **Option P-PD5 - Full Size Pile Supported Dock:** Rebuild existing passenger dock to be a full-sized pile supported dock.
- **Option P-PD6 - Minimal Pile Supported Dock:** Replace existing passenger dock with a pile supported dock that meets the minimum needs of cruise ships.
- **Option P-PD7 - Seward Loading Facility Dock Pile Supported Platform Expansion:** Repurpose the Seward Loading Facility Dock to provide for cruise ship operations.
- **Option P-PD8 - Extend Freight Dock to Accommodate Cruise Vessels:** Extend the freight dock to provide for cruise ship operations.
- **Option P-PD9 - Cruise Ship Passenger Covered Walkway:** Construct a covered walkway from the passenger dock to the passenger terminal to make the initial disembarkation more inviting.

## Traffic Staging

- **Option P-TS1 - Outdoor Amenities at Terminal:** Provide outdoor amenities at the new terminal such as paving, parking organization, and landscaping.
- **Option P-TS2 - Improve Parking and Staging at Existing Terminal:** Improve the parking and staging arrangements at the existing terminal building.

## Passenger Dock Tracks

- **Option P-PD1 - Port Avenue Train Accommodations:** Reconfigure Port Avenue to accommodate the length of the Coastal Classic (14 cars) to the south of the carriageway; lengthen the passenger dock track; reconfigure the uplands between the passenger dock and Port Avenue; reconfigure Port Avenue; move the existing at-grade crossing to the north, minimizing the number of track ties that need to be worked around. (Assumes the depot and terminal are combined into one facility.)

## Port Avenue

- **Option P-PA1 - Port Avenue Improvements:** Improve the pedestrian route along Port Avenue between the terminal and Seward Highway.
- **Option P-PA2 - Port Avenue Improvements on Railroad Land:** Improve the aesthetics along Port Avenue north of the terminal to enhance the areas appeal to potential leaseholders.

## Real Estate Enhancement with a Passenger Focus

- **Option P-RE1 - Business Facilities:** Provide leaseholder opportunity to construct a facility for tourism-related businesses, such as a rental car facility.
- **Option P-RE2 - Big Box Retail Outlet:** Provide leaseholder opportunity to construction a big box retail outlet on railroad land to provide goods for purchase by residents of Seward, passengers, and other visitors to the city.
- **Option P-RE3 - Hotel:** Provide leaseholder opportunity to construct a hotel on railroad land to provide accommodations to passengers and visitors to the city.

# Next Steps

The information presented in the Passenger Traffic Study has been prepared to inform the development of the Seward Marine Terminal Expansion Master Plan. Further information on recommended approaches to site development, potential funding arrangements, and prioritization of projects will be addressed as part of the Master Plan.

# 1. Introduction

## 1.1 Seward Marine Terminal Expansion Planning Effort Structure

The Passenger Traffic Study is one of three major study reports that inform the Seward Marine Terminal Expansion Master Plan. It focuses on all passenger transportation activities and facilities at the Seward Marine Terminal, which are generally provided by train, cruise ship, motorcoach, or private passenger vehicle. Two other studies complete the major study reports.

- The **Freight Traffic Study** considers the Alaska Railroad Corporation (ARRC) freight facilities and activities at the Seward Marine Terminal. The freight facilities are generally focused around the freight dock and uplands area, which ARRC and a range of freight permit holders use for laydown, storage, and staging. In addition, the Seward Loading Facility (SLF) has until recently been used for the staging and loading of bulk coal freight. This activity has ceased and the facility has been shut down due to lack of demand. Freight activities include ship, barge, train, and heavy vehicle (truck movements) to, from and throughout the site.

- The **Transportation Connectivity Study** considers the intermodal connections that occur at the site (i.e., passenger and freight), and the various connections within and between the site and other significant transportation facilities in Seward and Southcentral Alaska. The study characterizes the existing connections, analyzes gaps, and proposes improvements with a particular focus on separating conflicts between passenger and freight traffic movements within and from the site.

In addition to these studies, additional reports have been prepared in support of the Seward Marine Terminal Expansion Master Plan.

- The **Project Visioning Report** summarizes the stakeholder outreach and public involvement activities undertaken for the project. It details the process for the development of the project's vision together with the feedback received from stakeholders.

- The **Economic Analysis Report** details the baseline for economic activities influencing business at the Seward Marine Terminal looking at local, regional, state, and national trends. It considers how economic stimulus projects could make the best use of available real estate at the site. The analysis will support improvement recommendations in the Passenger Traffic Study and also support site layout and staging in the Master Plan.

The Master Plan will set out the selected options from the Passenger, Freight, and Connectivity Studies and present them as a 20-year development plan, inclusive of concepts, designs, and recommendations.

The analysis will guide the assimilation of the projects into ARRC's existing terminal operations and consider constructability to enable operations to continue, cost, and the balancing of short- and long-term infrastructure needs with modal demands and space availability. The Master Plan will also focus on ensuring integration as much as practicable into the local Seward community and transportation network.

# 1.2 Project Vision

In response to stakeholder input, the project team crafted a vision statement to guide the project studies. The statement is a guide for the planning process. It takes into account stakeholder input, the ARRC's core values, economic forecasting, and the requirements of the project's Transportation Investment Generating Economic Recovery (TIGER) grant funding. The vision statement for the Seward Marine Terminal Expansion Master Plan project is as follows.

The vision statement assists planners in considering the best uses of the ARRC's assets in Seward. The statement will serve ARRC through planning and beyond to ensure this nationally- and regionally-significant port continues to meet current and future demand.

The Passenger Traffic Study assesses the existing ARRC passenger facilities in relation to current and future demands. Where gaps are identified between existing facilities and future requirements, options have been identified to address the needs. This report documents the existing study area characteristics and deficiencies, and carries out an analysis to forecast future demands and facility requirements. Options have been developed and evaluated with respect to these demands, and the preferred options are set out as recommendations to be taken forward in the Master Plan.

**Seward Marine Terminal Expansion Master Plan Vision Statement:**

***Reimagining travel and trade to enhance economic vitality and increase opportunities in the region by balancing port, rail, and real estate to meet transportation demands.***

# 1.3 Background Information

## *1.3.1 Project Funding*

The Seward Marine Terminal Expansion Planning project – also known as Railport Seward – is funded by a generous TIGER VI (National Infrastructure Investments) grant from the United States Department of Transportation (USDOT) Maritime Administration (MARAD). The MARAD-administered grant is in the amount of $2.5 million. ARRC is providing $500,000 in required total matching funds. The total project cost is $3 million.

The TIGER Discretionary Grant program provides a unique opportunity for the USDOT to invest in road, rail, transit, and port projects that promise to achieve national objectives. Since 2009, Congress has dedicated nearly $4.6 billion for seven rounds of TIGER to fund projects that have a significant impact on the nation, a region, or a metropolitan area.

The TIGER grant program is highly sought after and USDOT examines all applications on their merits to ensure that taxpayers are getting the highest value for every dollar invested through TIGER grants. Applicants must detail the benefits their project would deliver for five long-term outcomes: safety, economic competitiveness, state of good repair, quality of life, and environmental sustainability. USDOT also evaluates projects on innovation, partnerships, project readiness, benefit cost analysis, and cost share. As part of the TIGER VI, 41 capital projects and 31 planning projects were awarded grant funding.

## *1.3.2 Alaska Railroad Corporation*

The Alaska Central Railway (later renamed "The Alaska Railroad") built the first railroad in Alaska in 1903. It started in Seward and extended 50 miles to the north. Over the years, the railroad grew and expanded until 1985, when the State of Alaska purchased the railroad and incorporated it as a self-supporting, state-owned entity responsible for the operation and maintenance of this important mode of transportation. ARRC currently provides regularly-scheduled passenger and freight services along 580 miles of track.

The ARRC's mission is: *"Through excellent customer service and sound business practices, the Alaska Railroad Corporation (ARRC) provides safe, efficient and economical transportation and real estate services that support and grow economic development opportunities for the State of Alaska."*

The ARRC achieves its mission through three primary business lines: passenger services, freight services, and real estate holdings. Figure 1-1 shows what percentage of revenue ARRC received from each of its business lines in 2015 . While passenger service is the particular emphasis of the Passenger Traffic Study, all three business lines will be affected by the Seward Master Plan.

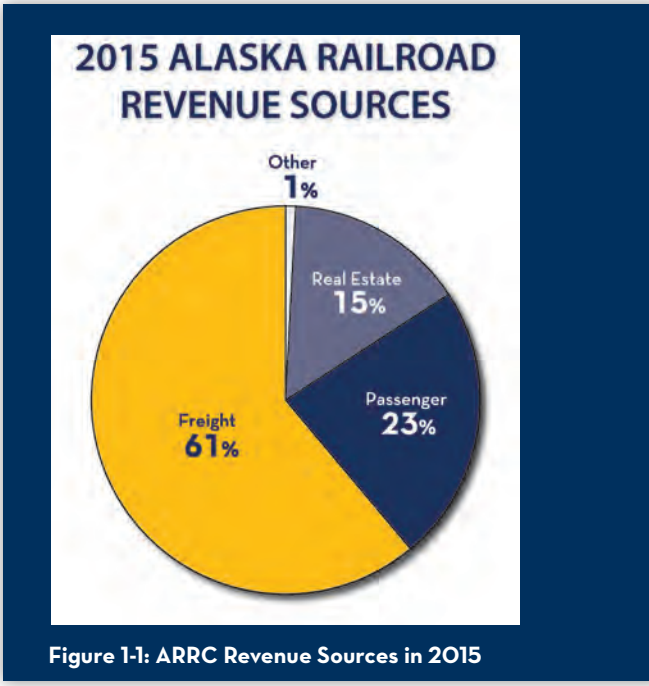

**Figure 1-1: ARRC Revenue Sources in 2015**

ARRC's Board has identified five strategies for its current focus in order to successfully deliver the mission. The recommendations made as part of the Passenger Traffic Study will be most successful in assisting ARRC to achieve its mission if they support the following strategies.

- **Revenue growth/diversification:** ARRC will grow by aggressively courting new business and taking bold steps to introduce new sources of revenue, all while providing superior customer service to its customers. It will be innovative and use the current economic environment as an opportunity to evolve and reinvent itself.
- **Cost structure:** ARRC recognizes that revenue growth alone is not enough, and it will continue to drive costs down through greater efficiency, better use of technology, a team effort to change habits, and generally finding leaner ways to operate.
- **Capital investment:** ARRC will invest wisely in capital maintenance and projects/initiatives that provide a return on capital dollars and that enable it to provide exemplary customer service. It will maintain existing assets and invest in projects that improve safety and profitability.
- **Safety/Engagement:** ARRC will drive employee engagement and safety improvements by addressing shortcomings in its company culture and training employees so they have the tools to do the job well.
- **Relationships:** ARRC will foster and expand working relationships with key stakeholders and groups.

## 1.3.3 Seward Marine Terminal

The Alaska Railroad owns a land reserve at Seward that encompasses about 328 acres. Much of this land is used for train operations. This includes the rail yard where train maintenance and maneuvering occurs, as well as the passenger depot and terminal facilities. The facilities also include two docks and adjacent uplands, which support intermodal operations for both passenger and freight operations. The facilities at the site are detailed in Section 2.1 of this report. An aerial Photo showing the Seward Marine Terminal site is provided in Figure 1-2.

https://www.alaskarailroad.com/sites/default/files/Communications/2016_ARRC_Facts-Figures_or.pdf


**Figure 1-2: Seward Marine Terminal Site**

## 1.4 Study Objectives

The high level objectives of the Passenger Traffic Study are as follows.

- **Set a baseline of information relating to passenger facilities and passengers.** The Seward Marine Terminal comprises of a range of passenger facilities, most notably the Seward Depot, the Dale R. Lindsey Intermodal Terminal building (the terminal), and the passenger dock. Passengers include train passengers and cruise ship passengers, who transfer to a range of other services on the site. A discussion on existing passenger facilities and types of passengers that use the site is included in Section 2 of this study.
- **Identify issues with the existing facilities and services.** The facilities at the Seward Marine Terminal provide a range of functions and services and range from 16 years to more than 50 years of age. The current facility uses are not in all cases the uses for which they were constructed and compromises have been made to adapt to changes in usage and demand over time. A discussion of existing deficiencies in facilities is included in Section 5 of this study.
- **Identify options to address deficiencies.** A range of options have been developed to address the identified issues and deficiencies. These options have been through an iterative evaluation process, which has enabled refinement of the options and responses to a range of stakeholder inputs. A discussion of the options and evaluation process is included in Section 7 of this study.
- **Refine options to generate a preferred approach.** As part of the identification of options, a comprehensive economic analysis has been conducted to understand the existing market, needs, trends, and growth over the next 20 years. The relative advantages of the Seward Marine Terminal have been explored to identify a preferred approach with a range of options available to expand passenger services and facilities at the Seward Marine Terminal over the next 20 years.

# 2. Existing Conditions

## 2.1 Alaska Railroad Network

The Alaska Railroad extends a total of 470 miles (760 kilometers) from Seward, in Southcentral Alaska, to Eielson Air Force Base, which is located near Fairbanks. It includes 15 land reserves (see Figure 2-1[2] ), four of which have railyards including Seward.

ARRC owns the Ports of Seward and Whittier, and has significant land holdings at the Port of Anchorage. Rail connection is provided to all of these ports for freight purposes.

### 2.1.1 Scheduled Passenger Services

ARRC operates the following scheduled passenger train services.

- The **Coastal Classic** operates between Anchorage, Girdwood, and Seward between mid-May and mid-September each year. The Coastal Classic is a daily round-trip service that departs Anchorage at 6:45am daily and arrives in Seward at approximately 11:05am. It spends the day in Seward and departs at 6:00pm, returning to Anchorage at approximately 10:15pm.

- The **Denali Star** is ARRC's Flagship train. Each day between mid-May and mid-September, the train departs Anchorage for the 12-hour journey north to Fairbanks, while a sister train in Fairbanks makes the same trip in reverse. Along the way, the Denali Star may stop in Wasilla, Talkeetna, and Denali National Park. The Denali Star departs Anchorage and Fairbanks daily at 8:15am, and arrives at the opposite destination at 8:00pm.

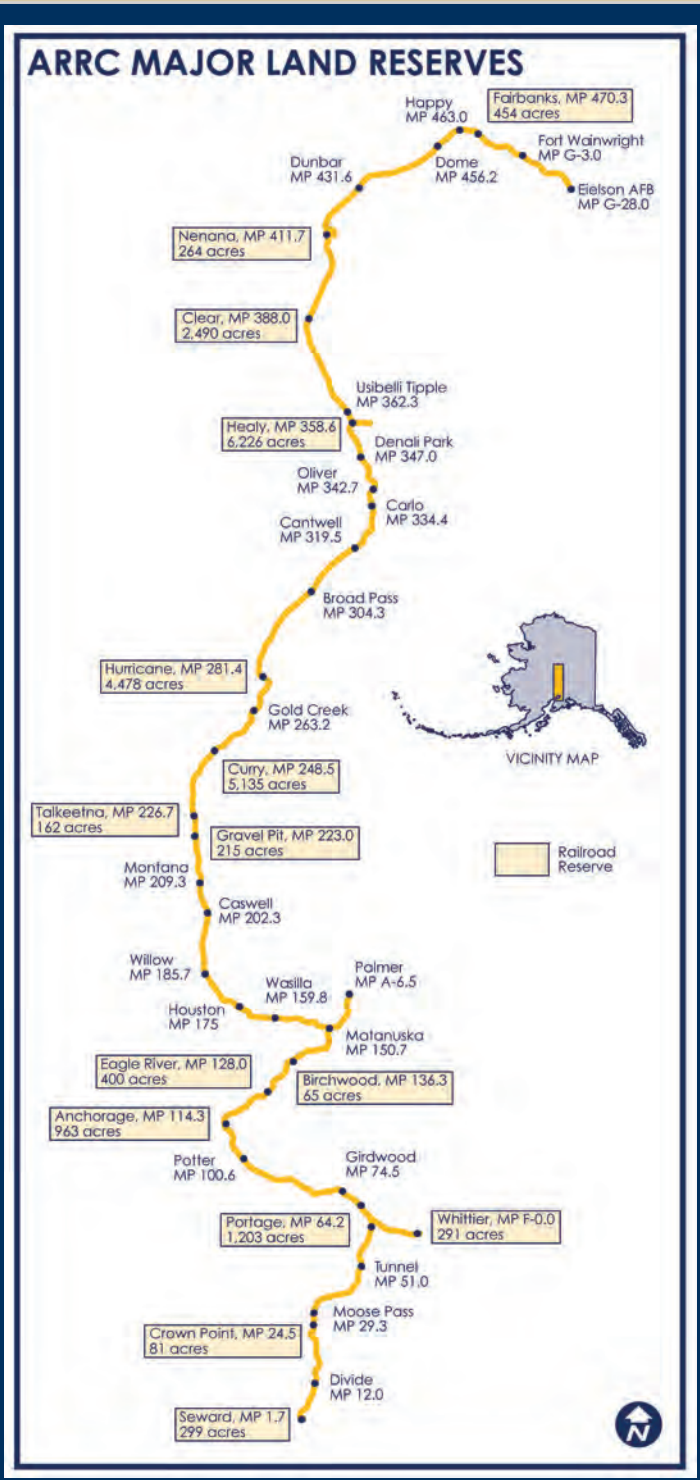


**Figure 2-1: Alaska Railroad Network and Land Holdings**

[2] https://www.alaskarailroad.com/sites/default/files/akrr_pdfs/2015_02_19_Real_Estate_Business_FS_PR.pdf

- The **Glacier Discovery** train travels south daily between late May and mid-September from Anchorage and makes a brief stop in Girdwood before continuing on to Whittier, Portage, the Spencer Glacier Whistle Stop, and Grandview. On the return journey, Anchorage and Girdwood-bound passengers may opt to disembark at Portage for a direct motorcoach transfer, or stay on the train for the more lengthy journey including a stop in Whittier.
- The **Hurricane Turn** train serves as a lifeline for Alaskans living off the road system in the backcountry wilderness north of Talkeetna. In summer, the Hurricane Turn train operates Thursday through Monday, departing Talkeetna and providing flagstop service along the way to the turnaround point of Hurricane Gulch. The Winter Hurricane operates on the first Thursday of the month October through May, departing from Anchorage and making the round-trip journey to Hurricane Gulch (MI 281.4). This is a flag stop train. Typical stops are: Chase (Mile (MI) 236.2), Curry (MI 248.5), Sherman (MI 257.7), Gold Creek (MI 263.2), Twin Bridges (MI 270), and Chulitna (MI 273.8).
- The **Aurora Winter Train** operates from mid-September to mid-May, connecting Anchorage and Fairbanks and providing flagstop service between Talkeetna and Hurricane. The train operates in either a northbound or southbound direction, dependent on the day and as advertised on the ARRC website.

The Coastal Classic is the only service that operates with scheduled departures to and from the Seward Marine Terminal. The Coastal Classic operates two different classes of service as follows.

- **GoldStar Class** is the Alaska Railroad's premium class of service. Glass-dome ceilings on cars allow for panoramic views of Alaska and an outdoor, upper-level viewing platform offers fresh air and an excellent vantage point for photos. On the lower level of Goldstar railcars, passengers enjoy a full-service dining room; GoldStar tickets include meals, all soft beverages, and two complimentary adult beverages per trip for passengers over 21.
- **Adventure Class** cars offer comfortable seating and large picture windows. Open-air vestibules between railcars provide an opportunity for fresh air and excellent photo opportunities. Adventure Class guests are encouraged to travel between railcars, whether to take advantage of the open seating in the Vista Dome cars or visit the Wilderness Café. Cars feature large picture windows, on-board dining and bar service available for purchase, freedom to explore between Adventure Class cars, and access to open seating in the Vista Dome car.


**Photo 2-1: GoldStar Class Cars (Source: Glenn Aronwits Photography)**


**Photo 2-2: Adventure Class Cars (Source: Glenn Aronwits Photography)**

In addition to the passenger cars, a dining car, baggage service, non-smoking cars, and wheelchair accessible service are available.

## 2.1.2 Cruise Train Services

Almost all cruises that start and finish in Southcentral Alaska arrive or depart from Seward or Whittier. Both of these ports are located in small coastal cities with relatively low population and no scheduled passenger air service. Although a broad range of activities are available for tourists, most of these cater to visitors staying for a short time and there are limited accommodation options available in these cities.

Therefore, almost all cruise ship passengers need to be transported to Anchorage or Fairbanks for transportation in and out of the state and for connections to other activities throughout Alaska. The only available option for cruise ship passengers to make this 120 mile journey is by train, motor coaches, or by private passenger vehicle.

As well as scheduled passenger train service as described above, a range of contracted train services operate on the Alaska Railroad network to provide passenger transportations connections between Seward and Whittier to cities, airports, and other locations throughout the state. The Seward cruise train only offers trips to Anchorage. Passengers can then choose to transfer to other cruise trains or scheduled services to travel north to Denali or Fairbanks. Photo 2-3 shows the Grandview Cruise Train at Seward.

Discussions with operators and Alaska Railroad passengers services staff indicates the cruise train is an extremely popular service and is almost always fully booked. Passengers who are unable to secure bookings on the cruise train are offered a transfer to the Coastal Classic.


**Photo 2-3: Grandview Cruise Train at Seward (Source: DOWL, 2016)**

# 2.2 Seward Passenger Facilities

ARRC owns a range of passenger facilities in Seward which collectively accommodate over 280,000 passengers from cruise ships and trains every year. In addition, ARRC owns approximately 328 acres of adjacent land essential for all train operations. Railroad land not used to support freight or passenger operations is set aside for capital and expansion opportunities or is made available for lease.

Figure 2-2 shows the location of ARRC's passenger-related facilities. Fact sheets for the facilities are included in Appendix A and an overview of each facility is provided below.

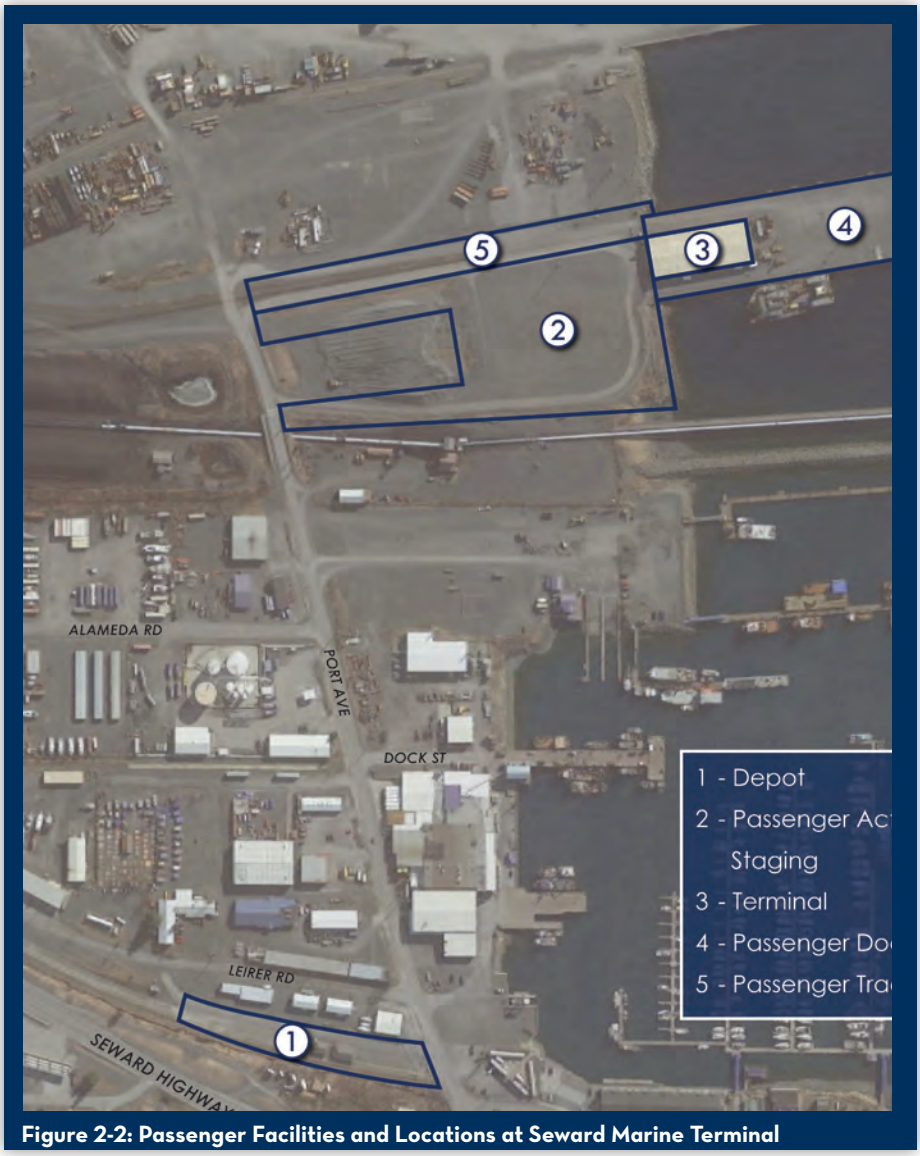


**Figure 2-2: Passenger Facilities and Locations at Seward Marine Terminal**

## *2.2.1 Seward Depot*

The Seward Depot provides accommodations for passengers using the daily-scheduled Coastal Classic train between mid-May to mid-September. It is a single-story building constructed in 1997, which provides a waiting area, storage room, small mechanical room, a single restroom, and a reception/ticketing counter area with storage. Tourist pamphlets, brochures, and other information are available at the depot. Rail passengers can make transportation connections to the City of Seward, local tours, restaurants, attractions, hotels, and cruise ships from the depot. Additional restrooms are provided in a small, separate building north of the depot.

Photo 2-4: Seward Depot (Source: DOWL, 2016)

Luggage handling occurs in a steel-framed tent located north of the restroom building. A small storage shed is located at the far north end of the depot site and a shore power connection is provided for parked trains at the south end.

Both the depot and restroom building are raised construction, approximately 12 inches above adjacent grade, and are equipped with ramp and stair access that meet current Americans with Disabilities Act of 1990 (ADA) requirements. The one-story structures have modified hip roofs and horizontal wood siding. The facilities are seasonal, operating mid-May to mid-September. Currently, the Coastal Classic train arrives in Seward daily at 11:05 am and departs for Anchorage at 6:00 pm. The heaviest use of the building is between 5:00 pm and 6:00 pm, after passengers have checked in for the return trip to Anchorage.

Access to the depot and parking is by a one-way drive that enters northeast of the depot from Leirer Road and exits south to Port Avenue. The parking available at the Seward Depot site is very restricted and overflow parking takes place on the south side of Port Avenue at "The Train Wreck," a local café and site of interest. Similarly, traffic staging space at the depot is very restricted by the small size and dimensions of the site.

### 2.2.2 Dale R. Lindsey Alaska Railroad Intermodal Terminal

The Dale R. Lindsey Alaska Railroad Intermodal Terminal (the terminal) was constructed in 1966 and is a 26,555 square foot, steel framed, rectangular building located on the Seward Passenger Dock. The main entrance to the building is located on the north end facing toward the Seward Marine Terminal uplands, and disembarking cruise passenger access is located at the south end of the terminal, which crosses directly onto the passenger dock. The majority of the internal building area comprises an open space with a polished and heated concrete floor and a 25-foot ceiling. The walls are decorated with scenic banners of Seward and the Kenai Fjords National Park. The area has capacity to accommodate up to 1,675 people at one time.

The northeastern corner of the ground floor of the terminal contains a large storage closet, mechanical room, office space, and public restrooms. This area also contains a stairwell to an upper level which contains six additional offices, a mezzanine level meeting space and viewing area to the ground floor, a single male restroom, and a single female restroom.

Photo 2-5: Exterior View of Terminal (Source: Judy Patrick Photography, 2012)

The terminal building was initially constructed as an unheated warehouse to support dock operations. Substantial renovations were undertaken between 2001 and 2004 involving connecting the building to city sewer and increasing the useable floor plan by partially covering an existing depressed railroad track area. Improvements also included seismic/structural upgrades, concrete floor poured over radiant heat tubing, new lighting, replacement of some doors and windows, exterior lighting replacement, security fence additions, and replacement and upgrades of the mechanical and electrical systems.

**Photo 2-6: Terminal Interior During Cruise Ship Embarkation (Source: DOWL, 2016)**

During cruise ship season a variable layout is used for the building, dependent on whether an embarkation or disembarkation from a cruise ship is underway. The layout is also dependent on the cruise line operator and the number of ships at the passenger dock. Limited amenities such as a small coffee stand and a car rental concession stand are provided from portable facilities. Outside of cruise ship season, the terminal is available for hire and has limited usage as a venue for sports practices, community festivals, weddings and other celebrations, and conferences.

### 2.2.3 Passenger Dock

The Seward Passenger Dock (also known as the West Dock) was constructed in 1965. The dock was a replacement dock for the original ARRC dock that was destroyed in the tsunami following the 1964 Good Friday Earthquake. The original dock and ARRC facilities were located in downtown Seward near the present day location of the Alaska Sealife Center, and these facilities were completely destroyed. The dock is a pile-supported pier dock with a concrete deck, a length of 736 feet and a width of 200 feet. The surface area of the dock is 147,200 square feet and it has an elevation of 24 feet relative to Mean Lower Low Water Level (MLLW). It is equipped with seven ship fenders, three barge fenders, 12 mooring bollards, and two mooring dolphins at 300 feet and 400 feet from the end of the dock. The Dale R. Lindsey Alaska Railroad Intermodal Terminal is located

**Photo 2-7: Buses Staged On Passenger Dock on Cruise Ship Day (Source: Judy Patrick Photography, 2012)**

in the middle of the northern end of the Passenger Dock.
The Seward Passenger Dock served as a multi-use dock for cargo vessels, cruise ships, and the Alaska Marine Highway System passengers until the construction of the Seward Freight Dock in 2001. While a majority of the current freight operations have now moved to the Seward Freight Dock (East Dock), the Seward Passenger Dock continues to provide support and moorage space for freight vessels during the tourist off-season.


Photo 2-8: Passenger Dock Surface (Source: DOWL, 2016)

The dock has reached its 50 year design life. The foundation has experienced significant corrosion, which has limited the remaining useful life of the dock and has resulted in weight restrictions being implemented. As a result, a single rail track spur extending to the end of the dock is no longer in service. The current fendering system is in relatively good condition, although there is minor damage present on the timbers of the corner fenders. The dock surface is worn but in generally good condition.

### 2.2.4 Traffic Staging Area Outside Terminal

Traffic staging to support cruise ship activities takes place in a five-acre area located immediately to the north of the terminal at the head of the passenger dock. The area is used for loading and unloading passengers and luggage from buses and trains after they enter or exit the terminal. Tour companies also store vehicles at the site overnight. During the winter months the area is sometimes used as a temporary laydown area for freight. A circular asphalt road provides access to the staging area from Port Avenue and a path located on the western side of the area provides pedestrian access between the terminal and Port Avenue and beyond to the depot and small boat harbor. The eastern boundary of the staging area is defined by railroad tracks that are used by cruise train services.

The following businesses and shuttle services are examples of activities currently using the traffic staging area outside the terminal.  This list is substantially complete, but is not exhaustive.


Photo 2-9: View across Traffic Staging Area to Terminal (Source: Judy Patrick Photography, 2012

- **Alaska Park Connection** is a scheduled summer bus line service that operates between Anchorage, Denali National Park, Talkeetna, Whittier, and Seward. Cruise transportation is available from Whittier and Seward.
- **Alaska Cruise Transfers and Tours** offers transfers between Seward and Anchorage by motorcoach, with some options including a visit to the Portage Wildlife Park or visiting tourist attractions along the way.
- **Alaska Toby Motorcoach** offers motorcoach transfers and tours.
- **Bear Paw Transportation** offers private and shared shuttle transportation options by shuttle bus, van, motorcoach, or limousine.
- **BAC Transportation** offers private shuttle transportation options by shuttle bus, van, or limousine.
- **Magic Bus** offers daily cruise ship transfers including limo buses, sedans, vans, and motorcoaches.
- **Premier Alaska Tours** is a wholesale company that provides services exclusively to tour operators, cruise lines, and other agencies.
- **Shuttleman Transportation** provides an airport shuttle and private van service between Seward and Ted Stevens Anchorage International Airport.
- **Local taxi services** provide pick up and drop off services at the Seward Marine Terminal.
- **Seavey's Iditaride** provides a shuttle to a range of tours including glacier dog sled tours, the real Alaska day tour, and wilderness dog sled ride and tour.
- **Kenai Fjords Tours** provides a shuttle service to their facility at the small boat harbor. Kenai Fjord Tours offers day cruises and tours of Resurrection Bay.
- **Major Marine Tours** provides a shuttle service to their facility at the small boat harbor. Major Marine Tours offers day cruises and tours of Resurrection Bay.
- **Hertz Rental Car** provides a shuttle service to their rental car office and facility on Port Avenue.
- **City of Seward Free Shuttle** provides service between the terminal, depot, and other locations within the City of Seward on a circuit that runs daily.

### 2.2.5 Passenger Dock Tracks

**Photo 2-10: Passenger Dock Tracks (Photo: Hanson, 2015)**

The passenger dock tracks, originally constructed in 1966, are used for loading and unloading cruise trains and occasionally for loading and unloading freight from rail cars. There are two parallel tracks located along the eastern edge of the traffic staging area outside the Terminal. The portion of the passenger track that extends onto the passenger dock is permanently out of service due to weight restrictions on the aging dock.

## 2.2.6 Small Boat Harbor Land

The Seward Small Boat Harbor is bordered by Port Avenue to the north and Fourth Avenue to the west. The area provides a full service, small vessel port that is bordered on the western side by restaurants, hotels, tourist facilities and other amenities. The ARRC owns the land located at the northern end of the small boat harbor, including land occupied by "The Train Wreck," Hotel 360, Chinooks Restaurant, and an empty building that formerly housed the Seward Yacht Club. The small boat harbor is located approximately 0.6 mile from the Passenger Terminal, and provides a hub for tourist activities in Seward.

**Photo 2-11: Seward Small Boat Harbor. (Source: DOWL, 2017)**

## 2.2.7 Port Avenue

The facilities owned and operated by ARRC are connected by Port Avenue, which is classified as a rural collector road and is owned by the City of Seward. Port Avenue has an industrial character and provides a sidewalk on the northern side of the road that connects the railroad depot with the Seward Marine Terminal. The only tourism-focused business along the road is the Hertz rental car office. Other businesses along Port Avenue include Shoreside Petroleum and Icicle Seafoods, as well as a range of small industrial operations. Port Avenue also provides access to a public boat ramp and parking facility at the small boat harbor.

**Photo 2-12: Port Avenue (DOWL, 2016)**

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# 3. Community Involvement and Engagement

## 3.1 Visioning Process

To identify current deficiencies and concerns around passenger movement and public transportation at the Seward Marine Terminal, the project team gathered input from people and businesses that use or have a relationship with the facilities. Two types of stakeholders were identified: internal stakeholders across company-wide ARRC departments and external stakeholders comprised of current ARRC customers, local elected officials, Seward citizen planning commissions, and commercial property owners and leaseholders near the Seward Marine Reserve. Meetings, surveys, email and telephone correspondence, workshops, newsletters, and a website were used to initiate and maintain outreach during the course of the planning process. The sections below detail the stakeholder engagement process, identify the individual stakeholders involved, and describe specific outreach activities conducted and key priorities observed.

## 3.2 Stakeholder Outreach

Public and stakeholder outreach sought to identify common goals between the ARRC and the local community in an effort to prioritize local infrastructure investment needs. In-person meetings, surveys, email and telephone correspondence, workshops, newsletters, and a website were used to initiate and maintain outreach during the course of the planning process. Throughout visioning, outreach sought to educate stakeholders about the project, inform stakeholders how and when they could provide input, obtain meaningful feedback to guide development of the vision statement, and establish points of contact with subject matter experts.

The project documented stakeholder data on passenger traffic demands, modes and flow in Seward and throughout Southcentral Alaska, and gathered ideas on how to improve ARRC's facilities and real estate to serve the region and the state. For the purpose of continuing to meet local and global economic fluctuations, visioning has remained an ongoing activity throughout the life of the project.

### *3.2.1 Internal and External Stakeholder Meetings*

To ensure consistent and appropriate qualitative stakeholder data, meeting materials included planning-level slide presentations, a survey questionnaire, and a tabletop aerial map of the project area to orient and document stakeholder comments around the Seward Marine Terminal assets. The survey questionnaire was provided to stakeholders in hard copy format at each meeting and also emailed as a fillable form. A total of seven internal and 53 external stakeholder visioning meetings occurred in October 2015 through July 2016 in person or via teleconference. Copies of meeting materials and presentations are included as part of the Stakeholder Visioning Report.

All stakeholder meetings were documented with meeting minutes and aerial map notes. Survey questionnaires allowed for follow-up comments, or comments in lieu of meeting participation. Stakeholders were encouraged to forward or share the survey questionnaires with personnel in their department or organization with subject matter expertise. A total of three internal and 19 external stakeholder survey questionnaires were returned. Additional emailed comments, meeting minutes, and returned surveys are included in an appendix to the Stakeholder Visioning Report. In addition to the stakeholder meetings, the project team traveled to Seward on November 16, 2015, to meet with ARRC on-site staff for a three-day work session. The purpose was to view and discuss the operation of the facilities, conduct a site walk-over, and inventory existing facilities.

### 3.2.2 Anchorage Transportation Fair

ARRC hosted a booth at the Anchorage Transportation Fair on February 4, 2016, and on February 15, 2017, with project representatives in attendance to answer questions. A poster and fact sheet were developed to support stakeholder education. This material is included as an appendix to the Stakeholder Visioning Report.

**Photo 3-1: ARRC Marketing Division participating in an Internal Stakeholder Meeting, October 2015 (Source: E3 Environmental, 2015)**

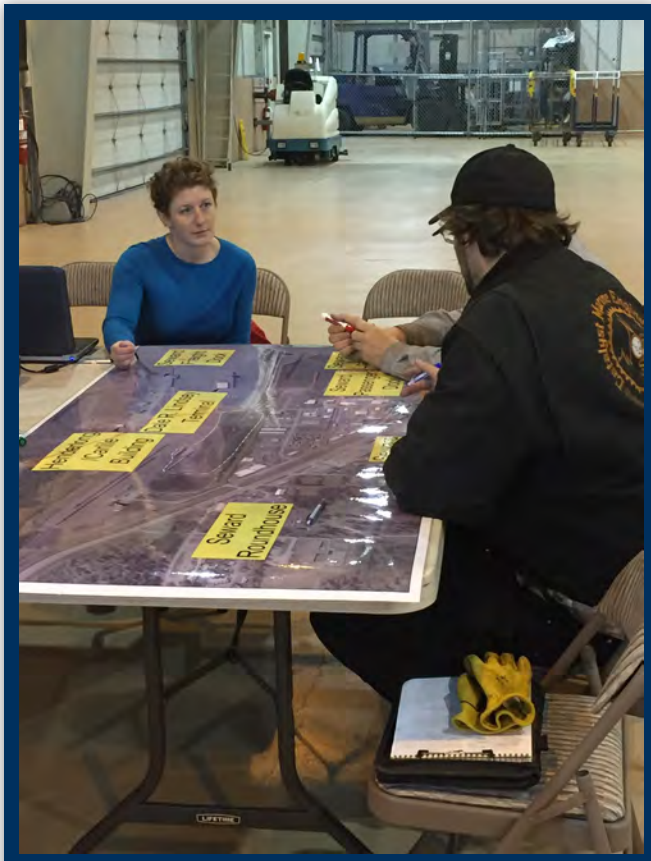


**Photo 3-2: External Stakeholder Meeting at Seward Passenger Terminal, October 2015 (Source: DOWL, 2015)**

### 3.2.3 Additional Stakeholder Outreach Efforts

Contact was attempted with additional external stakeholders without success. For stakeholders who missed initial meetings, a follow-up email invitation to a second meeting was sent, along with a survey questionnaire and the visioning slide presentation in a final effort to obtain input prior to the project moving into the study phase.

# 3.3 Key Issues

A summary of comments received during the visioning process is provided below in Table 3-1. These comments seek to identify common goals between the ARRC and the local community:

**Table 3-1: Internal and External Stakeholder Comments**

| Topic | Internal Stakeholder Comments | External Stakeholder Comments |
|---|---|---|
| Passenger Dock | • Cruise ships are getting larger and require accommodations for different luggage and gangway configurations.<br>• Shoreside Petroleum has a fuel line on the dock, but still takes trucks out to fuel vessels.<br>• Current weight restrictions prevent heavy freight use.<br>• Making the dock dual purpose would allow year-round use. | • Tour companies would like to continue to drive motor coaches onto the dock and/or have rail on the dock for passenger loading. They also mentioned separating passengers from luggage vehicles for better safety.<br>• Cruise ships would like hard data lines on both sides of the dock, accommodations for larger ships and configurations, and fresh water.<br>• Freight companies said securing dock landing times was a hassle, the dock was not configured for small vessels, and they would like year-round use. They also noted Shoreside Petroleum has a fuel line on the dock but still takes trucks out to fuel vessels.<br>• Moorage during winter is useful, but the dock is exposed to weather. |
| Freight Dock | • Current fendering is dangerous and needs improvement.<br>• Traffic congestion is a problem. Pilots do not like to take their vessels all the way in at the landward end of the dock because of current draft. Weather and tide conditions can prevent loading or offloading.<br>• Roll on/roll off ramps would make moving freight easier.<br>• Ability to load directly from ship to railcars would be ideal for pipe and containers.<br>• The freight dock gets muddy which makes it hard to move equipment and requires constant cleaning of the tracks.<br>• Put the track all the way to the end of the freight dock extension. | • Current fendering is dangerous and needs to be improved.<br>• Traffic congestion is a problem. Pilots do not like to bring vessels all the way in to the landward edge of the dock because of current draft. Weather and tide conditions can prevent loading or offloading and delays are expensive.<br>• Large ships cannot access all their holds at once because the dock is too short, and small barges find the dock too high for offload. Roll on/roll off ramps would make moving freight easier, as well as the ability to offload on both sides of the dock.<br>• Freight operators want mooring dolphins at the current barge ramp, paving to support heavy equipment, better lighting, fresh water for vessels, restrooms for freight workers, and a wider gate in the fence surrounding the freight dock uplands area.<br>• Independent barge operators prefer the option for facilities to be not be shared with other operators or reliant on ARRC staff for support.<br>• Vessel-mounted cranes cannot reach the second set of rails currently installed on the freight dock. The ability to load pipe or containers directly from ship to railcars would be ideal. |

| Topic | Internal Stakeholder Comments | External Stakeholder Comments |
|---|---|---|
| Terminal | • Upgrade technology (i.e. electronic signs and free Wi-Fi).<br>• Keep terminal rates competitive to retain current customers.<br>• Seward's current terminal layout allows passengers to transition in and out quickly, giving Seward a high rating with cruise operators.<br>• The community appreciates space large enough to hold events and use in an emergency situation.<br>• Maintaining and operating the building during winter is costly due to its design characteristics and age.<br>• Upgrade technology for freight office spaces. | • Tour companies like technology such as electronic signs and free Wi-Fi, improved exterior aesthetics, wayfinding signage, stationary check-in podiums, covered pedestrian walkways, and dry space for luggage drop off and sorting.<br>• Cruise companies appreciate competitive rates, Seward's current terminal layout (which allows passengers to transition in and out quickly), and secure storage space for pre-cleared cargo.<br>• The community appreciates a space large enough to hold events.<br>• Other customers want upgraded technology in office spaces and the ability to use it to stage sensitive freight during the off season. |
| Depot | • Wayfinding signage to and from the Depot needs to be clearer and traffic flow needs to be improved.<br>• Improve aesthetics and modernize.<br>• A better luggage system and additional space to shelter waiting passengers are needed.<br>• The location of the depot is important to downtown Seward businesses.<br>• Moving the depot closer to the terminal might alleviate pedestrian vs. freight conflicts on Port Avenue. | • The depot requires improved aesthetics and modernization, primarily with luggage handling and shelter for waiting passengers.<br>• Alleviating pedestrian vs. freight conflicts is important, as well as providing wayfinding signage that is clear and will help to improve traffic flow. Additional ideas included moving the depot closer to the passenger terminal.<br>• Proximity to downtown is important to Seward businesses. |
| Seward Loading Facility (SLF) | • Run a fuel line down SLF Dock to keep fuel vessels out of the way of other vessels at the freight dock.<br>• Repurposing the SLF for aggregate loading, wood chips, sand, gravel, limestone, and gypsum were suggested.<br>• Use SLF Dock for mooring when it is not running coal.<br>• The height of the dock limits its purpose for other things. | • Repurposing the SLF for aggregate loading, wood chips, sand, gravel, limestone and gypsum were suggested. It was also noted the infrastructure, if removed, would be expensive to replace.<br>• Other ideas included mooring and developing an energy dock (running fuel lines for vessels). Vessels also need cement, mud, fuel and water, which a retrofitted dock could be used for.<br>• If the SLF is repurposed, the dock piles need to be improved including the ladders and catwalks. The dock height currently limits other uses. |

| Topic | Internal Stakeholder Comments | External Stakeholder Comments |
|---|---|---|
| Uplands | • More laydown area is needed. There are few ports on Alaska's road system with area like this.<br>• Office space with utilities would be great, or at least a commercial user spot with RV hookups to water, sewer, and electricity.<br>• Bring utilities into the uplands with capacity and redundancy to support commercial businesses.<br>• Create an area for explosives laydown. If the mining industry picks up there will be a need.<br>• Build a new communications shelter with fenced-off areas for vendors.<br>• Everyone around the terminal uses radio now and it causes interference. Put wireless telecommunication towers on railroad property to increase revenue and benefit community. | • Many stakeholders remarked on the lack of long-term lease options in Seward.<br>• Suggestions for use of ARRC real estate included retail business lease opportunities in the parking lot outside the terminal, vessel pull-out for repair and maintenance at the barge uplands, potential for fish processing or cold storage areas, and increased laydown requirements.<br>• Some freight operators who set up mobile offices requested a place for RV hookups to water, sewer, and electricity.<br>• Future considerations for improvement include incorporating better lighting through the uplands for laydown and installing buried utilities to prevent accidents while moving tall freight. |
| Rail | • Include rail on the new passenger dock.<br>• Put track all the way to the end of the freight dock extension.<br>• Current marine/rail interface requires extra handling of freight to move it off the dock. More ideal to load directly to rail.<br>• Rail is the best way to move freight from Seward to Fairbanks.<br>• Tunnels and highway overpass outside Seward preclude double stacking.<br>• Seward has a lot of 70 lb rail which is outdated for freight.<br>• The amount of horsepower (in terms of number of locomotives) required to haul items to or from Seward renders most commodities not cost-effective. | • The passenger and freight dock should include rail tracks, with double tracks extended from the freight dock to the uplands to ease loading and handling.<br>• Freight operators also want rail switching closer to the freight dock to alleviate delays in moving railcars.<br>• In general, rail is the best way to move freight from Seward to Fairbanks. Tour companies also prefer passenger rail to motor coaches.<br>• There is a general consensus that coal is on the downturn and tourism is not sufficient to support the ongoing long-term operation of the Railroad. |
| Roads | • The pedestrian traffic between the depot and the terminal on Port Avenue creates conflicts with freight traffic.<br>• Find a way to separate passengers and freight, such as a restricted freight corridor.<br>• Connect Port Avenue to Airport Road.<br>• Eliminate blind spots, potholes, and drainage issues. | • The pedestrian traffic between the depot and the terminal (Port Avenue) is a major concern articulated by many stakeholders. Requested improvements include: improving the sidewalk condition, sidewalks on both sides of the road, a covered walkway, and wayfinding signage.<br>• Freight operators asked for paving and/or repairing potholes and drainage within the site. They also asked for wider roads, to eliminate blind spots, and to improve at-grade rail crossings.<br>• There is a desire to separate passengers and freight. Connecting Port Avenue to Airport Road or creating a restricted freight corridor was suggested. |

| Topic | Internal Stakeholder Comments | External Stakeholder Comments |
|---|---|---|
| Economics | • Seward is a safe tourist destination; tourism business will increase.<br>• Some companies are looking at the opportunity to offload fishing tenders or a place for a new fish processing facility.<br>• Compress liquefied natural gas (LNG) in Seward and transport it by rail.<br>• Development of key private partnerships is necessary. | • Seward is considered a safe tourist destination.<br>• Alaska needs options for other industries, such as fishing, LNG fuel and chemicals. Seward has potential for these development areas.<br>• Full-time, year-round employment is important to Seward's economy. |
| Economics, Competition | • Cruise line customers are not going away anytime soon.<br>• There is discussion of TOTE Maritime ships coming into Seward.<br>• Seward Marine Industrial Center (SMIC) will have minor amounts of freight coming across the dock, but will be mostly for marine repair.<br>• Port Mackenzie is a good import/export facility, but the tide range is bad and vessels need pumps and filters.<br>• Whittier is limited in growth potential.<br>• The amount of cargo projected if AKLNG moves forward will be enormous. All ports in Alaska will have to be on board. Seward has key resources that appeal to the project.<br>• Shoreside Petroleum needs to move four million gallons of fuel by rail. | • Valdez's floating dock is nice, but lack of rail makes it less competitive.<br>• SMIC will have minor amounts of freight coming across the dock, but will be mostly for marine repair.<br>• Port MacKenzie would be a good import/export facility, but the tide range is bad and vessels need pumps and filters.<br>• Anchorage's barge dock goes dry and is difficult to use.<br>• Homer does not have a good roll on, roll off dock. Cranes and bulk handling are difficult there.<br>• Whittier is limited because of real estate.<br>• The amount of cargo coming if AKLNG moves forward will be enormous. All ports in Alaska will have to be on board. Seward has key resources like laydown and access to rail and the road system.<br>• Seward could be competitive for chemical and fuel needs of the State. There has been discussion of TOTE Maritime ships coming into Seward.<br>• Cruise lines to southeast Alaska are reaching capacity, and Seward might be a good alternative. |

# 3.4 Ongoing Community Engagement

The project team continued visioning activities and community outreach throughout the duration of the project and will do so until the completion of the Master Plan in 2017. Activities to date include workshops, presentations, newsletters, and a website.

## *3.4.1 Internal Stakeholder Workshop*

To keep internal stakeholders apprised of the project's progress and alternatives development, periodic workshops and presentations were held with key staff from ARRC. To date, four division workshops have been held. The purpose of these workshops was to allow continued input on project development and screening in accordance with the project vision. Dates and topics covered at each workshop, together with internal presentations and feedback are included in the Stakeholder Visioning Report.

## 3.4.2 External Stakeholder Follow-Up Presentations

Continued outreach to the City of Seward and its citizens and business owners was performed through follow-up presentations in Seward. To date, three additional presentations have been held; one with the Seward City Council, one with the Seward Chamber of Commerce and one with the Seward Rotary Club. The purpose of these workshops was to allow continued input on project development and screening in accordance with the project vision. Dates and topics covered at each workshop, together with copies of external presentations and feedback are included in the Stakeholder Visioning Report.

## 3.4.3 Seward Public Meeting No. 1

A public meeting was scheduled for October 11, 2016 at the Dale R. Lindsey Terminal in Seward. The meeting was advertised with the local newspapers, in the Alaska Dispatch News, through the online Seward Chamber Events Calendar, and via area flyers. The project website and a timely newsletter also announced the event. Stakeholders who previously provided input were emailed direct invitations.

The purpose of this meeting was to present project cornerstones, with a particular focus on the progress on planning for the passenger dock and passenger terminal alternatives. A slide presentation was shown, and informational stations with posters and team subject matter experts were available to answer questions.

**Photo 3-3: Attendees Listening to the Presentation at the first Seward Public Meeting, October 2016 (Source: DOWL, 2016)**

## 3.4.4 Additional Stakeholder Outreach Efforts

Agency outreach to date has consisted of contacting agencies to determine points of contact for future outreach and to assess their desire to provide input on the Master Plan. The following agencies have been contacted:

- United States Coast Guard (USCG)
- U.S. Fish and Wildlife Service (USFWS)
- Alaska Department of Transportation and Public Facilities (DOT&PF)
- State Historic Preservation Office
- U.S. Army Corps of Engineers (USACE)
- U.S. Navy
- Federal Aviation Administration (FAA)

A summary of meetings with these organizations is provided in the Stakeholder Visioning Report.

## 3.4.5 Additional Outreach

The project team has also provided other media for interested parties to hear about the project as well as meetings and workshops.

- A project website, railportseward.com, has been established and is regularly updated to provide information on the project. The website also includes the ability for interested parties to sign up for newsletters and provide comments and feedback on the project.
- Regular project newsletters are prepared and distributed to a mailing list to provide updates on the project.

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# 4. Market Analysis

The information contained in this section of the report is primarily drawn from the Economic Analysis report. Where additional information has been gathered or updates to the information have been made, this has been referenced throughout this section.

## 4.1 What is the Seward Marine Terminal's Market?

The ARRC's passenger market at Seward is comprised of train operations and passengers arriving and departing on cruise ships.

### *4.1.1 Train Operations*

#### *4.1.1.1 Coastal Classic*

The Coastal Classic train operates between mid-May and mid-September each year, departing Anchorage at 6.45am and arriving into Seward at 11:05 am, before returning to Anchorage with a 6:00 pm departure from Seward and a 10:15 pm arrival at the Anchorage depot. The Coastal Classic operates independently of cruise ship operations, but a large number of passengers using the service are also connecting to cruise ships. The annual ridership of the Coastal Classic is shown in Table 4-1.

**Table 4-1: Total Ridership Numbers on the Coastal Classic Train**

| Year | Total Ridership |
|---|---|
| 2013 | 51,287 |
| 2014 | 51,999 |
| 2015 | 58,619 |
| 2016 | 63,839[3] |

The total ridership of the Coastal Classic is increasing each year with a substantial increase observed between 2014 and 2015. July historically has the highest ridership over the course of the month, and May and September are the quietest months. Since 2013, the busiest day on the Coastal Classic is a Friday, which also coincides with the largest cruise ships that visit Seward and cater for higher volumes of independent travelers. The second busiest day is Saturday. Throughout July, the number of passengers riding the Coastal Classic is more consistent than in other months with the train providing a popular summer attraction.

The ARRC has noted that although the Coastal Classic rarely sells out, there has been a number of occasions where the GoldStar cars are sold out. Throughout July when ridership is highest, the GoldStar cars are almost always close to fully booked, and this has been a lost revenue opportunity for ARRC. Passengers who are unable to secure a seat in GoldStar class will generally book a lower cost Discovery Class seat[4].

A small number of seats on the Coastal Classic are sometimes booked by cruise companies to provide train transfers when seats on the Grandview Cruise Train are not available. A larger number of seats are booked by local tour companies to provide transfers between Anchorage and Seward.

[3] ARRC Coastal Classic Data
[4] ARRC Coastal Classic Board Response

#### 4.1.1.2 Grandview Cruise Train

The Grandview Cruise Train is  made available for other cruise companies to transport passengers from Seward to Anchorage. The majority of operators making calls to Seward to disembark existing passengers who are ending their cruise and embark new passengers about to start their cruise, choose to offer the cruise train. These types of cruises are known as 'turn cruises.'

The project team was unable to secure data on the passenger ridership of the Grandview Cruise Train as it is not kept by ARRC. However, the passenger capacity can be used to estimate the annual ridership of the cruise train. The current maximum loading capacity for the Grandview Cruise Train includes one dining car and seven 76-seater passenger cars (532 passengers)[5]. Both the cruise companies and ARRC have advised that the cruise train is consistently fully booked. Therefore, assuming a normal loading of 532 passengers and 62 of a total of 66 calls being for 'turn cruises' (excluding one visit from the Sun Princess and three visits from Le Soleal), the total number of passengers disembarking to the cruise train would be 32,984, and the total number of passengers embarking from a cruise train would be 32,984. This assumes that the total ridership of the cruise train in 2016 is 65,968.

### 4.1.2 Cruise Ship Operations

There are four departure ports that most Alaska cruises use: Seattle, Vancouver, Seward, and Whittier. Other ports such as San Francisco, Los Angeles, and Juneau are used less frequently for cruise ship departures to and from Seward. In 2015, 11 separate ships made 64 calls at Seward, and in 2016, 11 ships made 66 calls at Seward. In 2015, these ships ranged from 338 to 965 feet in length and, depending on the vessel, were capable of carrying between 128 and 2,801 passengers per ship.

Princess Cruises added one port of call for Seward in 2016 and is planning the same for 2017. These calls are part of a 75-day cruise trip, referred to as the "Circle Pacific". Princess Cruises had a similar trip called the "World Cruise" in 2012. Seabourn's MS Soujourn, with a passenger capacity of 450, is planning to add four ports of call to Seward in 2017[6].

In 2005, a total of 146,900 cruise passenger landings occurred in Seward, and by 2015 landings had increased to 176,050. Overall, there has been a 1.7 percent average annual increase in the number of cruise ship passengers using the Seward passenger dock over the 2005 to 2015 period. Table 4-2 presents cruise ship statistics for landings at Seward.

[5] Hanson Alaska, LLC, Email correspondence dated 2/21/2017
[6] Cruise Line Agencies of Alaska, Preliminary 2017 Schedules.

**Table 4-2: Seward Cruise Ship Statistics**

| Cruise Line | Ship | Length (ft) | Draft (ft) | Beam (ft) | Passenger Capacity | Trip Frequency | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 2015 | 2016 | 2017 |
| Celebrity Cruises | Celebrity Millennium | 965 | 27 | 106 | 2,138 | 8 | 8 | 7 |
| Compagnie du Ponant | L'Austral | 466 | 15.4 | 59 | 264 | 2 | - | - |
| | Le Soleal | 466 | 16.1 | 59 | 264 | - | 3 | - |
| Crystal Cruises | Crystal Symphony | 781 | 24.9 | 99 | 922 | 1 | - | - |
| | Crystal Serenity | 820 | 24.9 | 106 | 1,070 | - | 2 | 1 |
| Holland America Line | Oosterdam | 951 | 25.9 | 106 | 1,848 | 9 | - | - |
| | Zaandam | 778 | 25.6 | 106 | 1,432 | 9 | 9 | 9 |
| | Noordam | 948 | 25.6 | 106 | 1,916 | - | 9 | 9 |
| Princess Cruises | Sun Princess | 857 | 27 | 105 | 2,010 | - | 1 | - |
| | Golden Princess | 951 | 29 | 118 | 2,600 | - | - | 1 |
| Nippon Yusen Kaisha | Asuka II | 791 | 25.6 | 97 | 960 | 1 | - | - |
| Norwegian Cruise Line | Norwegian Sun | 847 | 26 | 108 | 2,002 | 8 | 8 | 7 |
| Regent Seven Seas Cruises | Seven Seas Navigator | 560 | 24 | 81 | 490 | 7 | - | - |
| | Seven Seas Mariner | 709 | 21 | 93 | 700 | - | 7 | 6 |
| Royal Caribbean | Radiance of the Seas | 961 | 27 | 106 | 2,501 | 8 | 8 | 8 |
| Seabourn | Seabourn Soujourn | 649 | 21 | 84 | 450 | - | - | 4 |
| Silversea Cruises | Silver Shadow | 610 | 19.7 | 81.3 | 382 | 9 | 9 | 9 |
| | Silver Discoverer | 338 | 13.5 | 51 | 128 | 2 | 2 | 2 |
| Total | | | | | | 64 | 66 | 63 |

The existing Seward Passenger Terminal has been in operation since 1966. Cruise ship passenger landings at Seward have increased from approximately 64,000 to 88,000 passengers from 2005 to 2016, while embarking passengers have increased by similar volumes (65,400 to 89,400 passengers) over the same time frame. The volume of round-trip passengers (i.e., port-of-call passengers) has fluctuated widely, with the peak number of round-trip passengers occurring in 2011 (23,400 passengers). Overall, there has been a 1.9 percent average annual increase in the number of cruise ship passengers using the terminal over the 2005 to 2016 period. Table 4-3 presents the passenger numbers arriving, departing, and visiting Seward on port-of-call excursions.

**Table 4-3: Total Cruise Ship Passengers to Seward**

| Year | Arriving at Seward | Port-of-Call at Seward | Departing Seward | Total |
|---|---|---|---|---|
| 2005 | 64,387 | 17,128 | 65,418 | 146,933 |
| 2006 | 65,704 | 2,208 | 67,290 | 135,202 |
| 2007 | 74,143 | 7,356 | 70,390 | 151,889 |
| 2008 | 71,062 | 22,979 | 61,219 | 155,260 |
| 2009 | 69,267 | 17,020 | 68,028 | 154,315 |
| 2010 | 64,455 | 12,365 | 54,053 | 130,873 |
| 2011 | 62,294 | 23,366 | 44,481 | 130,141 |
| 2012 | 62,064 | 4,255 | 63,603 | 129,922 |
| 2013 | 59,483 | 5,418 | 57,332 | 122,233 |
| 2014 | 70,634 | 2,929 | 64,953 | 138,516 |
| 2015 | 84,643 | 8,184 | 83,223 | 176,050 |
| 2016 | 88,562 | 6,794 | 89,389 | 184,745 |
| Total | 836,698 | 130,002 | 789,739 | 1,756,079 |

### 4.1.3 Alaska Marine Highway System

The Alaska Marine Highway System (AMHS) is a ferry service operated by DOT&PF. AMHS operates along the Southcentral coast of the state, the eastern Aleutian Islands and the Inside Passage of Alaska and British Columbia, Canada. AMHS primarily services communities with no road access and the vessels can transport people, freight, and vehicles. Seward was historically served by the AMHS, but owing to its location on the road network, this service has ceased. The State of Alaska's Long Range Transportation Plan[6] provides for transportation planning in the State through to 2036, and a review of this plan has confirmed it is unlikely that Seward will be served by the AMHS during the life of the Seward Master Plan.

## 4.2 What Does the Railroad Want to do for Passengers in Seward?

### 4.2.1 Train Passengers

Passenger counts from the Coastal Classic scheduled passenger service are shown in Table 4-4. Passenger counts from the Grandview Cruise Train have not been made available for the purpose of this study, and therefore analysis has been limited to the passenger counts for the Coastal Classic. Passengers arriving at Seward from Anchorage and Girdwood have increased from approximately 28,800 to 37,000 from 2013 to 2016, and passengers departing Seward for Anchorage and Girdwood has increased from approximately 22,700 to 26,800 from 2013 to 2016. Overall, there has been a 6.8 percent average annual increase in the number of cruise ship passengers using the Coastal Classic over the 2013 to 2016 period.

The Coastal Classic currently arrives and departs from the Seward Depot. The building is undersized for current passenger numbers and ARRC has a desire to improve its offering to passengers at Seward. Options to provide additional space for passenger waiting and comfort have been considered as part of the project development process.

**Table 4-4: Coastal Classic Passenger Counts**

| Year | Arriving | Departing | Total |
|---|---|---|---|
| 2013 | 28,827 | 22,697 | 51,524 |
| 2014 | 29,920 | 22,346 | 52,266 |
| 2015 | 33,652 | 24,967 | 58,619 |
| 2016[7] | 37,054 | 36,785 | 63,839 |
| Average Annual Growth Rate | 8.0% | 5.3% | 6.8% |

### 4.2.2 Cruise Ship Passengers

Passenger counts from cruise ships are shown in Table 4-3. Overall, there has been a 1.8 percent average annual increase in the number of cruise ship passengers using the terminal over the 2005 to 2015 period.

The existing terminal and passenger dock provides adequate accommodations for cruise ships. ARRC wishes to continue to provide for cruise ships on a continuous basis through the repair or replacement of the passenger dock, and to continue to provide a terminal structure to support passenger and cruise activities at Seward. Options to repair or replace the passenger dock, and to retain or replace the terminal building have been considered as part of the project development process.

[6] http://dot.alaska.gov/stwdplng/areaplans/lrtpp2014/docs/20160907_LRTP_policyplan_draft.pdf
[7] ARRC Coastal Classic Data

# 4.3 Global Market for Cruise Industry

## 4.3.1 Background

According to Cruise Lines International Association (CLIA), Alaska ranks within the top five cruise destination markets in the United States. Alaska experienced rapid growth in the number of cruise ship passengers visiting the state during the 1997 to 2008 period, growing from 500,000 to more than 1 million. Over the October 2013 to September 2014 period, cruise ship passengers accounted for half of the total visitors to the state. In a 2011 poll of experienced destination cruisers, respondents ranked Alaska top among all destinations worldwide. Beginning each May and continuing through September, cruise lines operate in Alaska waters. Alaska itineraries consist primarily of two routes: 1) round-trip through southeast Alaska's Inside Passage, primarily from Seattle or Vancouver, British Columbia, and 2) cross-the-Gulf-of-Alaska trips, beginning or ending in Anchorage, primarily via the southcentral Alaska port cities of Seward and Whittier. The average length of a cruise is 7 days[8].

## 4.3.2 Passenger Characteristics and Demographics

In 2013, the United States was the source market for 51.5 percent of global cruise ship passengers, followed by the United Kingdom/Ireland and Germany with 8.1 percent and 7.9 percent, respectively. In 2013, approximately 3.5 percent of the total United States population took a cruise (Table 4-5). Given this low level of market penetration in each source country, it appears there is an opportunity for the industry to expand in these markets.

**Table 4-5: Cruise Ship Industry Penetration in Global Markets, 2013**

| Source | Passengers (thousands) | Share of Global Passengers | 5-year Growth | Market Penetration (percent) | Population (millions) |
|---|---|---|---|---|---|
| United States | 11,016 | 51.5% | 15.0% | 3.5% | 319 |
| UK/Ireland | 1,726 | 8.1% | 17.0% | 2.8% | 61 |
| Germany | 1,687 | 7.9% | 86.0% | 2.1% | 82 |
| Italy | 869 | 4.1% | 28.0% | 1.5% | 58 |
| Australia | 784 | 3.6% | 137.0% | 3.4% | 23 |
| Canada | 734 | 3.4% | 1.0% | 2.1% | 22 |
| Brazil | 732 | 3.4% | 85.0% | 0.4% | 183 |
| France | 522 | 2.4% | 69.0% | 0.8% | 62 |
| Spain | 475 | 2.2% | -4.0% | 1.2% | 40 |
| Scandinavia/ Finland | 289 | 1.4% | 135.0% | 1.5% | 19 |

Specific to Alaska, in 2014, the majority of cruise ship passengers (82 percent) were from the United States. Of these United States-based cruise ship passengers, approximately 33 percent were from the western United States followed by the South, the East Coast, and the Midwest.

Nationwide, cruise passengers had a median age of 49 and the majority were married (84 percent). Most cruise travelers were employed (72 percent), while 21 percent were retired. The average annual household income earned from cruise ship passengers in 2014 was $114,000.

### 4.3.2.1 Global Market

The Caribbean has historically dominated the global cruise ship market, accounting for approximately 35.5 percent of the global deployment market share in 2015. Over the 2008 to 2015 period, Alaska experienced a loss of market share, dropping from 7.6 percent to 4.5 percent of global deployments. As illustrated in Table 4-6, Asia, Australia, New Zealand and the South Pacific have captured market share over this time frame.

**Table 4-6: Deployed Cruise Ship Capacity by Market**

| Region | 2008 | 2015 |
|---|---|---|
| Caribbean/Bahamas | 37.2% | 35.5% |
| Mediterranean | 17.6% | 19.5% |
| Europe | 8.3% | 10.6% |
| Asia | 1.2% | 6.0% |
| Australia/ New Zealand/ South Pacific | 2.2% | 6.0% |
| Alaska | 7.6% | 4.5% |
| South America | 2.9% | 2.9% |
| Other | 23.0% | 15.0% |

[8]http://www.f-cca.com/downloads/2010-overview-book_Cruise-Industry-Overview-and-Statistics.pdf

# 4.4 Alaska Market

## 4.4.1 Inside Passage Cruises

The Alaska cruise market is dominated by Inside Passage cruises, which generally commence at either Vancouver, British Columbia; Seattle, Washington; Victoria, British Columbia; or San Francisco, California. A small number of ships depart from a range of other worldwide destinations. Cruises tend to be between 7 to 11 days in duration, and the majority are round-trip cruises. Inside Passage cruises traverse the coast of Southeast Alaska running from the Canadian border in the south to the start of the Gulf of Alaska in the north, just above the Juneau/ Haines/Skagway area. The islands on the western side of the area afford cruise ships with protection from the sea and rough waters. Almost all ships on an Inside Passage cruise call at Juneau. In 2015, 31 ships made 447 calls at Juneau and in 2016, 32 ships made 475 calls at Juneau. In 2017, 36 ships are scheduled to make 487 calls at Juneau.

Three representative ports were analyzed to understand the growth of the Inside Passage market: Juneau, Ketchikan, and Skagway. The market for Inside Passage cruises was analyzed on the basis of the passenger capacity of each ship and the number of calls it made at the ports. This analysis illustrates that apart from a dip in 2015, the market for Inside Passage cruises is growing by approximately two to four percent year on year. The analysis is shown in Table 4-7.

**Table 4-7: Inside Passage Cruise Locations Total Passenger Capacity and Percentage Change[9]**

| Port | Passenger Capacity (total Passenger Capacity Per Ship Multiplied by Number of Calls) | | | | Percentage Change | | |
|---|---|---|---|---|---|---|---|
| | 2014 | 2015 | 2016 | 2017 | 2014-2015 | 2015-2016 | 2016-2017 |
| Juneau | 919,024 | 909,734 | 946,704 | 1,008,094 | -1.0% | 3.9% | 6.1% |
| Ketchnikan | 898,344 | 877,691 | 895,215 | 927,799 | -2.3% | 2.0% | 3.5% |
| Skagway | 798,791 | 795,879 | 786,714 | 814,968 | -0.4% | -1.2% | 3.5% |

Only a relatively small percentage of Inside Passage cruises cross the Gulf of Alaska to visit ports in Southcentral Alaska. The reason for the lower number of trips is unclear, but appears to be primarily associated with the one-way nature of the trip, which requires departure air tickets to be purchased for different airports[10].

## 4.4.2 Cruises Crossing the Gulf of Alaska

Of the total 703 sailings scheduled through the Inside Passage in 2017, only 249 are scheduled to cross the Gulf of Alaska to visit other Ports in Southcentral Alaska[11]. This represents 35.4 percent of the total number of ships cruising the Inside Passage in 2017. When considered as a group, the ships crossing the Gulf of Alaska also tend to be slightly smaller passenger capacity. In 2017, the total capacity of cruises sailing the Inside Passage is 1.42 million people. A total capacity of 441,756 is scheduled to cross the Gulf of Alaska, which represents 31.1 percent of the total Inside Passage cruises.

Seward and Whittier are the predominant landing ports for Inside Passage cruises crossing the Gulf of Alaska, with 86 percent of trips, and 91 percent of total passenger capacity crossing the Gulf of Alaska scheduled to land at either the Ports of Seward or Whittier in 2017[12]. Of these, 56.6 percent of the total number of trips and 49.1 percent of the total passenger capacity is scheduled to land at Seward. A total of 29.3 percent of the total number of trips and 41.6 percent of the total passenger capacity is scheduled to land at Whittier[13].

[9] Cruise Line Agencies of Alaska 2015, 2016 and Preliminary 2017 Schedules.
[10] www.cruiseable.com; www.frommers.com; www.cruisecritic.com.
[11] http://cruiseweb.com/search/index.aspx?values=:1591|azamara-club-cruises@1|carnival-cruise-line@2|celebrity-cruises@3|crystal-cruises@4|holland-america-line@5|norwegian-cruise-line@61|oceania-cruises@6|princess-cruises@7|regent-seven-seas-cruises@8|royal-caribbean-international@18|seabourn-cruise-line@19|silversea-cruises:2|alaska::::CruiseSearch&Cabin=Lowest&SortOrder=f-l
https://www.hl-cruises.com/cruisefinder#currency=EUR&template=teaser&sorting=departureDate&filter:ships=3
https://www.mousesavers.com/disney-cruise-line-discounts-and-advice/2017-disney-cruises-sail-dates-ports-more/
[12] http://www.nationalgeographicexpeditions.com/expeditions/alaska-cruise/detail
[13] Ibid.

Table 4-8 presents cruise ship capacities for both ports, which are calculated on the basis of the capacity of each cruise ship calling at the Port and the number of calls made each year. This is not reflective of actual passenger numbers, but enables an analysis of changes in capacity over time.

**Table 4-8: Total Passenger Capacity Crossing the Gulf of Alaska**

| Port | Passenger Capacity (total Passenger Capacity Per Ship Multiplied by Number of Calls) | | | | Percentage Change | | |
|---|---|---|---|---|---|---|---|
| | 2014[14] | 2015 | 2016 | 2017[15] | 2014-2015 | 2015-2016 | 2016-2017 |
| Seward | 71,092 | 92,182 | 96,796 | 92,484 | 22.9% | 4.8% | -4.5% |
| Whittier | 83,078 | 45,866 | 60,836 | 62,332 | -44.8% | 24.6% | 2.4% |
| Total Passenger Capacity crossing Gulf of Alaska | 154,170 | 138,068 | 157,632 | 154,816 | -10.4% | 12.4% | -1.8% |

During 2015 and 2016, Seward enjoyed a larger market share than Whittier. This is a similar pattern reflected in 2017 reservations. Seward also serves a greater number of cruise ship operators, with almost all cruises to Whittier being operated by Princess Cruises. However, in 2014 Whittier served a larger market share with Norwegian Cruises offering nine sailings of its vessel "Norwegian Sun" to Whittier. The "Norwegian Sun" transferred to Seward in 2015. The change in use from year to year has also been evaluated and is summarized as a percentage increase or decrease.

When compared with other types of cruises offered in Alaska, cruises crossing the Gulf of Alaska show a greater level of fluctuation in passenger capacity. In the 2014 to 2015 season, the change was primarily as a consequence of Princess Cruises using a small capacity ship (the Pacific Princess, with a capacity of 626) in place of one its larger capacity ships during the 2015 season. In 2015 to 2016, there was growth in both Seward and Whittier, but Whittier showed substantially more growth owing to Princess using larger capacity ships. In 2016 to 2017, the increase in Whittier cruises is consistent with growth shown in other Alaska cruise markets. The decrease in numbers cruising to Seward, however, is not.

An analysis of Seward's trip frequency for 2017 indicates that some regular vessel operators have reduced their number of calls to Seward when compared to previous years. Examples include the Celebrity Millennium, which made eight scheduled calls in 2014, 2015, and 2016 and have seven scheduled for the 2017 season; the Norwegian Sun, which made eight scheduled calls in 2015 and 2016 and have seven scheduled for 2017, and other smaller vessels that have either reduced the number of calls or are not calling on Seward in the 2017 season.

This change could be a one-time occurrence for Seward or it could be a potential trend. It will be important for Seward to continue to monitor the passenger numbers visiting Seward as compared to Whittier, which is its main competition. Further information on cruises landing at the port of Whittier is provided in Section 4.6.2.1.

## 4.4.3 Other Southcentral Alaska Cruise Locations

Other ports in Southcentral Alaska that offer facilities to cruise ships include Anchorage, Homer, and Kodiak. Cruises that visit these locations tend to be on an extended cruise trip. It is rare that these ships also call at the Ports of Seward or Whittier. An analysis of the 2017 cruise schedules indicates that of cruise ships crossing the Gulf of Alaska, only 2.9 percent of the total passenger capacity will cross the Gulf and land at these other ports without visiting Seward[16].

[14]Cruise Line Agencies of Alaska 2014 Schedule.
[15]Cruise Line Agencies of Alaska Preliminary 2017 Schedule.
[16] http://cruiseweb.com/search/index.aspx?values=:1591|azamara-club-cruises@1|carnival-cruise-line@2|celebrity-cruises@3|crystal-cruises@4|holland-america-line@5|norwegian-cruise-line@61|oceania-cruises@6|princess-cruises@7|regent-seven-seas-cruises@8|royal-caribbean-international@18|seabourn-cruise-line@19|silversea-cruises:2|alaska::::CruiseSearch&Cabin=Lowest&SortOrder=f-l
https://www.hl-cruises.com/cruisefinder#currency=EUR&template=teaser&sorting=departureDate&filter:ships=3
https://www.mousesavers.com/disney-cruise-line-discounts-and-advice/2017-disney-cruises-sail-dates-ports-more/
http://www.nationalgeographicexpeditions.com/expeditions/alaska-cruise/detail

Details on the ships, capacity, and number of calls for the 2015, 2016, and 2017 seasons are covered in further detail below. All of these ports experience relatively low numbers of visitors compared to Seward and Whittier. Kodiak Island is the largest port of call, and is experiencing growth of between 10 to 12 percent each year. The Port of Anchorage hosts nine calls a year from a Holland America Line cruise ship, and growth is small year-on-year. The Port of Homer experienced similar numbers of visitors in 2015 and 2016, but only three smaller ships are planning to call at Homer in 2017. Owing to the different offerings of these ports, they are not direct competition to the Port of Seward.

### 4.4.3.1 Port of Anchorage

The 220-acre Port of Anchorage is adjacent to downtown Anchorage and is owned and operated by the Municipality of Anchorage. About 450 vessels call on the Port of Anchorage each year, making it the largest and busiest port in the state. About 90 percent of goods for 85 percent of Alaska's populated areas arrive through the Port of Anchorage including gasoline, heating oil, diesel fuel, cement, business supplies, and groceries.

Cruise ships rarely landed at the Port of Anchorage until 2010, when nearly 13,000 cruise ship passengers used the port. In 2013, the number of cruise ship passengers landing at the Port of Anchorage dropped to about 500. In 2015, one cruise ship (MS Statendam, transferred from Holland America Line to P&O Cruises in November 2015 and renamed the Pacific Eden) made nine stops in Anchorage between May and September, and in 2016, the MS Maasdam, a Holland America Line cruise ship, made nine stops in Anchorage (Table 4-9). The MS Maasdam passengers were part of the "14-Day Great Land Explorer" trip, which begins and ends in Seattle, Washington, and includes tours of Southeast and Southcentral Alaska during the voyage. In 2017, the MS Amsterdam is scheduled to make nine arrivals at Anchorage as part of the "14-Day Great Land Explorer" cruise, and the ResidenSea ship, The World, is scheduled to make one arrival at Anchorage as part of its 2017 Alaska tour. The World is the only residential cruise ship worldwide where passengers own their own apartments[17]. It does not operate like a typical cruise ship and although some residents live on the ship year-round, most tend to be onboard for three to four months a year.

**Table 4-9: Anchorage Cruise Ship Statistics**

| Cruise Line | Ship | Length (ft) | Draft (ft) | Beam (ft) | Passengers | Trip Frequency | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 2015 | 2016 | 2017[18] |
| Holland America Line | Statendam | 719 | 101 | 25 | 1,258 | 9 | - | - |
| | Maasdam | 722 | 101.5 | 25 | 1,258 | - | 9 | - |
| | Amsterdam | 778 | 106 | 27 | 1,380 | - | - | 9 |
| ResidenSea | The World | 644 | 94 | 22 | 150 avg. | - | - | 1 |

Cruise ship passenger numbers at the Port of Anchorage have fluctuated over the years, with a peak in 2010 of almost 13,000.

### 4.4.3.2 Port of Homer

The Port of Homer is located on the north side of the entrance to Kachemak Bay within Cook Inlet on the Kenai Peninsula. Homer is connected to the Sterling Highway. The Port of Homer is a year-round ice free port. Cruise ships land intermittently in Homer, with the peak of nearly 15,000 passengers using the port occurring in 2011. In 2013, the number of cruise ship passengers landing at Homer dropped to about 250. In 2015 Holland America Line made nine landings in Homer. In 2016, Holland America Line made nine landings in Homer, and Silverseas made one landing (Table 4-10).

[17] http://aboardtheworld.com
[18] Cruise Line Agencies of Alaska Preliminary 2017 Schedule

**Table 4-10: Homer Cruise Ship Statistics**

| Cruise Line | Ship | Length (ft) | Draft (ft) | Beam (ft) | Passengers | Trip Frequency | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 2015 | 2016 | 2017[19] |
| Holland America Line | Statendam | 719 | 101 | 25 | 1,258 | 9 | - | - |
| | Maasdam | 722 | 101.5 | 25 | 1,258 | - | 8 | - |
| | Amsterdam | 778 | 106 | 27 | 1,380 | - | 1 | 1 |
| Silverseas | Silver Shadow | 610 | 81.3 | 19.7 | 382 | - | 1 | 1 |
| Hapag-Lloyd | Europa | 652 | 79 | 20 | 408 | - | - | 1 |

The tourist industry in Homer primarily consists of independent travelers (arriving by means other than cruise ships). Travelers to Homer arrive from throughout Alaska, the United States, and from foreign countries.

### 4.4.3.3 Port of Kodiak

The Port of Kodiak is located on the northwest corner of Kodiak Island, about 200 miles south of Anchorage by sea. The port serves as a hub for the Gulf of Alaska container traffic and a distribution center for consumer goods going to communities throughout southwest Alaska. The City of Kodiak, on Kodiak Island, is not connected by road or rail to the rest of Alaska. The community relies on the Alaska Marine Highway System (Alaska state ferry) and the port for passenger, vehicle and cargo service. The annual number of cruise ship passengers in Kodiak peaked in 2010 with nearly 19,000 cruise ship passengers. Cruise ship passenger volume has decreased substantially since 2010, with approximately 3,200 passengers visiting the community in 2013. In 2015, four cruise ships called a total of 12 times at Kodiak, with a total capacity of nearly 13,900 passengers and in 2016, five cruise ships called 15 times, with a total capacity of just over 14,500 passengers. In 2017 cruise ship numbers have rebounded back to 2010 levels, with nine cruise ships planning to call 19 times, with a total capacity of nearly 20,000 passengers[20] (Table 4-11).

The cruise ships that visited Kodiak in 2016 originated primarily from Asia, Seattle, and Vancouver, British Columbia.

**Table 4-11: Kodiak Cruise Ship Statistics**

| Cruise Line | Ship | Length (ft) | Beam (ft) | Draft (ft) | Passengers | Trip Frequency | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 2015 | 2016 | 2017[21] |
| Crystal Cruises | Crystal Symphony | 781 | 99 | 24.9 | 922 | 1 | - | - |
| | Crystal Serenity | 820 | 105 | 25 | 1,096 | - | 2 | 1 |
| Holland America Line | Statendam | 719 | 101 | 25 | 1,258 | 9 | - | - |
| | Volendam | 777.6 | 106 | 27 | 1,258 | 1 | 1 | 1 |
| | Maasdam | 722 | 101.5 | 25 | 1,258 | - | 9 | - |
| | Amsterdam | 778 | 106 | 27 | 1,380 | - | - | 9 |
| Silverseas Cruises | Silver Shadow | 610 | 81.3 | 19.7 | 382 | 1 | 2 | 2 |
| | Silver Discoverer | 338 | 51 | 13.5 | 128 | - | - | 1 |
| Compagnie du Ponant | Le Soleal | 466 | 59 | 16.1 | 264 | - | 1 | - |
| ResidenSea | The World | 644 | 94 | 22 | 150 avg | - | - | 1 |
| Seabourn | Soujourn | 649 | 84 | 21 | 450 | - | - | 1 |
| Hapag-Lloyd | Bremen | 321.5 | 56 | 16 | 455 | - | - | 2 |
| | Europa | 652 | 79 | 20 | 408 | - | - | 1 |

[19] Cruise Line Agencies of Alaska Preliminary 2017 Schedule.
[20] Ibid.
[21] Ibid.

# 4.5 Market Growth

Using the available data, it is difficult to clearly discern trends where market growth or attrition is occurring in Southcentral Alaska. Cruises along the Inside Passage are by far the largest proportion of the market, having on average ten times the total passenger capacity (calculated on the basis of ship passenger numbers multiplied by the number of calls) than cruises that cross the Gulf of Alaska. Cruises that cross the Gulf of Alaska have more than five times the passenger capacity of other ports of call in Southcentral Alaska (Anchorage, Homer, and Kodiak). The percentage change in growth for the three subsets of cruise offerings is shown in Table 4-12.

**Table 4-12: Percentage Change in Passenger Capacity in South Central Alaska Cruise Destination Groups**

| | Percentage Change | | |
|---|---|---|---|
| | 2014-2015 | 2015-2016 | 2016-2017 |
| Inside Passage | -1.2% | 1.6% | 4.4% |
| Gulf of Alaska | -10.4% | 12.4% | -1.8% |
| Other Southcentral Ports | - | 5.5% | -21.0% |

As Inside Passage cruises are the most dominant market, the year-on-year growth trend appears strong at between 1.6 to 4.4%, with the exception of a small drop in the 2015 season as compared to 2014. The market trend for Gulf of Alaska cruises appears to be relatively static. Seward forms part of the Gulf of Alaska cruise group, and therefore its main competition is Whittier. It is recommended that marketing efforts concentrate on drawing a greater proportion of cruises across the Gulf of Alaska, and then promoting the benefits of Seward over Whittier as the landing port to secure greater benefits for ARRC.

# 4.6 Competition

## *4.6.1 Train Operations*

### *4.6.1.1 Other Train Operations*

The only other train operation present in Alaska is the White Pass and Yukon Route Railroad, a seasonal tourist railroad that operates a passenger rail service in Alaska along approximately 20 route miles of track between Skagway on the south coast of Alaska and Fraser in British Columbia, Canada[25]. This railroad is a narrow gauge railroad and has no relationship with ARRC. The passenger services offered are tourist excursions, and no public transportation service is provided. The White Pass and Yukon Route Railroad operates in a very different market to ARRC, and has therefore, not been considered as competition for the purposes of this analysis.

### *4.6.1.2 Other Ports*

The only other port that offers passenger transportation services on the train is the Port of Whittier. Many cruise ship passengers arriving or departing from Whittier take passenger rail transportation between Whittier and Anchorage on the Grandview Cruise Train charter service and on the ARRC Glacier Discovery train. The Glacier Discovery offers daily summer service between late-May and mid-September, departing Anchorage at 9:45 am and stopping in Girdwood and Portage prior to arriving in Whittier at 12:05 pm. Over the 2010 to 2015 period, Whittier-related train ridership increased from 76,900 to 94,700 riders, or by 23 percent. One of the key attractions for cruise operators using the Port of Whittier is the ability for cruise trains to make the trip to Denali National Park in a single day, which is not currently possible from Seward.

[25] Alaska Department of Transportation and Public Facilities (2016), State of Alaska Rail Plan.

## 4.6.2 Cruise Operations

### 4.6.2.1 Port of Whittier

The Port of Whittier is located in Passage Canal of Prince William Sound, approximately 65 miles south of Anchorage. The Port primarily serves as an import port for rail cars, container traffic, and break bulk goods. Whittier has a number of port facilities catering to both freight and passenger operations. The cruise ship dock and terminal service cruise ships several times a week between May and September. The floating dock provides the "turnaround" visit for cruise ships that range up to 950 feet and 90,000 tons. ARRC provides a convenient rail terminal across the street from the cruise ship dock.

In June 2003, the City of Whittier approved an agreement with Princess Cruises that allowed for cruise ships to dock in Whittier. The agreement lifted certain taxes on cruise passengers and provided a revenue source for the city because the privately-owned cruise ship dock is located on city-owned land and tidelands. Whittier Dock Enterprises leases terminal space to cruise companies and charges a docking fee. The fee is on a sliding scale that increases slightly over time, and the city receives a percentage of the revenues.

In 2015, three separate cruise ships made 26 calls at Whittier, and in 2016, four cruise ships made 29 calls at Whittier. It is anticipated that four ships will make 29 calls at Whittier in 2017. In 2016, these ships measured from 820 to 965 feet in length and, depending on the vessel, were capable of carrying from 1,096 to 2,592 passengers per ship. In 2006, a total of 229,000 cruise ship passengers visited Whittier, and by 2013 a total of 202,300 cruise ship passengers visited the community, a decline of approximately 12 percent over the time frame. The decline beginning in 2008 is attributed to the nationwide recession, when people typically had less disposable income to spend on luxuries, such as vacations. Table 4-13 presents cruise ship statistics for Whittier.

**Table 4-13: Whittier Cruise Ship Statistics**

| Cruise Line | Ship | Length (ft) | Draft (ft) | Beam (ft) | Passengers | Trip Frequency | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 2015 | 2016 | 2017[26] |
| Princess Cruises | Island Princess | 965 | 27 | 105 | 1,974 | 0 | 9 | 9 |
| | Coral Princess | 965 | 27 | 105 | 1,950 | 9 | 9 | 9 |
| | Star Princess | 951 | 28 | 118 | 2,592 | 9 | 9 | 10 |
| | Pacific Princess | 950 | 24.3 | 81 | 626 | 8 | 0 | 0 |
| Crystal Cruises | Crystal Serenity | 820 | 25 | 105 | 1,096 | 0 | 2 | 1 |
| Total | | | | | | 26 | 29 | 29 |

Whittier's annual passenger numbers commenced at approximately 230,000 in 2006 and declined slightly year on year until 2009. Passenger numbers dropped sharply in 2010 to approximately 125,000 and remained similar in 2011 before increasing to 170,000 in 2012 and slightly more than 200,000 in 2013.

Most cruise passengers arriving and departing from Whittier are on Princess Cruises' "7 Days Voyage of the Glaciers." Princess Cruises operates three ships – Island Princess, Coral Princess, and Star Princess – on this cruise from Whittier to Vancouver, with each ship departing from Whittier twice a month during the Alaska cruise ship season. The ships stop in Skagway, Juneau, and Ketchikan.

[26]Cruise Line Agencies of Alaska Preliminary 2017 Schedule.
[27]https://www.usatoday.com/story/travel/destinations/2016/09/22/best-train-rides/90784928/

# 4.7 Comparison with Primary Competitor

Seward's primary competitor in both the train and cruise market is Whittier. The offering of facilities and activities at Whittier as compared to Seward is presented in Table 4-14.

Seward's key advantage over Whittier is the attractiveness of the area and offering to tourists and the ability for tourists to stay and enjoy what is available. A key element of the offering is the Coastal Classic train, which is considered to be one of the most scenic rail trips in Alaska and is the fastest growing passenger service currently offered by ARRC. In September 2016, USA Today ranked the Coastal Classic the 8th best train journey in America[27]. Additionally, Seward is called on by a range of cruise companies, which increases the choice available to cruise customers to select the company that best meets their requirements for their vacation.

Section 4.4.2 notes that in 2017, Seward appears to be losing some of its market share for Gulf of Alaska cruises to Whittier. There is insufficient data at this stage to indicate whether this is a unique situation or whether it is an emerging trend. It is recommended that ARRC continue to monitor this situation closely. Owing to the work undertaken on the Seward Marine Terminal Expansion Planning effort, the condition of the passenger dock and need for its replacement is now known to the cruise industry, and therefore, it will be important for Seward to address issues with the passenger dock and terminal in a comprehensive and timely manner to avoid losing market share to Whittier.

It is recommended that in marketing to the cruise industry and customers, ARRC promotes the advantages of landing in Seward. It is also recommended that ARRC consider partnering with the City of Seward and Seward Chamber of Commerce to market to cruise companies and customers, with the goal of increasing the number of passengers visiting Seward and its market share.

**Table 4-14: Comparison of Activities and Facilities in Whittier and Seward**

| | Whittier | Seward |
|---|---|---|
| Trains | • Glacier Discovery Train operates between Anchorage, Girdwood, and Whittier, and then proceeds onto Portage, the Spencer Glacier Whistle Stop, and Grandview. On the return journey Anchorage- and Girdwood-bound passengers may opt to disembark at Portage 2 for a direct motorcoach transfer, or stay on the train for a more lengthy journey including a stop in Whittier. Trip duration in each direction is approximately 5.5 hours. The trip between Anchorage and Whittier takes approximately 2.5 hours in each direction.<br><br>• The Grandview Cruise Train is made available to cruise companies to transfer passengers from cruise ship landing ports to destinations including Anchorage and beyond within the state. The Grandview Cruise Train is operated for all cruise ships, providing a connection between Whittier, Anchorage, and to Denali National Park. A connection to Denali National Park in a single day is available. | • Coastal Classic Train operates between Anchorage, Girdwood, and Seward offering daily round trip service between mid-May and mid-September. Gold Star and Adventure Class tickets are available. Trip duration in each direction is approximately 4.5 hours.<br><br>• The Grandview Cruise Train is made available to cruise companies to transfer passengers from cruise ship landing ports to destinations including Anchorage and beyond within the state. The Grandview Cruise Train is operated for all cruise ships, providing a connection between Seward and Anchorage. From there, passengers can connect to a further cruise train or ARRC scheduled passenger service to Denali National Park and other attractions north of Anchorage. |
| Cruise Ships | • Cruise ships currently land at Whittier on Wednesdays and Saturdays. With the exception of a single call by a Crystal Cruises ship, all calls are by Princess Cruises. | • Cruise ships land at Seward weekly on Sundays, Thursdays, and Fridays and bi-weekly on Mondays and Wednesdays. Occasionally ships land on Tuesdays and Saturdays. A wide range of operators call at the Port of Seward, with the largest operator being Holland America Line, followed by Royal Caribbean and Celebrity Cruises. |
| Activities | • The majority of cruise ship passengers depart Whittier shortly after arriving using either the chartered cruise train or motorcoach, or on a departing cruise ship.<br><br>• Tourism activities available in Whittier include day cruises for glacier and wildlife viewing and fishing charters.<br><br>• Only three hotel/condo accommodation options are available in Whittier. No cabin accommodation options are available. | • A large percentage of cruise ship passengers depart Seward shortly after arriving using either the charted cruise train, Coastal Classic, motorcoach or shuttle service, or on a departing cruise ship.<br><br>• Tourism activities available in Seward include day cruises for wildlife and glacier viewing, the Alaska Sealife Center, flight-seeing tours, dog sled tours, kayaking tours, fishing charters, horseback riding, hiking trails, fishing charters, shopping, dining and a range of other activities.<br><br>• There are numerous accommodation options available in Seward, ranging from hotel accommodation to cabins and camp grounds. |
| Attractiveness | • Whittier was originally constructed as a military facility. There are limited facilities catering to tourists. | • Seward was historically a fisheries port. Tourism is a significant industry for Seward, with the city being the gateway to the Kenai Fjords National Park. During the summer months the town caters extensively to tourists, with a wide range of facilities, activities, shops, and accommodation being available. |

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# 5. What are the Issues?

## 5.1 Future of Passenger Services at Seward

The Alaska cruise market is dominated by Inside Passage cruises that traverse the coast of Southeast Alaska running from the Canadian border in the south to the start of the Gulf of Alaska in the north, just above the Juneau/Haines/Skagway area. Owing to the geographic characteristics of the Inside Passage, cruise ships are relatively protected from rough waters. The length of the cruise trip also enables cruise companies to offer cruises of between 5-7 nights duration as a roundtrip. The market for cruises through the Inside Passage provides capacity for over one million passengers a year, and is growing by approximately two to four percent year on year.

A number of Inside Passage cruises cross the Gulf of Alaska to Seward and other Southcentral Alaska ports. In 2017, 35 percent of the total number of ships cruising the Inside Passage, and 31 percent of the total passenger capacity is scheduled to cross the Gulf of Alaska. The reasons for this appear to be twofold: a roundtrip sailing crossing the Gulf of Alaska takes a minimum of 14 days, which is twice the length of the average cruise; and all shorter cruises are point-to-point trips, which are less popular for passengers. Seward is the most popular landing point for cruises crossing the Inside Passage, providing a landing point for 57 percent of the total number of trips and 49 percent of the total passenger capacity for cruise ships crossing the Gulf of Alaska. The amount of cruise ships and capacity visiting Seward varies year-on-year, but overall is showing approximately two percent growth. Seward's primary competition as a landing port is Whittier.

The ARRC maintains a range of passenger facilities at the Seward Marine Terminal, including facilities for cruise ships and trains, and intermodal facilities to facilitate passenger connections between cruise ships, trains and other land based transportation (charter buses, coach transfers, tours, taxis, rental and private vehicles, and walking). Of most critical concern is the passenger dock, which was constructed in 1965 and has reached its design life. The foundation has experienced significant corrosion, which has limited the remaining useful life of the dock and has resulted in weight restrictions being implemented. Although the passenger dock works well for cruise ship landings, without significant maintenance work or replacement it will continue to deteriorate to a point where it is no longer usable. As the terminal building is located on the passenger dock, it will need to be replaced, depending on what future decisions are made about the passenger dock. Both the passenger dock and terminal will cost a significant amount to salvage or replace. As at early 2017, the passenger dock has between five and seven years of useful life left. A replacement dock project is likely to take approximately five years to complete, and therefore ARRC is at an urgent decision point around the future of the passenger dock.

The implications of not making a decision around the future of the passenger dock are significant. Without the continued provision of a passenger dock, the cruise business will leave Seward and go elsewhere, most likely to Whittier. This will have a direct impact on revenues generated by ARRC. All direct and indirect revenue from cruise ship landings in Seward will no longer be received, as the cruise ship dock in Whittier is not owned by ARRC. The loss of the cruise business will also negatively impact existing train services to Seward, as revenue associated with cruise ship customers using the Coastal Classic train will be lost. The revenue associated with providing for the cruise train could be retained however, as the trains will be diverted to Whittier. In addition to the effects on ARRC, the loss of the cruise ship business is also likely to be significant for the City of Seward. In 2016, nearly 185,000 people arrived to or departed from Seward on a cruise ship, and the loss of this business will be a significant detriment to the tourism industry in Seward.

The decision around the future of the passenger dock is the highest priority for ARRC at the Seward Marine Terminal. A number of options to replace the passenger dock have been considered, and are set out in section 7.3 of this study.

# 5.2 Issues at Seward Marine Terminal

Following the review of existing conditions and facilities, stakeholder outreach and market analysis, issues were identified for all of the railroad facilities, which are discussed below. Although Port Avenue is not a railroad-owned facility, issues were also identified with this road which are considered relevant and important given that Port Avenue is the key connection between the Seward Marine Terminal, railroad depot, small boat harbor, City, and to the remainder of Southcentral Alaska.

## 5.2.1 Train Services

The following issues were identified with the passenger train services to Seward.

- There are no scheduled train services available with a direct connection to Denali National Park. The main reason for this is the duration of the journey, which would be in excess of 12 hours. Therefore, passengers who are journeying north to Denali generally need to stay overnight in Anchorage before connecting with a northbound train service.
- The journey between Seward and Anchorage takes approximately 4.5 hours, which is primarily owing to the steep grade along the section between Seward and Portage. Additional delays are frequently generated by the recreational nature of the service with the train either slowing or stopping for wildlife viewing, and also due to operational delays associated with other trains using the line, particularly the Grandview train. Discussions have been held with ARRC about ways to possibly shorten the journey, but only approximately 30 minutes could be saved through operational changes. In order to make the journey substantially shorter, significant work would be required on the existing track.
- The cruise train service is consistently sold out, resulting in overflows to the Coastal Classic. The cruise train departs Seward in the morning and the Coastal Classic in the evening, and therefore those passengers that are booked on the Coastal Classic have an additional day in Seward.
- The Coastal Classic is ARRC's fastest growing passenger service, and some days (particularly Fridays and Saturdays), the train is close to fully booked. Additional capacity is likely to be required to cater for additional future demand.

## 5.2.2 Seward Depot

The following key issues were identified with the Seward Depot.

- The facility is closed between mid-September and early May each year and there has been a history of vandalism during the closure.
- The luggage tent has provided cover for unwanted visitors to loiter during the summer months.
- The building has insufficient space for passengers between the 5:00 pm check-in and 6:00 pm boarding of the Coastal Classic. This has been particularly evident on cold, wet days. To address this issue, ARRC has commenced early boarding of the Coastal Classic train.
- Independent travelers connecting to cruise ships and carrying their luggage have to make their own arrangements for connecting to the terminal, such as locating transfer buses from cruise companies or the Seward City Shuttle. Some passengers prefer to walk the 0.6 mile between the depot and terminal, and this results in them dragging their luggage down Port Avenue.
- Maneuvering of various modes of transportation and support services is pinched between the tracks, buildings, and Leirer Road. There is limited traffic control in this location, resulting in motorized traffic and pedestrian conflicts.
- The depot is located in an industrial part of Seward, which detracts from the scenic beauty of the surrounding area.
- The depot is considered to be undersized for passenger demand in the late afternoon. Railroad staff members have expressed a desire to see the facility substantially enlarged with the addition of a gift shop.

- Local stakeholders have sought an improvement to facilities at the depot, including free Wi-Fi, refreshments, and light entertainment.
- Any significant renovations at the depot will trigger the requirement for at-grade access to trains, which is not currently provided but which is a federal accessibility regulation requirement.

### 5.2.3 Dale R. Lindsey Alaska Railroad Intermodal Terminal

The following key issues were identified with the Dale R. Lindsey Alaska Railroad Intermodal Terminal.

- The distances traveled between the passenger dock, terminal, and traffic staging area are at times challenging for elderly passengers and there is a desire to provide some form of mobility support, such as a golf cart, for transfers.
- Improved flow from ships through the terminal, a waiting area capable of accommodating 50 people, and facilities such as free Wi-Fi are desired.
- The current décor is in need of modernization, and improved aesthetics have been sought at the landside entry doors.
- The building only has limited use during the winter months, which decreases revenue generated at the facility.
- Any significant redevelopment of the terminal should consider funding sources other than increasing the costs to cruise companies to ensure the cruise ships continue to return to Seward.
- The heating system is inefficient and costly.
- The passenger dock is at the end of its service life, which impacts the future of the terminal as it is built on the passenger dock. Dependent on whether the dock is rehabilitated or replaced, the terminal may need to be demolished and a new facility constructed.
- The current terminal size provides restrictions to operations when two ships are docked and being processed. Similarly, there is concern that the large, 5,000-person ships may not be able to be efficiently turned through the terminal.
- Cruise ship companies expressed a desire to have more permanent facilities, including podiums and electronic screens, to assist with communicating messages to passengers.
- Luggage handling arrangements restrict any person being able to touch luggage inside the terminal and therefore results in tourism companies being unable to assist customers. Secure luggage storage for independent travelers has also been sought.
- Freight customers would like to be able to stage freight inside the terminal outside of the cruise ship season.

### 5.2.4 Passenger Dock

The following key issues were identified with the passenger dock.

- A 2013 assessment of the Seward Passenger Dock found significant corrosion and deterioration of the structural supports. This has resulted in the dock being imposed with restrictions on carrying weight. It is characterized as being at the end of its service life, and must be either remediated or reconstructed. With recent maintenance, the remaining life of the Seward Passenger Dock is projected to be seven years from 2015. The foundation for this dock is not considered to be ideal; the small piles with large surface area are prone to corrosion, especially in marine environments.
- Due to Department of Homeland Security requirements, the dock cannot accommodate freight vessel operations during the cruise ship season. The reduced load capacity also prevents the dock from being suitable for freight storage or heavy crane operations.
- Larger ships tend to have gangways located further away from the terminal along the existing passenger dock. A terminal and dock design that minimizes walking distances is desired. Similarly, a design that includes a covered walkway to provide rain protection is desired.
- The current berthing configuration is insufficient to accommodate the largest cruise ships accessing the dock. In particular, the dock is currently too short to accommodate gangway ramps for larger vessels.

- The fixed location of the luggage slot dictates where boats moor and the location only works for one ship currently visiting Seward.
- The dock is too high for optimum passenger and/or freight access.
- Improved safety is desired by separating passenger and forklift operations, including service and luggage traffic.
- Hotel services are desired on the dock, including fresh water, fuel, shore power, and potentially oily waste disposal.
- A permanent data line connection between the cruise ships at the passenger dock and the terminal has been sought.

### 5.2.5 Traffic Staging Area Outside Terminal

The following key issues were identified with the traffic staging area outside the terminal.

- When cruise trains are present, they block access to the freight dock and laydown area while they are being loaded.
- ARRC staff members are required to coordinate staging of the traffic area, which is an additional job requirement that may be able to be reduced with more effective management of the staging area.
- The City shuttle service is free and has been well-received, but some concerns have been raised with the buses having a high first step, narrow aisles, and a lack of space for luggage. An alternative vehicle, such as a van that is similar to airport shuttles, has been suggested.

### 5.2.6 Passenger Dock Tracks

The following key issues were identified with the passenger dock tracks.

- The at-grade crossing at Port Avenue is in poor condition and has a high grade differential over a short distance. This creates problems for fork lifts, trucks, and other equipment.
- The tracks on the passenger dock are no longer used due to weight limitations on the dock. This limits the length of track available for passenger trains, which can block the Port Avenue crossing. Currently, chartered cruise trains are built to ensure they do not overhang Port Avenue, which limits the numbers of passengers that can be accommodated. Adding more cars to the chartered cruise trains will result in blocking the Port Avenue crossing when trains are loaded/unloaded.
- The location of the passenger dock tracks at the end of the railyard, combined with the limited length of available track in the railyard, occasionally results in freight trains being pushed toward passenger trains which is not considered to be ideal.

### 5.2.7 Small Boat Harbor Land

The following key issues were identified with the small boat harbor land.

- The connection between the small boat harbor and depot to Port Avenue is not well signed, meaning pedestrians are sometimes confused about the best way to go to reach Port Avenue.
- Car parking outside of the Port Avenue buildings on land owned by the railroad is frequently in heavy demand, resulting in conflicts with pedestrians. This is an issue for the entire small boat harbor area during the tourist season.
- The vacant building previously occupied by the Seward Yacht Club is aging and in need of replacement. An agreement has been reached with a local vendor for the redevelopment of the site to a hotel.

### 5.2.8 Port Avenue

The following key issues were identified with Port Avenue.

- There is a lack of directional signage between the depot, terminal, and small boat harbor. Instructions are issued to passengers on the train prior to arrival at Seward, but on arrival there is nothing to assist passengers with navigating the area.
- There is only one sidewalk along Port Avenue, which is located on the north side of the road. Both the small boat harbor and terminal are located on the south side of the road, and tourists frequently attempt to walk along the south side of the road, which exposes them to conflicts from the Icicle Seafoods plant and other heavy vehicle movements.
- Port Avenue comprises predominantly industrial land uses such as Shoreside Petroleum, Icicle Seafoods, the Coast Guard Office, and the SLF. The only tourist-oriented business along Port Avenue is a rental car business.
- Street maintenance is not prioritized, resulting in a dirty, unattractive environment, and street furniture is largely absent or poorly maintained. The City of Seward has proposed some improvements to the street environment, such as improved signage.
- The travel distance between the depot and terminal and the poor environment provided by Port Avenue were raised as a concern. A combined depot and terminal facility was suggested to overcome this issue.

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# 6. Project Development

## 6.1 Project Identification

The development of projects was informed by the existing facility analysis, public outreach, and market analysis presented in previous sections of this report. Through this analysis, gaps were identified by the project team, and projects were recommended to address these gaps. Projects identified were captured in a "long list", which included a unique project number, the area on the site where the project was located, the relative project size, the priority of the project, why it was needed, potential challenges, and relation to other projects. The project team commenced populating the "long list" in December 2015, with the aim of capturing as many projects as possible for screening during March 2016. The "long list" has remained a living document, with additional projects added following workshops and feedback from ARRC. A summary table of passenger projects is attached to this study as Appendix B. Project screening was informed by the use of a project screening worksheet. Each project was screened using the

## 6.2 Preliminary Project Screening

following matrix to evaluate the effectiveness of the project contributing to the overall Master Plan vision, identified current and future needs, and ARRC's needs for the Seward site.

The criteria outlined in the project screening considered the impact that the project would have on the following evaluation criteria:

- economics,
- environment,
- regulatory,
- security,
- safety, and
- stakeholder support.

As outlined in Figure 6-1, a number of questions were asked under each criteria to consider impacts resulting from each project. Based on the answers, a decision was made on whether the project would have a positive, neutral, or negative impact relative to the criteria. This assisted to screen the projects and determine whether they should progress forward for further consideration as part of the studies and eventual Master Plan. In preparation for a project evaluation workshop, the project screening matrix was populated with a preliminary screening by two project staff to guide and assist discussions during the workshop.

| Evaluation Criteria | Negative Neutral Positive | Notes |
|---|---|---|
| **Economics** | ○ ◔ ◑ ◕ ● | |
| *Economic impacts* | How does the project affect local, regional, and state economies? | |
| *Indirect economic impacts* | Does the project provide infrastructure that supports other projects? | |
| **Environmental** | ○ ◔ ◑ ◕ ● | |
| *Resource impacts* | How does the project impact natural resources? | |
| *Ease of mitigation* | If negative impacts are likely, which resources are most affected and are mitigation options readily available? | |
| **Regulatory** | ○ ◔ ◑ ◕ ● | |
| *Compliance requirements* | Does the project comply with the legal requirements among existing contracts? | |
| **Security** | ○ ◔ ◑ ◕ ● | |
| *Legal requirements* | Is the project necessary for ARRC to meet legal Federal Railroad Association, Department of Homeland Security and local security requirements? | |
| **Safety** | ○ ◔ ◑ ◕ ● | |
| *ARRC safety culture* | Does the project promote ARRC's culture of safety? | |
| **Stakeholder Support** | ○ ◔ ◑ ◕ ● | |
| *Stakeholder support* | Is the project expected to have support from elected officials, vendors, and the community of Seward? | |
| *Grants* | Does the project qualify for grants? | |
| *Outside investment* | Is the project expected to be attractive to outside investment? | |

**Figure 6-1: Project Screening Matrix**

## 6.3 Project Evaluation Workshop

A project evaluation workshop was held over two full days in March 2016. The purpose of this workshop was to work through the "long list" of projects chronologically, confirm the project screening matrix, and determine whether, on the basis of this preliminary assessment, the project should move forward for further consideration or be "screened out" and not considered further in the planning process.

This workshop was attended by:

- ARRC Project Manager,
- Transportation Planning Lead,
- Stakeholder Engagement Lead,
- Economic Assessment Lead,
- Environmental Lead,
- Transportation Engineer, and
- Project Administrator (Recorder).

Of 186 projects originally identified, this workshop reduced the number of projects moving forward for further consideration to 105. This included the 14 "economic stimulus" projects being screened separately as part of the Economic Analysis report. These projects were presented to ARRC executives and key staff as part of the project selection workshop.

## 6.4 Project Selection Workshop

On March 29, 2016, a workshop was held with ARRC executives and other key staff to consider the potential projects for improvement at Seward. Three tables each included seven staff members, one facilitator, and one reporter. The workshop took place over three hours. Each group was asked to focus on the various assets and provided with project options for improvement. In this way, the groups had to consider where compromises would need to be made, which options were preferred, and how the various assets and the site interacted with each other. The groups used an aerial Photo and were tasked with placing either a symbol or object on the site to represent the project they were selecting. Photo 6-1 shows one of the group's selections. Following the placement of the preferred projects on the project map, a participant was selected to report back on what preferred projects were selected and the reasons for their selection. The project team considered workshop feedback and in particular the consistencies and differences between the projects selected. This process enabled the project team to reduce the number of projects moving forward for further consideration down to 64.

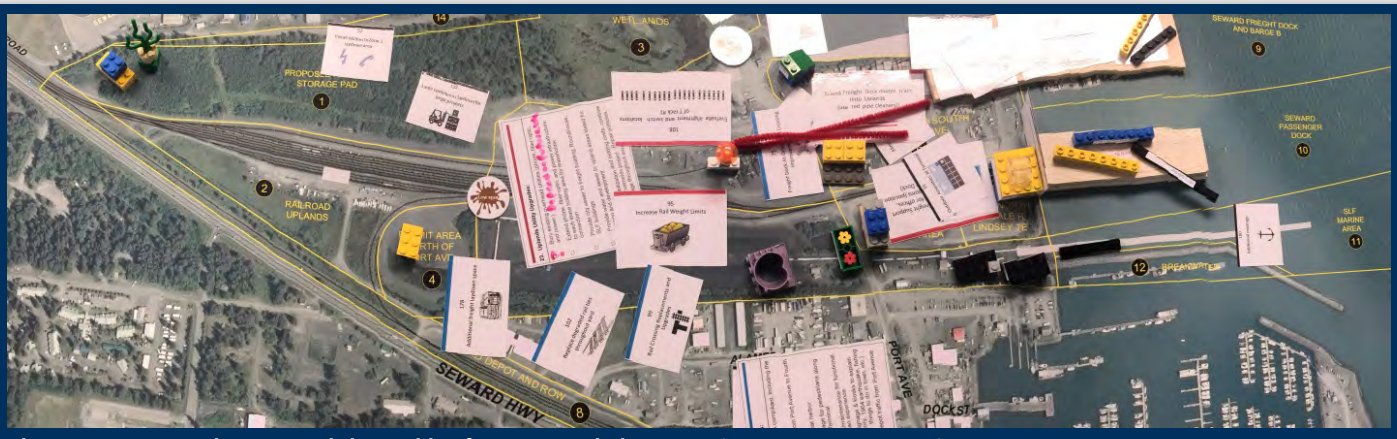



**Photo 6-1: Project Selection Workshop Table of Recommended Projects (Source: DOWL, 2016)**

## 6.5 Economic Analysis – Real Estate Stimulus Projects

Concurrent with the project identification and screening process, the Economic Analysis Report considered 14 projects to increase the use, value, and return of the existing real estate at the Seward Marine Terminal. The projects considered by the Economic Analysis were:

- retail space,
- seafood processor,
- office space,
- dedicated laydown area,
- loading facility,
- day-trip passenger services,
- refined fuel distributor,
- offseason moorage,
- marine repair and maintenance,
- vessel storage,
- cannabis grow operation and warehouse,
- seafood cold storage and freezer space,
- hotel operation, and
- housing development.

These projects were considered in detail in the Economic Analysis Report. Following project screening, ten projects were recommended for further consideration. Of these projects, three provided services to passengers, and therefore have been considered as real estate stimulus projects in the Passenger Traffic Study. These projects are retail space, hotel operation, and office space. These projects are addressed in further detail in Section 7.7 of this report.

## 6.6 Project Refinement

Following the project selection workshop and the results of the Economic Analysis, further analysis was undertaken to refine the projects being considered. This included considering whether some smaller projects could be combined as optional additions to larger projects. An example of this is the addition of water service to both the passenger and freight dock. This further reduced the number of projects down to 38, which were presented at the cornerstone review workshop.

## 6.7 Cornerstone Review Workshop

A cornerstone review workshop was held on July 20, 2016, and comprised a presentation of projects to the ARRC executive group. Projects were presented as a four-part workshop, comprising of passenger projects, freight projects, real estate projects, and infrastructure projects. The presentation set out either one or two recommended options for each of the main assets and infrastructure, together with rough-order costs for each of the projects.

It became immediately apparent that the costs of the passenger dock and terminal replacement were the most significant items for consideration. ARRC executives provided feedback that the costs of the passenger dock replacement in particular were substantially higher than what was expected, and that further work would be required to identify lower cost options. The project team was asked to focus on passenger dock and terminal replacement options, and to hold a further workshop to consider these at the conclusion of option development.

## 6.8 Terminal and Dock Option Presentation

The revised terminal and passenger dock replacement options were presented to ARRC executives on October 3, 2016. Feedback was received during this presentation that the costs of the replacement options were still a significant barrier, and the team was again asked to consider whether there were further options available to decrease the costs of the projects.

As part of the presentation a discussion was held on the project approach. It was intended that the cornerstone review workshop and terminal and dock option presentation would result in a single preferred option being selected for advancement as part of the Seward Marine Terminal Expansion Master Plan. However, as the costs of the projects were considerably higher than intended and funding to support advancing the projects was not currently available, ARRC requested that a revised approach be taken to the presentation of projects in the Master Plan.

The revised approach involves identifying improvements that are required, and a range of options to enable the improvements. In this way, ARRC can select the preferred option at the time the improvement is required, dependent on identified need, cost, and availability of funding to undertake the improvement project. This is the approach that has been taken in the identification of passenger traffic facility project options, as set out in Section 7.

# 7. Passenger Traffic Facility Improvement Options

## 7.1 Depot Options

Options are detailed in the following sections. At this stage, cost estimates have only been developed for projects that have a significant cost element, as this has assisted with decision making on whether a project option will continue to be recommended. Cost estimates for all project options, together with further project details will be provided in the Master Plan. All cost estimates are in 2016 dollars. Each project option starts on a new page throughout this section of the report.

### *7.1.1 Option P-DE1: Relocate Depot to a Co-located Terminal Facility (Only Available with Terminal P-TE1)*

**Description**

This project is a combined railroad depot and terminal project. It is described in further detail in Section 7.2.1 as Option 1: Replace Terminal with a Combined Terminal and Depot Facility on Uplands Immediately Adjacent to Replacement Passenger Dock. Photo 7-1 shows the depot building.


**Photo 7-1: Existing Depot Building at Seward (Source – Judy Patrick Photography, 2012)**

## 7.1.2 Option P-DE2: Improve Existing Railroad Depot

This project provides for a range of improvements to the existing railroad depot. This project would only proceed if ARRC chooses not to proceed with Option 1 (co-located terminal and depot facility). Improvements would be limited to what could be accommodated within the existing building footprint owing to site constraints, and the installation of a temporary tent for shelter purposes. Improvements include:

- improved shelter for passengers while they wait to load onto the train;
- beautify the depot with a mural;
- separate baggage forklift movement area from passengers;
- modernize the depot such as through the addition of free Wi-Fi and the ability to have food and drink available;
- add electronic signage at the depot; and
- install a trespass buffer between the railroad boundary and Leirer Road to reduce trespass.

Improved parking and striping arrangements could also be considered to assist with traffic flow, as illustrated in Figure 7-1.


**Figure 7-1: Land Areas and Constraints at Existing Seward Depot Site**

**Cost Estimate**

Estimates for the erection of a tent to increase sheltered waiting space at the depot are approximately $15,000. This is based on a 400-square-foot tent, which would be erected immediately adjacent to the existing depot building, similar to the existing luggage tent on the site (Photo 7-2). The tent frame would be erected on site throughout the year, and the skin would be removed and stored during the winter months, similar to the luggage

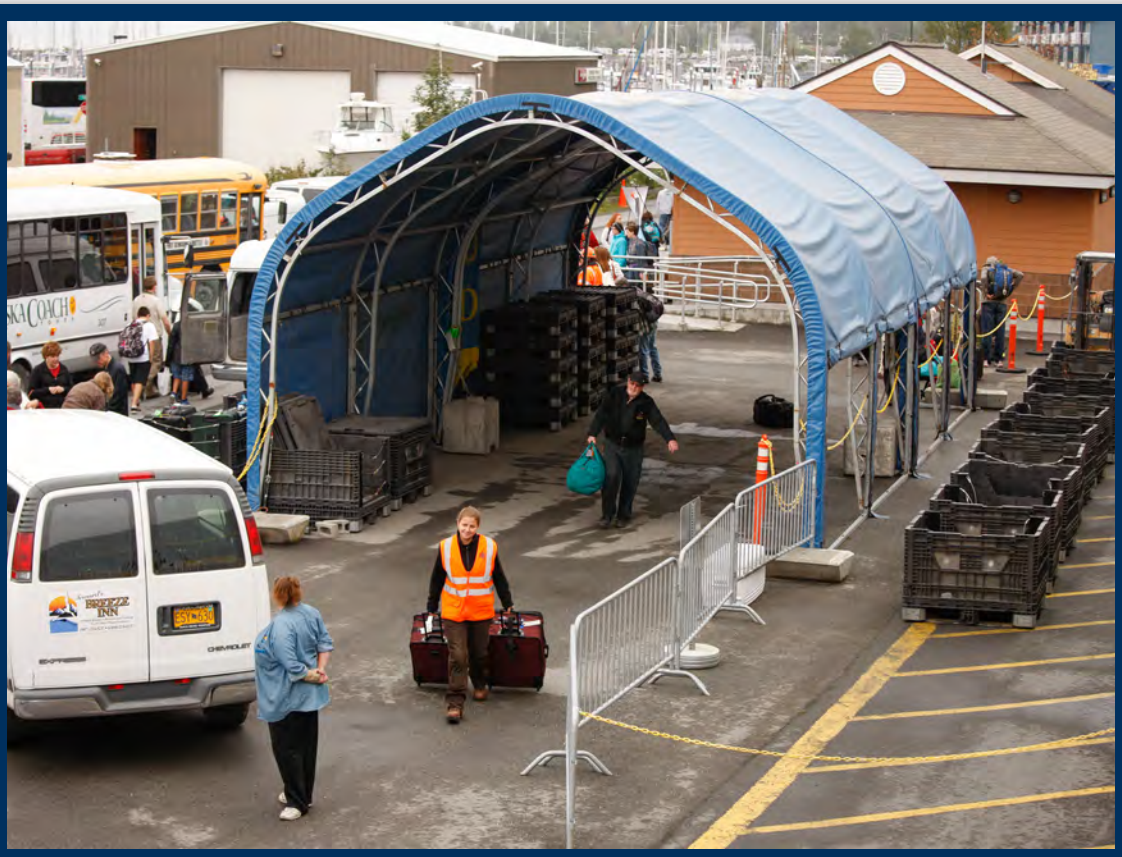


**Photo 7-2: Existing Luggage Tent at Seward Depot (Source: Judy Patrick Photography, 2012)**

### 7.1.3 Option P-DE3: Depot Expansion and Traffic Reconfiguration

This option provides for acquiring physical possession of the land between the depot and Leirer Road, demolishing the existing three buildings on that land and using this area to expand the depot and reconfigure traffic circulation. This option will assist to overcome the constraints identified in Option 2 that preclude any significant improvements at the depot by providing additional space. Improvements that could be considered in this option include the enlargement of the depot building, construction of a level loading platform, and transitions between the level loading platform and the enlarged depot building. The area of land that could be acquired is shown shaded in yellow in Figure 7-2.

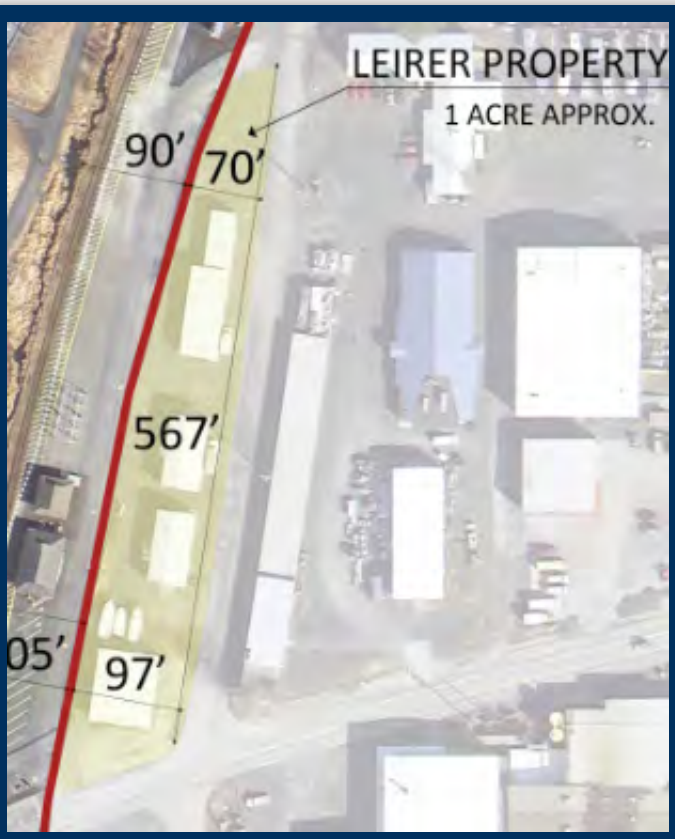



**Figure 7-2: Additional Land Adjacent to Depot That Could be Acquired to Allow for Expansion to Depot Facilities**

# 7.2 Terminal Options

### 7.2.1 Option P-TE1: Replace Terminal with a Combined Terminal and Depot Facility on Uplands Immediately Adjacent to Replacement Passenger Dock

With the passenger dock nearing the end of its serviceable life and the existing terminal facility located on the passenger dock, this option proposes to demolish the terminal building and construct a new building on land immediately adjacent to the replacement passenger dock. The location of the terminal will be dependent on which replacement passenger dock option is selected.

When considering the replacement terminal, consideration was given to co-locating all train facilities in a single location. The main reasons why this was considered were as follows.

- The two train facilities (terminal and depot) are located approximately 0.6 mile apart from each other along Port Avenue, which is a city-owned public street. Frequently, passengers arriving at the depot walk along Port Avenue, and the quality of the street environment is poor owing to it being located in an industrial area.
- The existing depot is constrained due to the small land area and undersized facilities available.
- Any addition to, or construction of new facilities triggers the requirement to provide level platform loading along the entire length of the train, and associated transitions are required between the building and the platform. Co-locating the depot and terminal in a single location would mean that only one level platform would need to be provided to cater for both the Coastal Classic and the Grandview cruise trains.
- Providing a co-located terminal and depot would mean that ARRC would need to maintain only one facility for all its passenger services, rather than two separate facilities.
- Relocating the depot to the terminal potentially frees up the land currently occupied by the terminal for redevelopment.

Analysis was conducted to identify what rooms and spaces would be required at the new combined terminal and depot building. A 43,200 square foot building is proposed, with an indicative floor plan shown in Figure 7-3. The building is divided into two main functions with the east part of the building serving all train or depot functions and the west part of the building serving all cruise ship operations. The west part of the building could use either an all-season construction or be built using a lightweight glass construction owing to its seasonal use. Shared services such as office space, restrooms, storage, a gift shop, mechanical and electrical spaces are also located on the east side of the building.

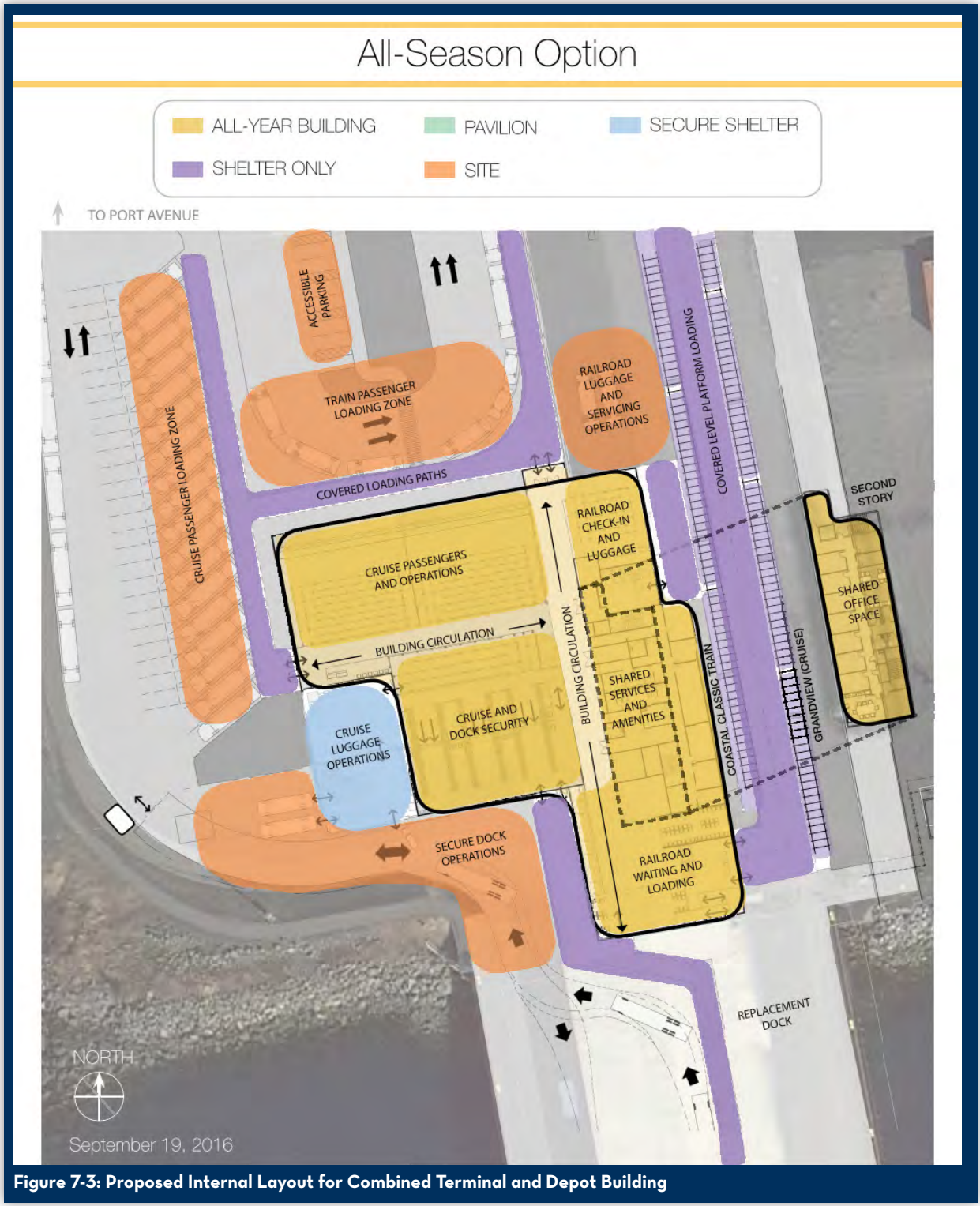



**Figure 7-3: Proposed Internal Layout for Combined Terminal and Depot Building**

Several options have been considered for the external appearance and massing of the building. Figures 7-4 and 7-5 present one potential option for the building's external appearance.


**Figure 7-5: Possible Southwest (Oceanside) Elevation for New Combined Terminal and Depot Building**


**Figure 7-4: Possible Northwest (Landside) Elevation for New Combined Terminal and Depot Building**

## Cost Estimate

Estimates for the replacement terminal cost are presented in Table 7-1, with major components broken out.

**Table 7-1: Cost Estimate for Terminal Replacement**

| Construction Item | Square Footage | Cost per square foot | Total |
|---|---|---|---|
| All-year construction (includes site work) | 43,223 | $500 | $21,611,500.00 |
| Pavilion (includes site work) | 0 | $275 | $0 |
| Secure Shelter | 4,073 | $175 | $712,775 |
| Shelter Only | 11,418 | $150 | $1,712,700.00 |
| Level Platform Loading Canopy (assumed 1,100' long) | 24,704 | $125 | $3,088,000 |
| Pedestrian Dock Tent | 6,240 | $100 | $624,000 |
| Construction Subtotal | | | $29,601,775 |
| Contingency (20%) | | | $5,920,355 |
| Total Construction Cost | | | $35,522,130 |
| Project cost (contract administration, project management, permitting) | | | $10,656,639 |
| Total Terminal and Site Project Cost | | | $46,178,769 |

The above cost estimate provides for the entire building to be an all-season construction. If the building was to be constructed with the west side being a lightweight glass construction owing to its seasonal use (pavilion style), the total building cost would lower to approximately $35 million.

### 7.2.2 Option P-TE2: Retain Existing Terminal on Passenger Dock and Retrofit Replacement Dock (Only Available with Dock Option 3)

**Description**

Dock option 3 (refer to Section 7.3.3) provides for the retention of the existing terminal building and section of the dock that the building is located on as part of an overall project that provides for the construction of a sheet pile dock. This option has been considered to avoid the need to replace the terminal building in its entirety. In order for this option to provide for the future use of the terminal over a 20-year timeframe, some additions will be required to the building to cater to the anticipated passenger growth from cruise ships. The existing terminal is shown in Photo 7-3.

If this option is pursued, the project analysis has assumed the following renovations would be required to the existing terminal building.

- A roughly 9,000 square foot addition is recommended to the north end of the building on land. The following spaces would be provided in the addition: 4,500 square feet for a cruise check-in and queuing area allowing two full cruise ship operation areas within the building; 1,350 square feet for the level loading platform transition stairs, ramp and platform; 800 square feet for additional restrooms; 40 square feet for an expanded boiler room; and 100 square feet for an elevator. An additional 15 percent area is added to the above square footage for circulation and exterior walls to obtain the overall additional square footage.
- Additional accessibility features will be provided including the installation of an elevator to provide equal access to second floor offices. Other accessibility requirements such as door maneuvering space will also be required. Existing spaces on the second level are not currently accessible and reconfiguration of the second floor hallways and rooms will be required.
- An exterior level platform loading base and canopy will be required to provide for level platform loading.
- The terminal roof requires replacement, and the renovation analysis assumes that this will occur concurrent with the additions to the building.
- Improvements to ventilation of the existing building will be required, including the replacement of the existing boiler system, expansion of the boiler room and improvements to this facility.
- The existing steel frame of the building does not meet current seismic requirements and will require upgrades.

**Photo 7-3: Existing Dale R. Lindsey Terminal Building at Seward (Source: Judy Patrick Photography, 2012)**

## Cost Estimate

The cost estimate for retaining and renovating the existing terminal is presented in Table 7-2, with major components broken out.

**Table 7-2: Cost Estimate for Retrofitting Existing Terminal Building**

| Space or Item Name | Square Footage | Cost per Square Foot | Total Cost |
|---|---|---|---|
| Cruise passenger operations | 4,500 | $500 | $2,250,000 |
| Level platform loading transition area | 1,350 | $500 | $675,000 |
| Air handling room | 800 | $500 | $400,000 |
| Expand boiler room | 400 | $500 | $200,000 |
| Information desk | 150 | $500 | $75,000 |
| Elevator | 100 | - | $100,000 |
| New bathrooms | 800 | $500 | $400,000 |
| Subtotal | 9,315 | | $4,707,500 |
| 15% for circulation, exterior walls | 1,215 | $500 | $607,500 |
| Seismic upgrade | 26,000 | $150 | $3,900,000 |
| Ventilation upgrade | 26,000 | $60 | $1,560,000 |
| Lighting / electrical upgrade | 26,000 | $40 | $1,040,000 |
| Boiler upgrade | - | - | $50,000 |
| Reroof | 26,000 | $25 | $650,000 |
| Subtotal | | | $11,907,500 |
| Exterior level platform base | | | $2,800,000 |
| Exterior level platform canopy | | | $3,600,000 |
| Subtotal | | | $18,307,500 |
| 20% contingency | | | $3,661,500 |
| Total Rough Order Magnitude (ROM) cost | | | $21,969,000 |
| Project cost (contract administration, project management, permitting) (30%) | | | $6,590,700 |
| Total ROM project cost | | | $28,559,700 |

### 7.2.3 Small Terminal Improvement Projects

In addition to the projects considering the replacement or retention of the terminal building, a number of smaller projects were recommended for further consideration as follows.

- **Option P-TE3: Independent Luggage Handling Facilities**: Provide improved luggage handling drop-off for independent travelers or day visitors switching between trains and cruises that are not accommodated by package plans.
- **Option P-TE4: Terminal Electronic Signage**: Install electronic signage at the terminal to provide public service announcements and also as a potential revenue generator (e.g., advertisers, community activities, tours).
- **Option P-TE5: Luggage Sorting Area in Terminal**: Create a dedicated area for sorting luggage in the terminal prior to loading it onto cruise ships.

These projects can be incorporated into the larger terminal projects on an as-required basis.

# 7.3 Passenger Dock Options

All dock options will accommodate a cruise ship with a length of 1,083 feet, beam of 155 feet, and tonnage of 141,000 Long Ton (LT) (displacement). Further details on dock materials, construction, and design criteria are included on the passenger dock replacement options description sheets (refer to Appendix C).

## 7.3.1 Option P-PD1: Full Size Sheet Pile Bulkhead Dock

**Description**

The new passenger dock provided for Option P-PD1 will replace the existing dock with a full size sheet pile bulkhead dock measuring approximately 970 feet long and 200 feet wide. The heavy-duty dock will provide flexibility for rail freight activities, which can be easily accommodated by installing ties and rails as necessary. Other components include salvaging two existing mooring dolphins and installing one new mooring dolphin to provide mooring for vessels over 1,000 feet in length. The dock will be finished with a concrete surface, and fenders and bollards will line the east and west face for berthing on both sides (Figure 7-6).

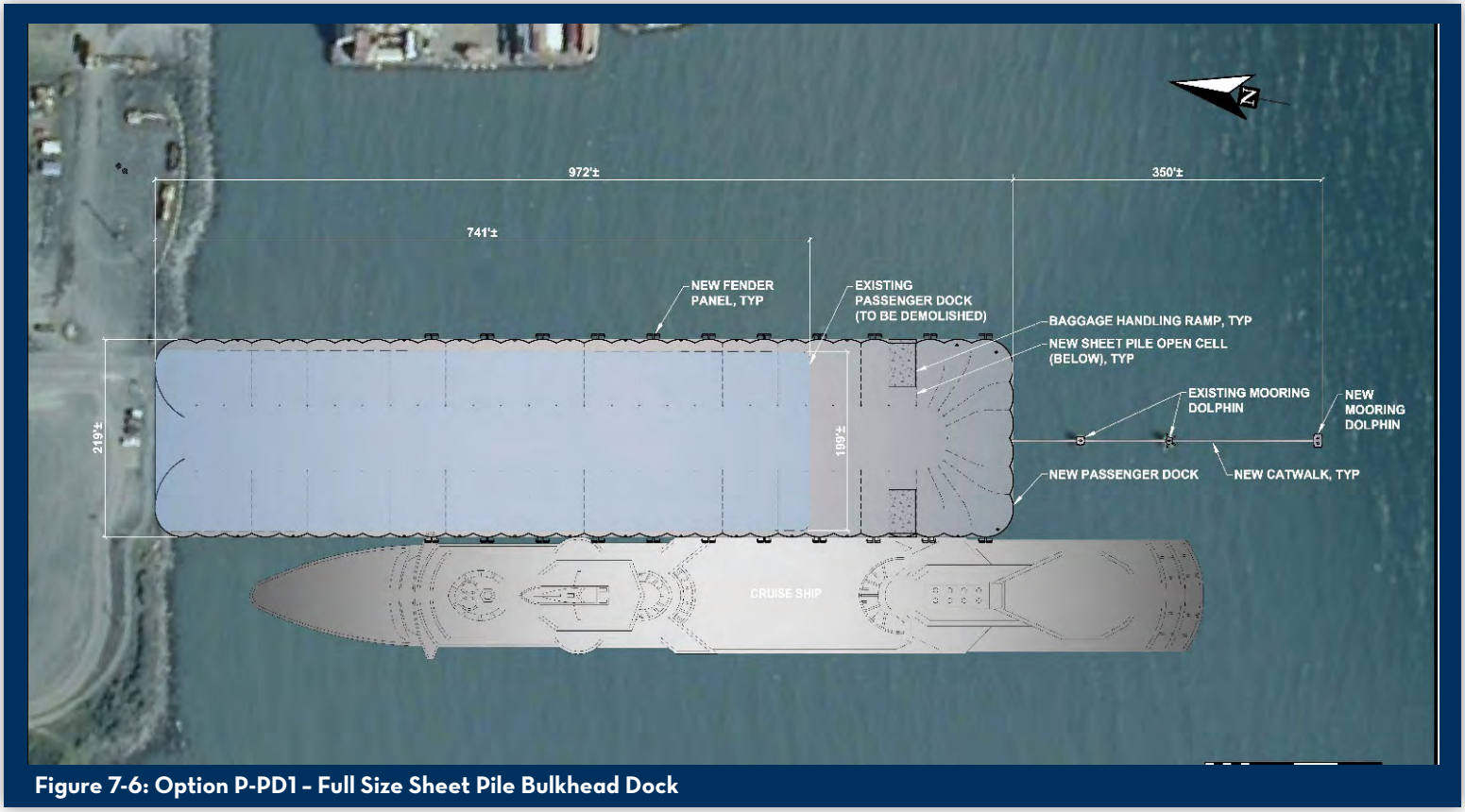



**Figure 7-6: Option P-PD1 – Full Size Sheet Pile Bulkhead Dock**

**Cost Estimate and Schedule**

Cost estimates and approximate completion timeframes for Option P-PD1 is presented in Table 7-3, with major components broken out. Note that most activities occur concurrently, meaning that multiple crews will be working on multiple tasks simultaneously.

**Option P-PD1: Full Size Sheet Pile Bulkhead Dock - $81.5M and 2 years construction time**

**Table 7-3: Cost Estimate for Dock Option P-PD1**

| Construction Activity | Cost | Duration |
|---|---|---|
| Mobilization and demobilization | $4.5M | 4 months |
| Demolition | $11.3M | 1 month |
| Sheet pile dock (includes sheet pile installation, deep compaction, layer compacted fill) | $27.1M | 1 years and 6 months |
| Fender system | $4.8M | 2 weeks |
| Dock utilities (includes water service, fuel system) | $0.4M | 1 month |
| Dock appurtenances (includes face beam, bullrail, mooring bollards, safety ladders) | $4.5M | 5.5 months |
| Dock surfacing | $6.4M | 5 months |
| Mooring dolphins | 0.45M | 2 weeks |
| Catwalks | $0.4M | 1 week |
| Rail Tracks | $0.4M | 2 weeks |
| Cathodic protection (material and install) | $0.4M | 3 weeks |
| Engineering, contract administration, project management, permitting | $6.6M | Throughout project |
| Contingency (20%) | $14.5M | N/A |
| Total | $81.5M | 2 years |

## 7.3.2 Option P-PD2: Minimal Sheet Pile Bulkhead Dock

**Description**

Similar to option P-PD1, option P-PD2 will replace the existing dock with a sheet pile bulkhead dock. However, option P-PD2 has a minimized approach measuring approximately 970 feet long and 150 feet wide, which is approximately 50 feet narrower than the current passenger dock (Figure 7-7). Also similar to option P-PD1, option P-PD2 will be finished with a concrete surface and can also accommodate rail activities.

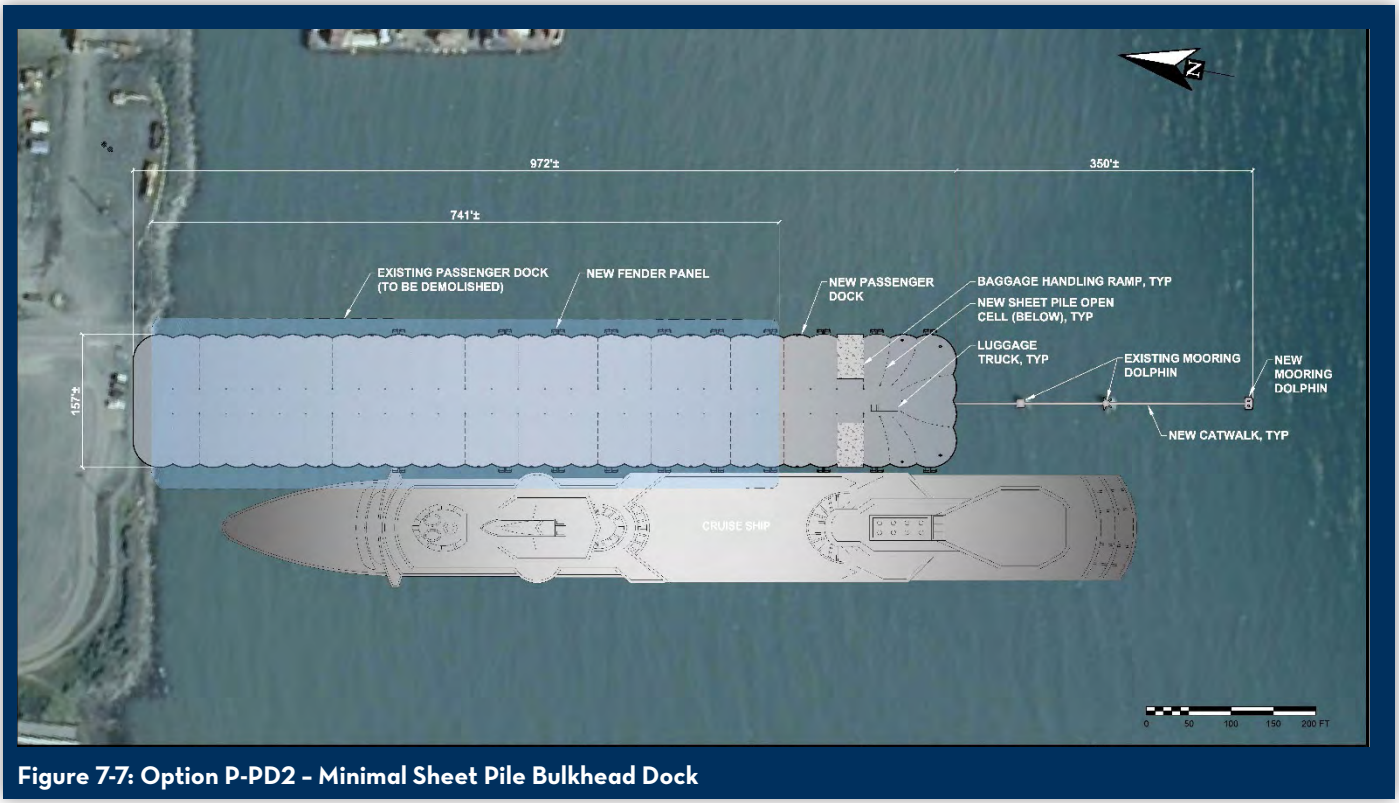



**Figure 7-7: Option P-PD2 – Minimal Sheet Pile Bulkhead Dock**

**Cost Estimate and Schedule**

Cost estimates and approximate completion timeframes for Option P-PD2 are presented in Table 7-4, with major components broken out. Note that most activities occur concurrently, meaning that multiple crews can also accommodate rail activities.

**Option P-PD2: Minimal Sheet Pile Bulkhead Dock - $69M and 2 years construction time**

**Table 7-4: Cost Estimate for Dock Option P-PD2**

| Construction Activity | Cost | Duration |
|---|---|---|
| Mobilization and demobilization | $4.3M | 3 months |
| Demolition | $11.3M | 1 month |
| Sheet pile dock (includes sheet pile installation, deep compaction, layer compacted fill) | $22.1M | 1 year 3 months |
| Fender system | $4.8M | 2 weeks |
| Dock utilities (includes water service, fuel system) | $0.4M | 1 month |
| Dock appurtenances (includes face beam, bullrail, mooring bollards, safety ladders) | $4.3M | 5.5 months |
| Dock surfacing | $2.9M | 3 months |
| Mooring dolphins | $0.45M | 2 weeks |
| Catwalks | $0.4M | 1 week |
| Rail tracks | $0.4M | 2 weeks |
| Cathodic protection (material and install) | $0.4M | 3 weeks |
| Engineering, contract administration, project management, permitting | $6M | Throughout project |
| Contingency (20%) | $11.7M | N/A |
| Total | $69.0M | 2 years |

### 7.3.3 Option P-PD3: Widened Sheet Pile Bulkhead Dock Retaining Existing Terminal Building and Existing Foundation Piles Reinforced

**Description**

Option P-PD3 is one of two options that enable ARRC to keep the existing passenger terminal building in place. This option is aligned with terminal option P-TE2, which provides for the retention and retrofit of the terminal building. The cost of these options is separate. Figure 7-8 provides a concept layout, and Figure 7-9 shows a typical section through the proposed dock. Similar to options P-PD1 and P-PD2, this option incorporates an sheet pile bulkhead replacement option. In order to fit the sheet pile around the existing building, the dock must be widened to approximately 280 feet. With a similar length to the other options, the wider dock provides an additional 120,000 square feet of surface area relative to the existing dock. In order to keep the existing building in place, the pile foundation below that portion of the dock will be reinforced with grouted fiberglass reinforced polymer (FRP) wraps. Other components will be similar to options P-PD1 and P-PD2, including salvaging two existing mooring dolphins and installing one new mooring dolphin to provide mooring for vessels over 1,000 feet in length. Fenders and bollards will line the east and west face for berthing on both sides.

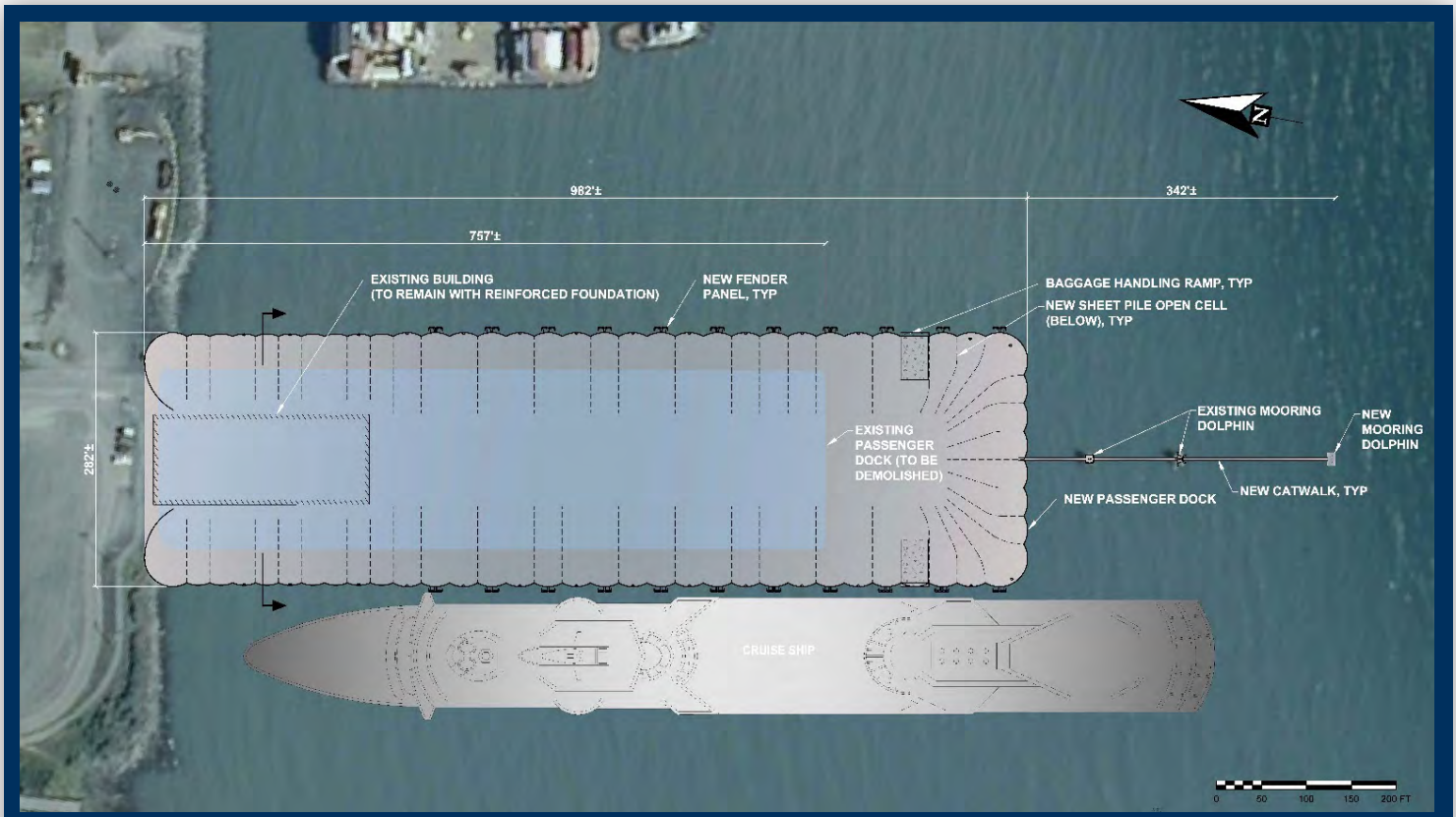



**Figure 7-8: Option P-PD3 – Widened Sheet Pile Bulkhead Dock Retaining Existing Terminal Building and Existing Foundation Piles**

To salvage the existing terminal building, the compromised piles that support the dock must be repaired. A preformed fiberglass laminate will be installed on the pile in a 5-foot section, which will be slid down the pile to the mud line until the entire pile is encased. The annulus between the laminate and the pile is then filled with epoxy grout. Once the grout is cured the full strength of the pile is returned. The repair does not require any special equipment or experience.

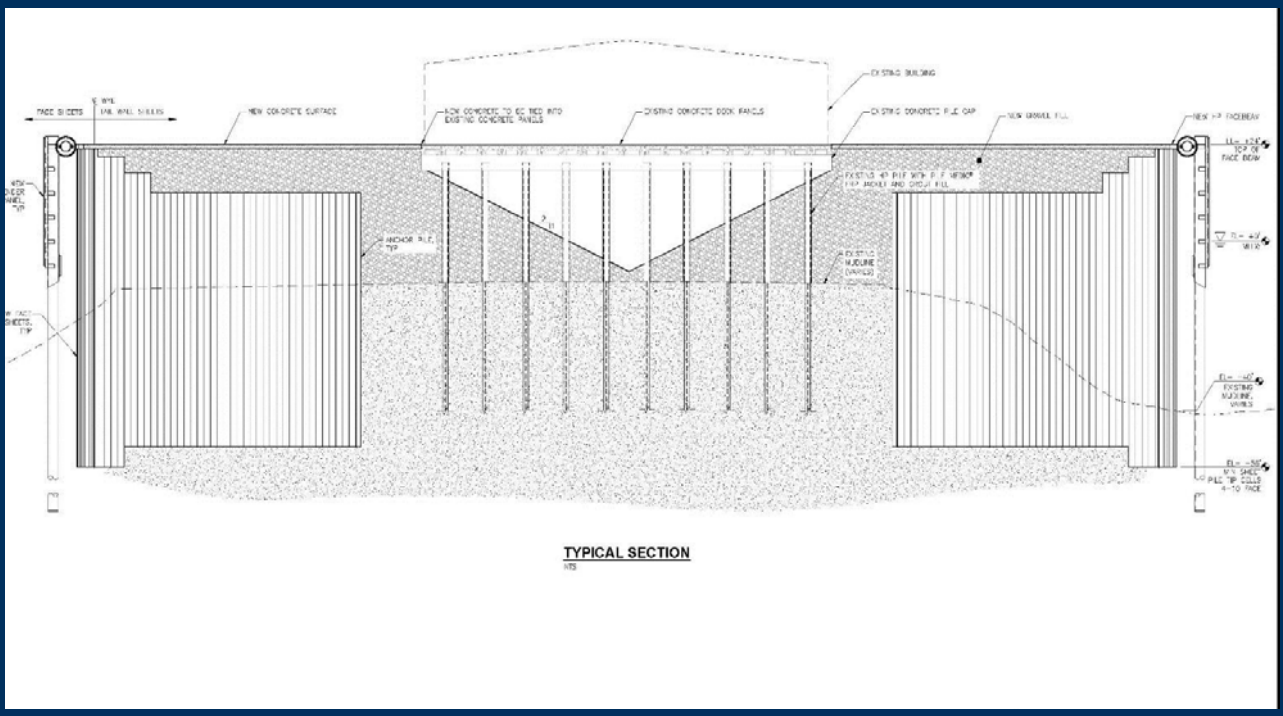



**Figure 7-9: Option P-PD3 – Section of Sheet Pile Dock with Existing Building Foundation Piles Reinforced**

## Cost Estimate and Schedule

Cost estimates and approximate completion timeframes for Option P-PD3 are presented in Table 7-5, with major components broken out. Please note that this cost estimate excludes the cost associated with salvaging and retrofitting the existing terminal building, which is covered in option P-TE2.

**Option P-PD3: Widened Sheet Pile Bulkhead Dock Retaining Existing Terminal Building and Existing Foundation Piles - $83.7M and 2 years construction time**

**Table 7-5: Cost Estimate for Dock Option P-PD3**

| Construction Activity | Cost | Duration |
|---|---|---|
| Mobilization and demobilization | $4.5M | 4 months |
| Demolition | $9.5M | 1 month |
| Sheet pile dock (includes sheet pile installation, deep compaction, layer compacted fill) | $28.2M | 1 year, 6 months |
| Salvage terminal building foundation | $4.4M | 6 months |
| Fender system | $4.8M | 2 weeks |
| Dock utilities (includes water service, fuel system) | $0.4M | 1 month |
| Dock appurtenances (includes face beam, bullrail, mooring bollards, safety ladders) | $4.5M | 5.5 months |
| Dock surfacing | $6.0M | 5 months |
| Mooring dolphins | $0.45M | 2 weeks |
| Catwalks | $0.4M | 1 week |
| Cathodic protection (material and install) | $0.4M | 3 weeks |
| Engineering, contract administration, project management, permitting | $7.0M | Throughout project |
| Contingency (20%) | $14.5M | N/A |
| Total | $83.7M | 2 years |

### 7.3.4 Option P-PD4: Minimal Pile Supported Dock Retaining Existing Terminal Building and Existing Foundation Piles Reinforced

**Description**

Option P-PD4 is one of two options that enable ARRC to keep the existing passenger terminal building in place. A concept layout of this option is shown in Figure 7-10. This option is aligned with terminal option P-TE2, which provides for the retention and retrofit of the terminal building. The cost of these options are separate.

This option provides for a minimal pile-supported dock to be constructed. Approximately 280 feet in length by 160 feet in width of the remaining dock will remain in place, with a reinforced foundation. With this portion of the dock remaining, the existing terminal building can remain in use. The remainder of the dock would be replaced by a platform measuring approximately 400 feet in length by 120 feet in width, with access provided by a 300-foot long, 45-foot wide causeway. Four new breasting and mooring dolphins would be installed at the platform corners, with two existing and one new mooring dolphin beyond the end of the platform. Vessels of 1,000 feet in length would be able to berth at the facility, with fenders and bollards provided along the east and west faces of the platform.

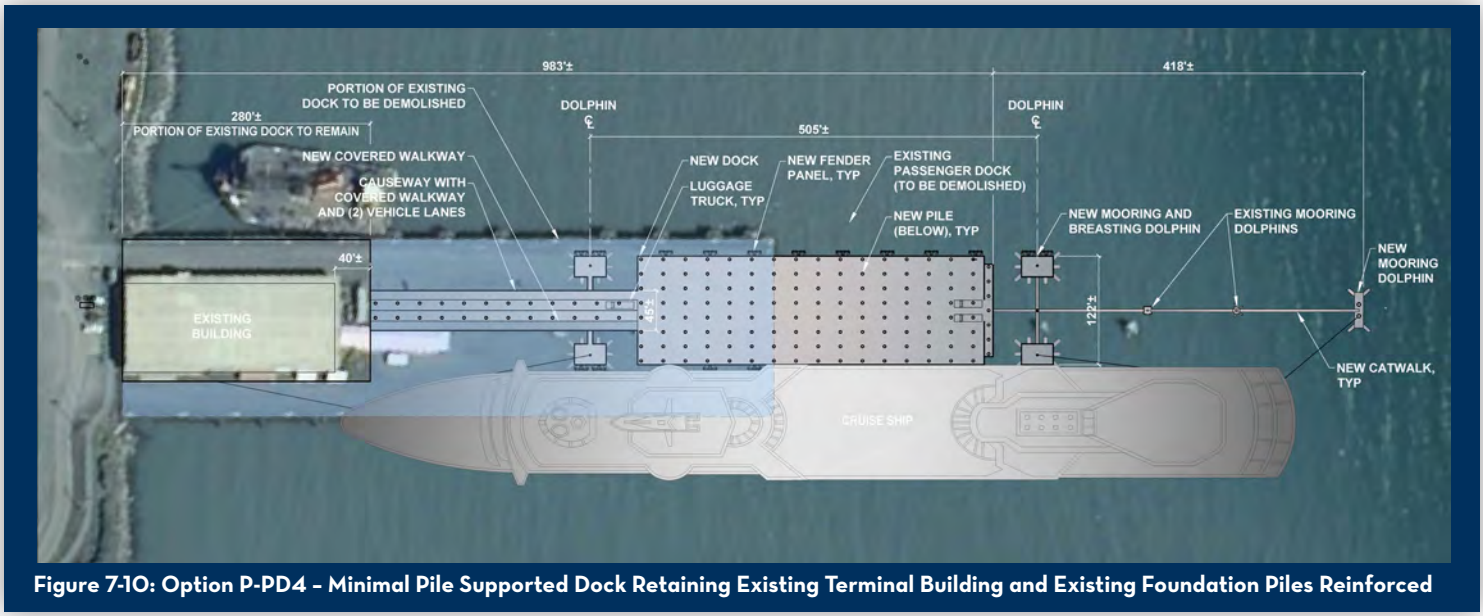



**Figure 7-10: Option P-PD4 – Minimal Pile Supported Dock Retaining Existing Terminal Building and Existing Foundation Piles Reinforced**

**Cost Estimate and Schedule**

Cost estimates and approximate completion timeframes for Option P-PD4 are presented in Table 7-6, with major components broken out. Please note that this cost estimate excludes the cost associated with salvaging and retrofitting the existing terminal building, which is covered in option P-TE2.

**Option P-PD4: Minimal Pile Supported Dock Retaining Existing Terminal Building and Existing Foundation Piles Reinforced - $57.1M and 2 years construction time**

**Table 7-6: Cost Estimate for Dock Option P-PD4**

| Construction Activity | Cost | Duration |
|---|---|---|
| Mobilization and demobilization | $5.6M | 2.5 months |
| Demolition | $7.8M | 1 month |
| Salvage Terminal Building Piles | $7.9M | 1 month |
| Breasting dolphins | $2.7M | 1 month |
| Catwalks | 0.1M | 10 days |
| Mooring Dolphins | $1.9M | 2 months |
| Pile supported dock (includes pile material and install, concrete pile caps, concrete deck panels, fendering and appurtenances) | $16.1M | 1 year, 3 months |
| Dock utilities (includes water service, fuel system) | $0.4M | 1 month |
| Engineering, contract administration, project management, permitting | $4.9M | Throughout project |
| Contingency (20%) | $9.5M | N/A |
| Total | $57.1M | 2 years |

## 7.3.5 Option P-PD5: Full Size Pile Supported Dock

**Description**

Option P-PD5 is a 'full size' pile supported replacement option (Figure 7-11). The dock would have steel pipe piles as a foundation and a precast concrete panel deck. The option is similar to option P-PD1 in size, being approximately 970 feet long and 200 feet wide and providing approximately 50,000 square feet of additional surface area. However, unlike the sheet pile size option P-PD1, the pile supported dock will not accommodate freight activities. The pile supported dock proposed in option P-PD5 is HS-20 load limited, which means it can provide for buses and truck traffic only and no major freight or container handling activities. The two existing mooring dolphins will be salvaged and one new mooring dolphin would be installed to allow for mooring of vessels over 1,000 feet in length. Fenders and bollards would extend along the east and west face to provide berthing on both sides of the dock.

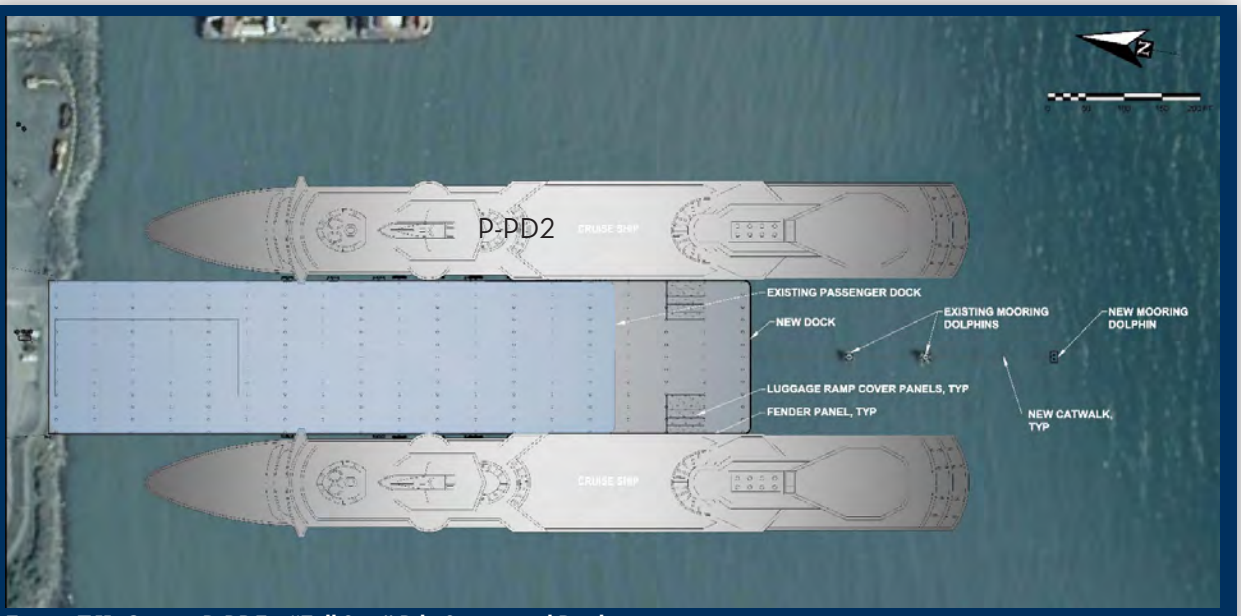



**Figure 7-11: Option P-PD5 – "Full Size" Pile Supported Dock**

**Cost Estimate and Schedule**

Cost estimates and approximate completion timeframes for Option P-PD5: "Full Size" Pile Supported Dock are presented in Table 7-7, with major components broken out.

**Option P-PD5: "Full Size" Pile Supported Dock - $94.7M and 2 years construction time**

**Table 7-7: Cost Estimate for Dock Option P-PD5**

| Construction Activity | Cost | Duration |
|---|---|---|
| Mobilization and demobilization | $6.3M | 3 months |
| Demolition | $11.3M | 1 month |
| Breasting dolphins | $7.0M | 1 month |
| Catwalks | $0.4M | 0.5 month |
| Mooring dolphins | $0.5M | 1.5 months |
| Pile supported dock (includes pile material and install, concrete pile caps, concrete deck panels, fendering, and appurtenances) | $52.7M | 1 year, 6 months |
| Engineering, construction administration, project management, permitting | $7.9M | Throughout project |
| Contingency (20%) | $15.7M | N/A |
| Total | $94.7M | 2 years |

## 7.3.6 Option P-PD6: Minimal Pile Supported Dock

**Description**

Option P-PD6 is a minimal pile supported dock replacement option (Figure 7-12). This option reduces the dock surface area by approximately 100,000 square feet relative to the existing dock. The platform would be approximately 400 feet long by 120 feet wide, with access provided by a 475 feet long and 45 feet wide trestle. Four new breasting dolphins would be installed at the platform corners with two existing and one new mooring dolphin being located beyond the end of the platform, which would be accessed using catwalks. Vessels over 1,000 feet in length would be able to berth at the facility with fenders and bollards provided along the east and west face of the platform. Similar to option P-PD5, this dock will not be able to be used for freight activities.

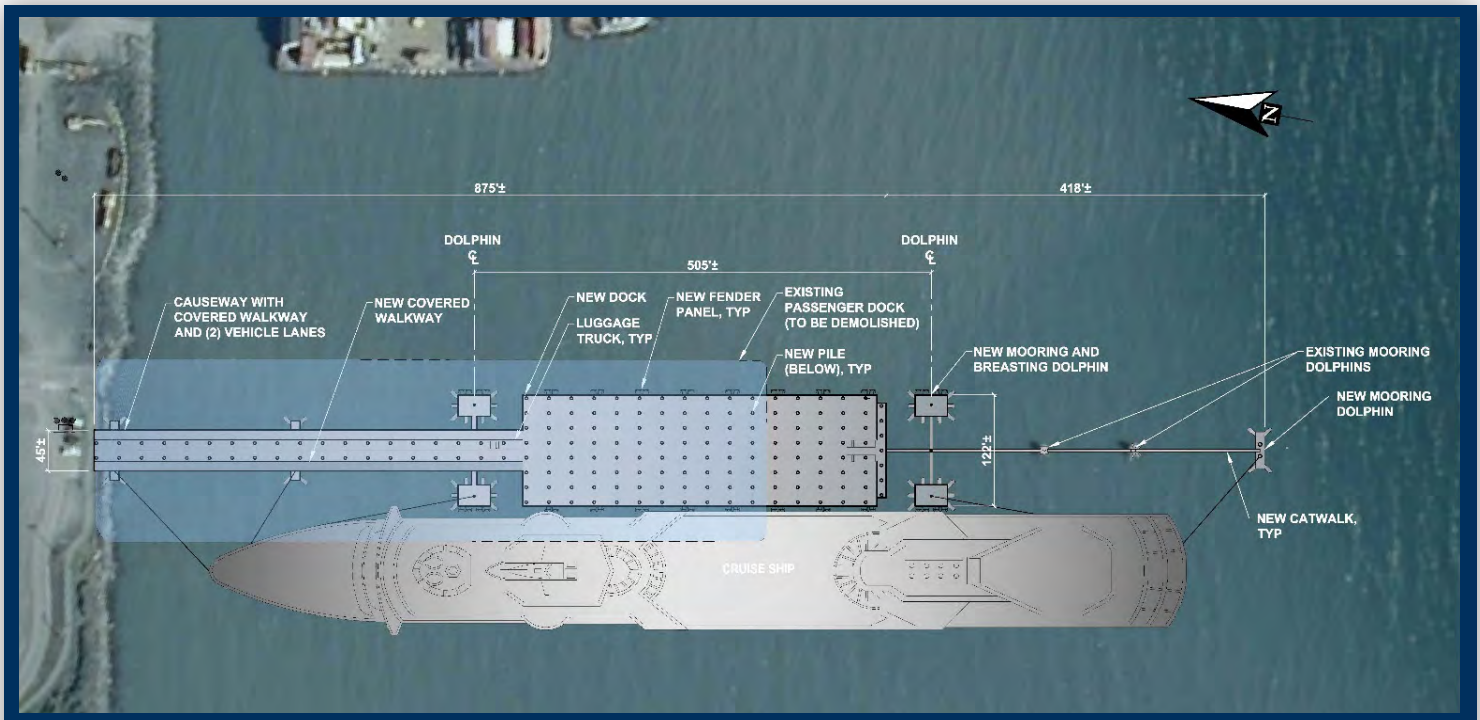



**Figure 7-12: Option P-PD6 – Minimal Pile Supported Dock**

**Cost Estimate and Schedule**

Cost estimates and approximate completion timeframes for Option P-PD6 are set out in Table 7-8, with major components broken out.

**Option P-PD6: Minimal Pile Supported Dock - $59.4M and 2 years construction time**

**Table 7-8: Cost Estimate for Dock Option P-PD6**

| Construction Activity | Cost | Duration |
|---|---|---|
| Mobilization and demobilization | $5.6M | 2.5 months |
| Demolition | $11.3M | 1 month |
| Breasting dolphins | $2.7M | 1 month |
| Catwalks | $0.1M | 10 days |
| Pile supported dock (includes pile material and install, concrete pile caps, concrete deck panels, fendering and appurtenances) | $19.8M | 1 year, 3 months |
| Breasting/mooring dolphins | $3.3M | 2.5 months |
| Dock fender system | $3.0M | 2 weeks |
| Dock utilities (includes water service, fuel system) | $0.4M | 1 month |
| Engineering, contract administration, project management, permitting | $6.5M | Throughout project |
| Contingency (20%) | $9.9M | N/A |
| Total | $59.4M | 2 years |

### 7.3.7 Option P-PD7: Seward Loading Facility Dock Pile Supported Platform Expansion

**Description**

The SLF was originally designed to unload bulk material (specifically coal) from railcars, stockpile the material on ARRC land used for storage, and load the material into bulk ships via a stacker-reclaimer and conveyor belt system. However, due to the downturn in the global export coal market, the facility is currently not in use and has been put into a long-term shutdown. The SLF dock has been in service for about 31 years following construction in 1984. The dock is approximately 900 feet long and 28 feet wide with a trestle and conveyor. A platform and ship loader is located at the end of the trestle/conveyor. The dock is currently only set up to handle bulk carriers.

Since the dock is not currently in use, several options have been considered to find the best alternative to use the existing dock and space. One minimal option (Phase I) is to extend the platform with a pile supported timber deck at the south end of the dock to provide berthing for cruise ships along the west side. The platform would have an approximately 630 feet berth face and be approximately 60 feet wide. Breasting dolphins and fenders would be added for adequate berthing. As part of Phase I, dredging to -35 feet MLLW would be required along the west side to provide adequate draft for cruise ships.

A more extensive option, Phase II, widens the platform and provides berthing and mooring for cruise ships along the east side of the platform. With Phase II, the overall berth face (east and west sides) would be approximately 630 feet long and approximately 120 feet wide. In addition to expanding the platform for cruise ships, the conveyor will be removed and replaced with a covered walkway to accommodate cruise ship passengers. To further accommodate passengers, an adjustable luggage platform would be built on the east and west sides to expedite the offloading process (Figure 7-13).

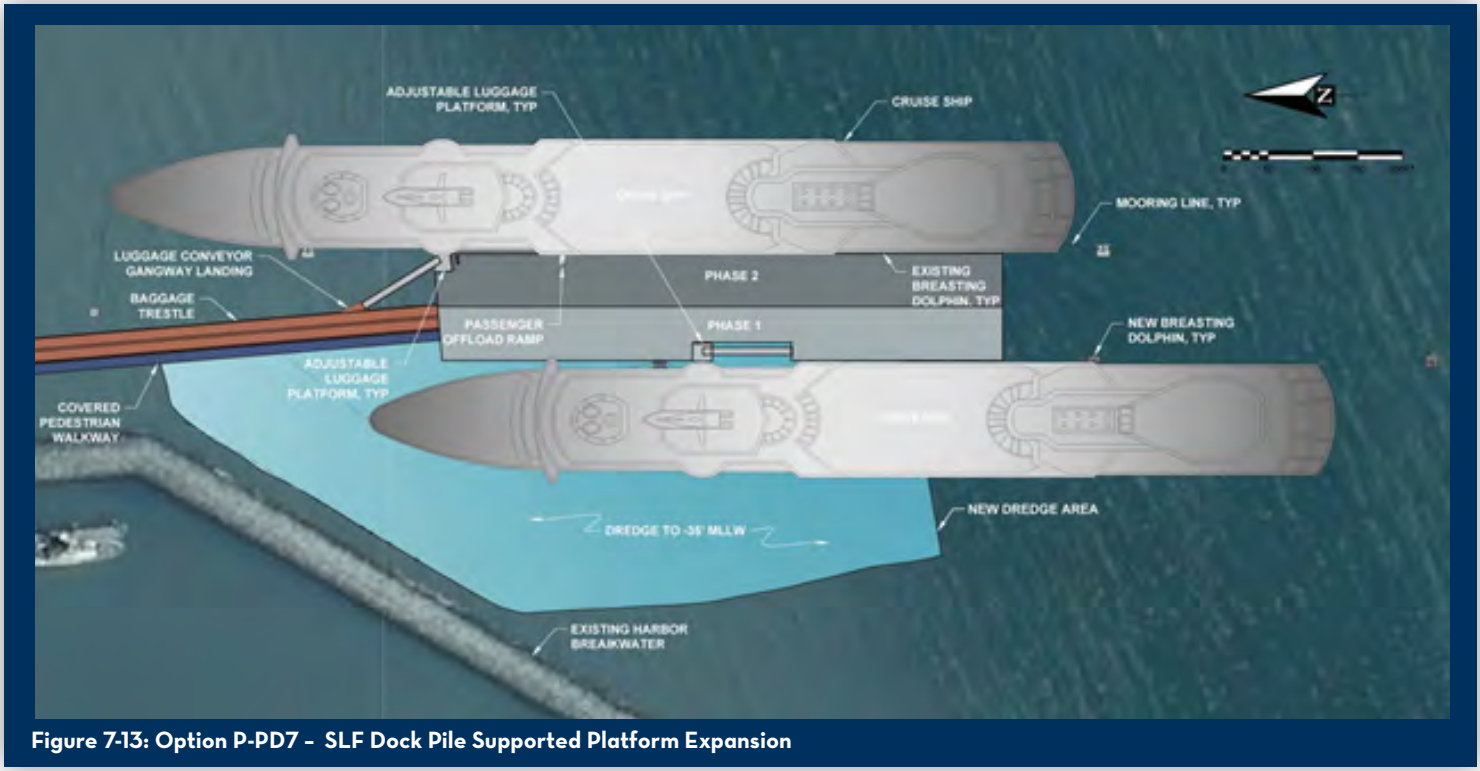



**Figure 7-13: Option P-PD7 – SLF Dock Pile Supported Platform Expansion**

**Cost Estimate and Schedule**

Cost estimates and approximate completion timeframes for Option P-PD7 Phases I & II are presented in Table 7-9 and Table 7-10, with major components broken out in itemized bullets.

**Option P-PD7: SLF Dock Pile Supported Platform Expansion (Phase I) - $39.1M and 1 year construction time**

**Table 7-9: Cost Estimate for Dock Option P-PD7 (Phase I)**

| Construction Activity | Cost | Duration |
|---|---|---|
| Mobilization and demobilization | $2.5M | 1 month |
| Demolition (includes offshore conveyor, ship loader, catwalks) | $0.9M | 2 months |
| Salvage and reinstall trestle superstructure | $1.5M | 2 months |
| Provide and install new trestle (piles, superstructure, running boards) | $15.1M | 6 months |
| Breasting dolphins | $1.7M | 1 month |
| Dock fender system | $2.6M | 2 weeks |
| Dock appurtenances (safety ladders, anodes, bullrail) | $0.5M | 1 month |
| Dock utilities (includes water service, fuel system) | $0.7M | 2 months |
| Engineering, construction administration, project management, permitting | $3.9M | Throughout project |
| Dredging | $3.7M | 2 months |
| Contingency (20%) | $6.6M | N/A |
| Total | $39.7M | 1 year |

**Option P-PD7: SLF Dock Pile Supported Platform Expansion (Phase II) - $20.8M and 8 months construction time**

**Table 7-10: Cost Estimate for Dock Option P-PD7 (Phase II)**

| Construction Activity | Cost | Duration |
|---|---|---|
| Mobilization and demobilization | $2.5M | 1 month |
| Provide and install new trestle (piles, superstructure, running boards) | $9.0M | 3 months |
| Dock fender system | $0.9M | 2 weeks |
| Breasting dolphins | $1.7M | 1 month |
| Dock appurtenances (includes bullrail, safety ladders, anodes) | $0.4M | 2 weeks |
| Install utilities (includes water service, fuel system) | $0.3M | 1 month |
| Cathodic protection (materials and install) | $0.1M | 1 week |
| Engineering, construction administration, project management, permitting | $4.0M | Throughout project |
| Contingency (20%) | $3.5M | N/A |
| Total | $20.8M | 8 months |

### 7.3.8 Option P-PD8: Extend Freight Dock to Accommodate Cruise Vessels

**Description**

The freight dock was originally designed to relieve the combined dock that is currently used as the passenger dock and to provide separation of freight and passenger operations. The freight dock is constructed using an sheet pile bulkhead with a gravel surface and rail tracks running to the end of the dock. It has been in service for approximately 15 years and was constructed from 2000 – 2002. The dock currently measures approximately 600 feet in length and between 200 – 320 feet in width and has a total surface area of approximately 130,000 square feet. The dock elevation is +20 feet MLLW in height, and it primarily services barges carrying cargo.

Option P-PD8 proposes to incorporate varying levels of extension to the bulkhead to enable the accommodation of cruise ships. Phase I is a minimal option, extending the west facing bulkhead approximately 600 feet with approximately 120 feet of width. The minimal extension would allow for cruise ships over 1,000 feet long to dock on the west side, in addition to standard freight and cargo. A more extensive option can be provided by Phase II, which would add a bulkhead face over 600 feet long on the east side of the extension. This would make the extension over 300 feet wide. Dredging will be necessary to provide adequate draft on the east bulkhead and a sediment groin or similar should be constructed to mitigate infill from sediment migration. This would enable larger vessels to berth at the dock, and would also add approximately 200,000 square feet of additional surface area for use by cruise ships and freight activities. An aerial view of Option P-PD8 is shown in Figure 7-14.

**Cost Estimate and Schedule**

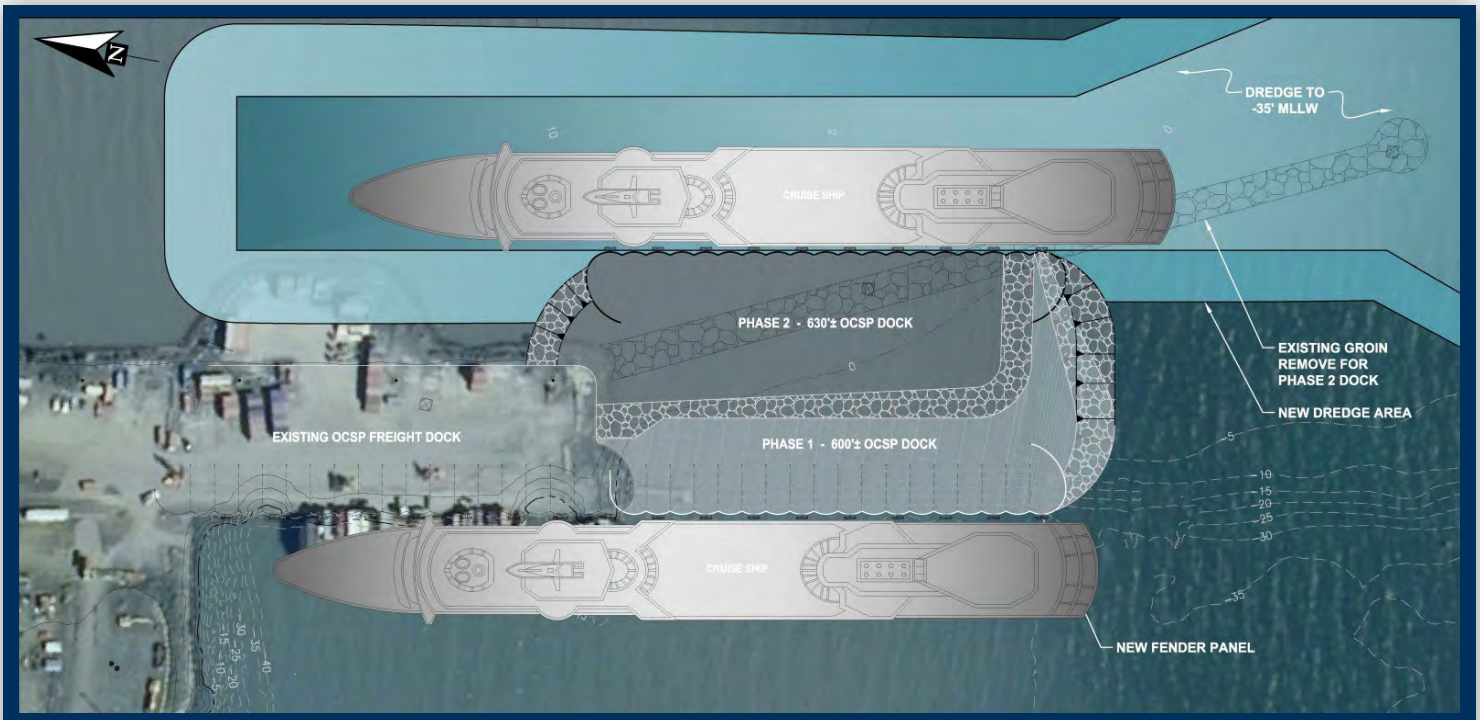



**Figure 7-14: Option P-PD8 – Freight Dock Extension to Accommodate Cruise Ships – Phases I & II**

Cost estimates and approximate completion timeframes for Option P-PD8 Phases I & II are presented in Table 7-11 and Table 7-12, with major components broken out.

**Option P-PD8: Phase I - $21.3 Million; 1 year and 3 months construction time**

**Table 7-11: Cost Estimate for Dock Option P-PD8 (Phase I)**

| Construction Activity | Cost | Duration |
|---|---|---|
| Mobilization and demobilization | $2.3M | 2 months |
| Salvage existing armor rock and reinstall | $0.6M | 3 weeks |
| Sheet pile dock construction (includes: drive sheet, cut off sheets and weld interlocks, backfill, compact below and above waterline) | $6.7M | 8 months |
| Install utilities (includes water service, fuel system) | $0.4M | 1 month |
| Dock fender system (materials and install) | $2.0M | 2 weeks |
| Dock appurtenances (includes: face beam, bull rail, mooring bollards, safety ladders) | $1.7M | 3 months |
| Cathodic protection (materials and install) | $0.3M | 2 weeks |
| Engineering, construction administration, project management, permitting | $3.7M | Throughout project |
| Contingency (20%) | $3.8M | N/A |
| Total | $21.3M | 1 year, 3 months |

**Option P-PD8: Phase II - $46.8 Million; 1 year and 3 months construction time**

**Table 7-12: Cost Estimate for Dock Option P-PD8 (Phase II)**

| Construction Activity | Cost | Duration |
|---|---|---|
| Mobilization and demobilization | $2.3M | 2 months |
| Sheet pile dock construction (includes: drive sheet, cut off sheets and weld interlocks, back fill, compact below and above waterline) | $7.2M | 8 months |
| Install utilities (includes water service, fuel system) | $0.4M | 1 month |
| Dock fender system (materials and install) | $2M | 2 weeks |
| Dock appurtenances (includes face beam, bull rail, mooring bollards, safety ladders) | $1.7M | 3 months |
| Cathodic protection (materials and install) | $0.3M | 2 weeks |
| Engineering, construction administration, project management, permitting | $3.7M | Throughout project |
| Contingency (20%) | $3.8M | N/A |
| Dredging | $23.8M | 1 year, 6 months |
| Sediment groin | $1.9M | 1 week |
| Total | $46.8M | 1 year, 3 months |

## 7.3.9 Small Dock Improvement Project

In addition to the projects considering the replacement of the passenger dock, the following smaller project was recommended for further consideration.

- **Option P-PD9: Cruise Ship Passenger Covered Walkway:** Construct a covered walkway from the passenger dock to the passenger terminal to make the initial disembarkation process more inviting.

This project can be incorporated into any dock replacement option selection, if required.


**Photo 7-4: Existing Tent to Shelter Passengers on Dock (Source – Judy Patrick Photography, 2012)**

# 7.4 Traffic Staging

Improvements to traffic staging at the terminal was identified through project development. The improvements include enhancing the safety and communication of traffic staging arrangements and also improving attractiveness by installing landscaping.

## *7.4.1 Option P-TS1: Create New Traffic Staging Arrangements Associated with New Terminal (Only Available with Terminal Option P-TE1)*

**Description**

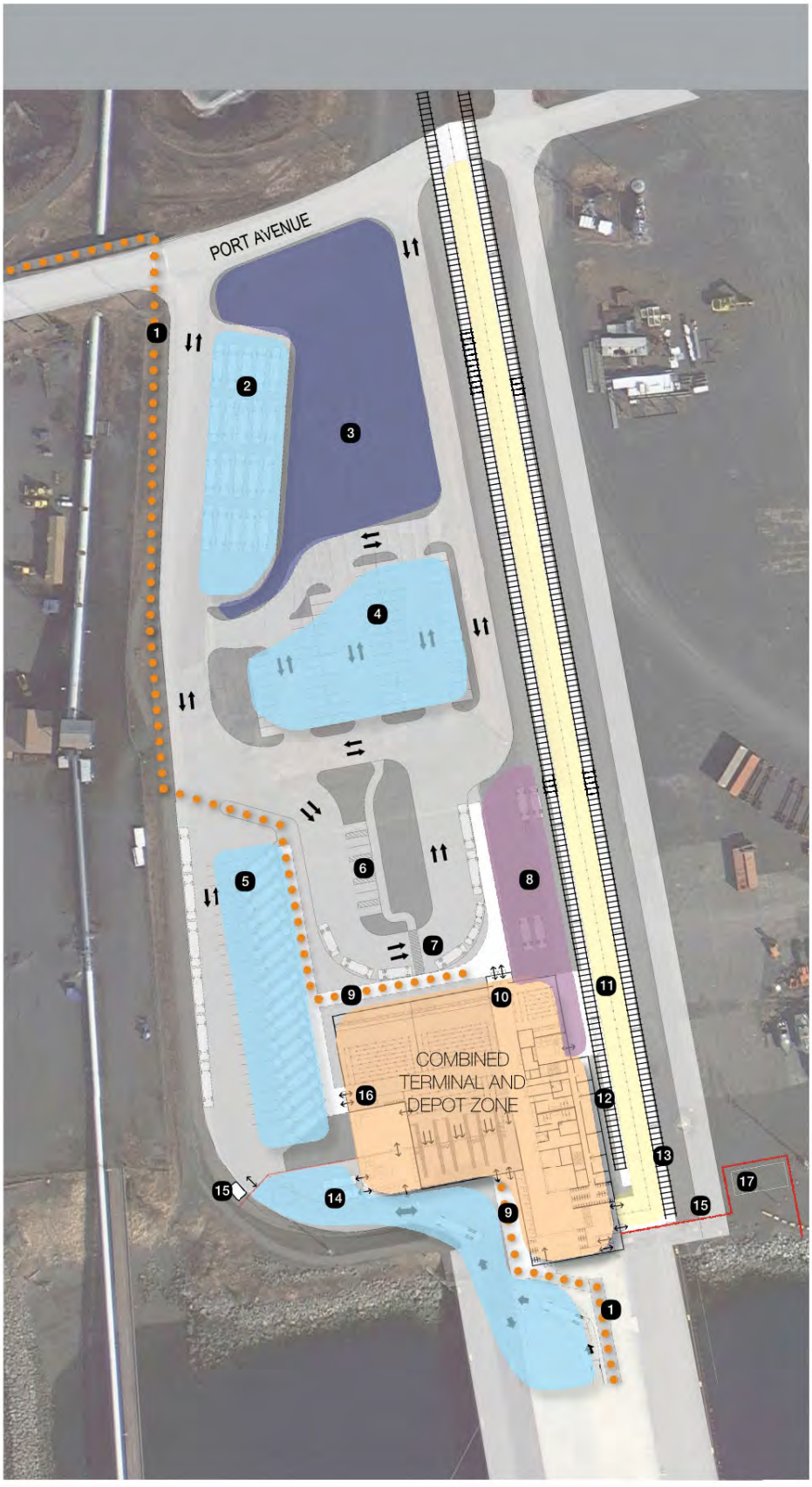
This project revises and enhances the traffic staging arrangements for the new terminal. Key elements of the proposed design are the provision of a separate route to enable bus and box truck parking and loading on the dock; angled parking for bus loading immediately adjacent to the terminal; and a circulation route for chartered vehicles, tour shuttles, taxis, and private vehicles immediately adjacent to the terminal. There is also provision for extended bus parking, and for staff and visitor parking in close proximity to the terminal.

This traffic staging arrangement has been designed to cater to a combined depot and terminal facility, and therefore provision has been made to separate vehicle and luggage movements associated with trains from the vehicle and luggage movements associated with cruise ships. The design is compliant with ADA requirements and includes the provision of a level platform for train passengers to embark and disembark trains, which is separated from vehicle movements. An indicative layout for these improvements is shown in Figure 7-15.

## Concept Site Plan

SITE KEY:

1. PEDESTRIAN PATH
2. COACH STAGING
3. LEASABLE AREA
4. STAFF AND PUBLIC PARKING
5. CRUISE TRAFFIC LOADING
6. ACCESSIBLE PARKING
7. TRAIN TRAFFIC LOADING
8. ARRC LUGGAGE OPERATIONS
9. COVERED WALKWAY
10. NORTH ENTRY
11. SHARED COVERED LEVEL PLATFORM BOARDING
12. COASTAL CLASSIC TRAIN
13. GRAND VIEW (CRUISE TRAIN
14. CRUISE LUGGAGE OPERATIONS
15. SECURITY GATE
16. WEST ENTRY
17. LONGSHORE-MEN TRAILER




NORTH

September 19, 2016

**Figure 7-15: Concept Layout for Traffic Staging at the New Terminal**

### 7.4.2 Option P-TS2: Upgrade Traffic Staging Arrangement at Existing Passenger Terminal (Only Available with Passenger Dock Option P-PD3)

**Description**

This option considers improvements to the existing traffic staging arrangements at the terminal. Paving and striping was installed at the terminal in 2014, which significantly improved traffic circulation. However, even with the current improvements, there is still a need for the Port Manager to marshal traffic during the disembarkation and embarkation peak periods. Improvements to traffic parking and staging could be considered as set out in Figure 7-16.

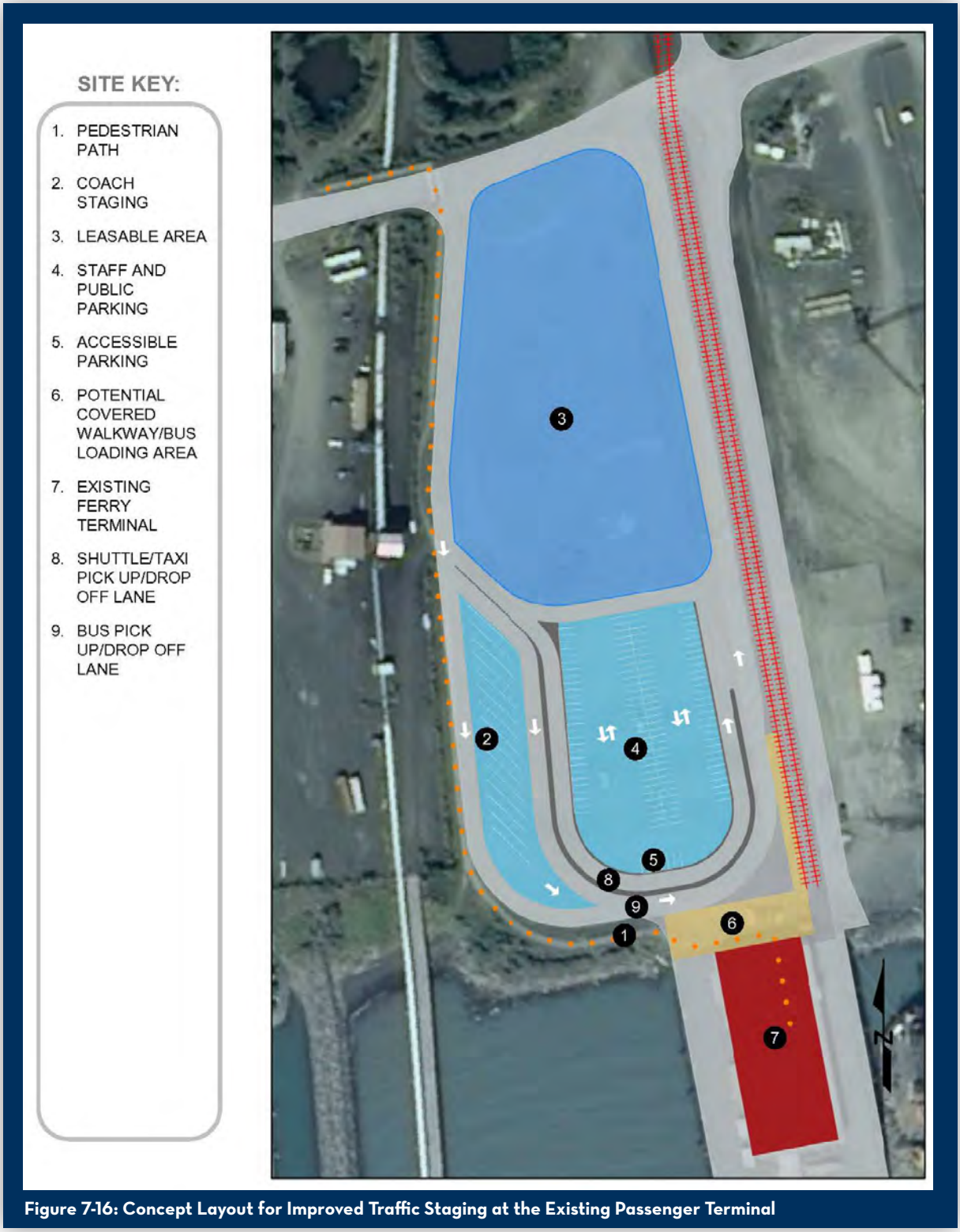



**Figure 7-16: Concept Layout for Improved Traffic Staging at the Existing Passenger Terminal**

# 7.5 Passenger Track Improvements

With the option to combine the terminal and depot (refer to terminal options in Section 7.2), changes to the passenger track north of the passenger dock, the railyard, and to the Port Avenue at-grade crossing become necessary to accommodate the relocated passenger service, related operational changes, and resulting implications for site connectivity.

## *7.5.1 Option P-PT1: Track Modifications to Accommodate Longer Trains at Terminal*

**Description**

The existing east and west passenger tracks north of the passenger dock are on 15-foot center spacing. Insufficient area to accommodate a level platform is located between the tracks, which will be required with a new terminal or if any major upgrades are made to the existing terminal. Track age and condition does not warrant preservation of either alignment for reuse. Therefore, both the east and west tracks will be realigned to optimize site layout and operations under this option. Figure 7-17 shows the existing tracks to be removed, 15-foot wide level loading platform, and new passenger tracks. Also shown are the envelopes that would be occupied by the maximum consist of the Grandview cruise train on the east track, and the maximum consist of the Coastal Classic train on the west track.

Under this option, the passenger tracks have been shifted east as far as possible to maximize the space available to the west for the traffic staging and circulation. The level platform was sited to the south as far as possible to maximize its length while also allowing sufficient space for vehicular access at the northeast corner of the passenger dock. Level platform length is limited on the north end by the resulting changes to track geometry at the south end of the yard. This is due to the requirement that level platforms must be adjacent to tangent track; ADA-compliant level platforms cannot be constructed to accommodate the horizontal offset relative to the track that rail cars experience while traversing a curve.


**Figure 7-17: Passenger Track and Level Platform**

Given these constraints, the resulting level platform is 1,065 feet long. Allowing 20 feet at the south end for passenger access from the terminal and a 10-foot stopping buffer and barrier and barrier protection, this allows 1,035 feet available loading length. As illustrated in Figure 7-16, this is sufficient to accommodate the maximum consist of the Grandview cruise train on the east track; however, the maximum consist of the Coastal Classic train extends past the end of the level platform by 119 feet. This could be addressed in a number of ways including, but not limited to:

- loading the last two passenger cars from the second to last passenger car;
- switching out low capacity passenger cars for higher capacity to reduce the length of the maximum consist; or
- constructing a removable section of level platform to access the last car.

Due to the resulting level platform location, the existing at-grade crossing of Port Avenue will be impacted by this option. This could be addressed in a number of ways, depending on other site development needs:

- Port Avenue could be realigned and the at-grade crossing relocated just north of the end of the level platform. This would allow for continued use of the at-grade crossing at all times other than when passenger trains are traversing the crossing or when the Coastal Classic is at the terminal and the consist includes at least 11 of the maximum 12 cars. Due to constraints on roadway geometry, it is not possible to realign the roadway far enough north to clear the maximum consist of the Coastal Classic.

- Port Avenue could be terminated just west of the passenger tracks.

- The Port Avenue at-grade crossing could remain in its current location and the level loading platform constructed to include a removable portion at the crossing. This could be put in place on a seasonal or daily basis as required, to enable the continued use of Port Avenue when the portion is removed.

Under existing operations, the Grandview Cruise Train uses the west passenger track, from which it can use the wye track to make turns without having to switch tracks through the upper yard. Under this option, the Grandview Cruise Train would operate from the east passenger track. As a result of the lateral shift and increased spacing between the east and west passenger tracks, the south end of the railyard and ladder tracks must be altered and realigned to continue to provide access to the wye to perform turning operations without traversing the upper yard and switching tracks. As shown in Figure 7-18, these changes include:

- reconfiguring the turnout between Track #8 and Track #9,
- adding a crossover in the south yard between Track #6 and Track #7, and
- adding a second crossover in the south yard between Track #7 and Track #8.

The final change to the existing track layout under this option is to the south end of the coal bunker track, shown in Figure 7-17 and 7-18. Depending on future coal operations, the possible realignment of Port Avenue and other site development, this track could either be removed completely or removed and realigned for continued use of the coal bunker facility or for some alternative use.


**Figure 7-18: South Yard and Ladder Track Changes**

# 7.6 Port Avenue Improvements

A number of improvements have been recommended to enhance the attractiveness of Port Avenue for pedestrians and road users. Until the point where Port Avenue crosses the bridge over the SLF, the road is owned by the City of Seward. Therefore, any improvement projects would need to either be led by or conducted in partnership with the City.

## 7.6.1 Option P-PA1: Port Avenue Improvements Between Depot and Terminal

**Description**

Improvements have been recommended to Port Avenue to assist with wayfinding, pedestrian comfort and safety, and to enhance the experience of the connection between the terminal and the depot, small boat harbor, and City of Seward. Photo 7-5 was taken near the bridge crossing the SLF and shows a need for improved street maintenance and aesthetics.

**Photo 7-5: Existing Conditions for Pedestrians along Port Avenue (Source: DOWL, 2016)**

Improvements that could be considered are illustrated in Figure 7-19, and include:

- enhancing way-finding signage;
- making improvements to the street to enhance its accessibility;
- prioritizing street maintenance to make the street environment more attractive;
- providing informational signage/kiosks on the area's history, current land uses, and local attractions; and
- creating a connection via a boardwalk or similar linkage along the water frontage to the small boat harbor.

In March 2016, a workshop was held between ARRC representatives and the City of Seward, to discuss potential improvements to Port Avenue. The City of Seward appropriated $125,000 for minor improvements along Port Avenue including creating barriers to dissuade pedestrian traffic from the south side of the road, improving information signage along Port Avenue and Fourth Avenue, installing directional and pedestrian control signage at the depot, and installing covered/removable benches along the north side of Port Avenue where appropriate. Some of these improvements were installed during the 2016 cruise ship season.

Figure 7-19 shows the location and type of potential improvements that could be made along Port Avenue.


**Figure 7-19: Location and Type of Potential Improvements for Pedestrians Along Port Avenue**

## 7.6.2 Option P-PA2: Port Avenue Improvements on Railroad Land

**Description**

This project provides for improvements along Port Avenue within the Seward Marine Terminal site, to the east of the terminal, and into the uplands area as shown on Figure 7-20. These improvements could occur to enhance the appearance of the entry to the industrial part of the site to improve the attractiveness of the area to future leaseholders.


**Figure 7-20: Area of Port Avenue That Could Be Aesthetically Improved**

# 7.7 Real Estate Enhancements with a Passenger Focus

In addition to the projects identified to facilitate improvements at the Seward Marine Terminal site, the Economic Analysis Report conducted an evaluation of potential uses of the real estate available at the site with the goal of increasing the amount of revenue generated. The evaluation commenced with a consideration of 14 different business opportunities, and these were screened according to their likelihood of providing a positive rate of return to ARRC over the life of the Master Plan (assumed to be 20 years). Following analysis seven were recommended for further consideration on the basis that they generated positive rates of return, and of the seven, two provided operations that are considered to be passenger focused. These are a retail outlet, and hotel.

In addition to the businesses considered as part of the economic analysis, one stakeholder indicated a desire to locate business facilities at the Seward Marine Terminal site to provide services to passengers. This is detail further as option P-RE1 below.

## 7.7.1 Option P-RE1: Business Facilities

**Description**

This option provides for a lease opportunity of land near the traffic staging area at the terminal for the construction of a passenger or tourism-focused business facility. Suggestions for the type of facility include a car rental business, a souvenir shop, or an operation that provides the opportunity to book and pay for a range of tourism activities in and around Seward. Figure 7-21 illustrates the potential location for this project.


**Figure 7-21: Possible Lease Area For Passenger/Tourism Focused Business Facilities**

### 7.7.2 Option P-RE2: Retail Outlet

**Description**

The Economic Analysis Report considered the financial feasibility of providing a retail outlet at the Seward Marine Terminal site. The analysis evaluated the provision of a retail business on a two-acre site. The analysis assumed ARRC would complete any necessary but likely minimal off-site improvements, with the tenant being responsible for all on-site development costs. It is expected that with the exception of lease revenue, ARRC would not experience any additional revenue from retail operations. The analysis concluded that the provision of a lease to a retail outlet would generate a positive rate of return.

### 7.7.3 Option P-RE3: Hotel

**Description**

The Economic Analysis Report considered the financial feasibility of providing a hotel operation at the Seward Marine Terminal site. The analysis evaluated the provision of a hotel on a five-acre site. The analysis assumes ARRC would complete any necessary but likely minimal off-site improvements, and the tenant would be responsible for all on-site development costs. ARRC is assumed to accrue lease revenue from the hotel, but would not experience any additional revenue from the operation. The analysis concluded that the provision of a lease to a hotel would generate a positive rate of return.

# 8. Next Steps

This Passenger Traffic Study, together with the Freight Traffic Study, Transportation Connectivity Study, the Visioning Statement and the Economic Analysis Report, has been prepared to inform the development of the Seward Marine Terminal Expansion Master Plan.

Further information on recommended approaches to site development, potential funding arrangements, and prioritization of projects will be addressed as part of the Master Plan.


**Photo 8-1: The Cruise Train Waits for Passengers at the Terminal (Source: Judy Patrick Photography, 2012)**

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# Appendix A

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# DEPOT

Factsheet

## DESCRIPTION

The Depot, or “Summer Depot” as it is sometimes called, provides accommodations for 59,426 (2015) passengers using the daily-scheduled Coastal Classic train from mid-May to mid-September. Coastal Classic travels between Anchorage and Seward with more passengers riding Southbound (from Anchorage) than northbound. This single-storey building has a waiting area, storage room, small mechanical room, a single restroom, and a reception/ticketing counter area with storage. Tourist pamphlets, brochures, and other information, are available at the Depot. Rail passengers can make transportation connections to the City of Seward, local tours, restaurants, attractions, hotels, and cruise ships from the Depot. Access to the Depot and parking is by a one-way drive that enters northeast of the Depot from Leirer Road and exits south to Port Avenue.

Additional restrooms are provided in a small, separate structure north of the Depot. Luggage handling occurs in a steel-framed tent located north of the Restroom Building. A small Storage Shed is located at the far north end of the Depot site and a shore power connection is provided for parked trains at the south end.

In general, the Depot and adjacent outbuildings are in good condition and are well-kept.

### General Information

- Construction Date: Depot 1997, Restroom Building 2005 or 2010, Storage Shed October 2015 and Shore power in 2010.
- Years in Service: Roughly 19 for Depot, 16 for Restrooms and 1 for Storage Shed and Shore power.

- Structure Type: Depot and Restroom Building are assumed wood-frame on concrete masonry unit (CMU) foundation with crawlspace, modified gabled hip roof. Storage Shed is CMU construction.

### Primary Features

Both the Depot and Restroom Building are raised construction, approximately 12 inches above adjacent grade, and are equipped with ramp and stair access that appear to meet current Americans with Disabilities Act (ADA) requirements. The one-storey structures have modified hip roofs, punched window openings in the Depot, and horizontal wood siding. The hipped roofs drain on all sides of the building, thus ensuring the downspouts are functioning properly is critical to keeping people who are accessing or waiting near the buildings dry. The large overhangs have been noted as valuable for protecting waiting passengers from rain.

## OPERATIONAL DETAILS

- The facilities are seasonal, operating mid-May to mid-September. Currently, the Coastal Classic train arrives in Seward daily at 11:05 a.m. and departs for Anchorage at 6:00 p.m.
- The passenger Depot is one terminus of the Seward railroad line.
- The heaviest period of use within the buildings is between 5:00 p.m. and 6:00 p.m. after passengers have checked in for the return trip to Anchorage.

## LIST OF APPLICABLE REPORTS AND STUDIES

- 12/31/2010 Seward Depot Improvement – file located on project SharePoint site (https://sewardmarinesp.akrr.com/sites/SewardMarineTerminal/SitePages/Home.aspx).

## DEFICIENCIES AND AREAS OF CONCERN

### Issues Identified by ARRC Staff

- The facility is closed mid-September to early-May and vandalism has occurred during the closure.
- During summer months, the luggage tent has provided cover for unwanted visitors to hang out.
- Traffic around Depot is noted as “a mess” and “horrible”. Some factors that contribute to this description are some drivers do not realize it is one-way circulation and enter off Port Avenue which is exit only. Another issue is the lack of a designated unloading/loading area for tour vans and motor coaches, so they stop in the circulation driveway. There is insufficient parking. Pedestrians walk to the south or the east, and there is not a designated walking path so they cross the site in any direction. Finally, the driveway cut to access Port Avenue is very wide making it more difficult for pedestrians to cross to the designated crosswalk on Port Avenue or to access the sidewalk on the north side of Port Avenue which goes to the Terminal.
- The facility is minimally heated and maintained without generating income for the majority of the year.
- It was suggested to move the Depot closer to the Passenger Terminal or to combine them.
- Insufficient space to accommodate passengers, keeping them dry and warm, between 5:00 p.m. check-in and 6:00 p.m. boarding was noted. The railroad has accommodated this by allowing passengers to begin loading at 5:00 p.m.
- Luggage handling for “Independent” travelers who are connecting to cruise ships and have their luggage with them drag their luggage down Port Avenue to the Terminal due to either unclear or lack of vehicular transport.
- Request for larger overhangs for people to get out of the rain.

- New federal accessibility regulations require at-grade access to trains which is not currently provided. Providing this feature would only apply to major renovations or new construction.
- Railroad Passenger Services would like to make the Depot about 10 times larger, with a gift shop, a public announcement system, and with baggage and check-in located closer together. They also suggested separating railroad baggage forklift and passengers for safety. Passenger Services would like electronic signage both inside and outside of the building, in addition to signage directing traffic from the Seward Highway to the site entrance from Leirer Road.
- Movement of passengers from the Depot can be delayed after the morning train arrival when multiple types of transportation are simultaneously attempting to load passengers and luggage.

### Issues Identified by External Stakeholders

- Maneuvering of various modes of transportation and support services are pinched between the tracks, buildings and Leirer Road. Several suggestions or comments were made to improved traffic control included stripping, designated loading zones, more parking and clear pedestrian paths.
- The industrial buildings and area to the east were noted as a detractor to the beauty of arriving in Seward. Murals and beautification were suggested.
- Free Wi-Fi, technological modernization, drinks, food, light entertainment, and area to hang-out were suggested.
- The location of the Depot to the tourist oriented area by the small boat harbor is important to the community and local tour operators.
- Distance and lack of transportation to terminal is a problem, as is scenery along Port Avenue.
- Tour coordinators for cruise ships like to hold Coastal Classic people at Depot so they can control how many arrive at Terminal and need to check-in etc. all at once, but there is not space to hold people at the Depot.
- It was suggested that baggage handling protocols conducted in Anchorage during the morning loading of the Coastal Classic could help alleviate the baggage issues in Seward.
- Currently a free shuttle is operated by the City of Seward, but only travels one direction going from the Depot to the downtown Seward area and ending at the terminal. For those passengers who have their luggage with them, the Independents, this causes them to ride a school bus for roughly 1 hour with all of their luggage in tow, so they often choose to instead pull their luggage the roughly 0.6 miles from the Depot to the Terminal so they can check into their cruise and load onto the ship.

## ENGINEERING DATA/CODE & CONDITIONS SURVEY

| | |
|---|---|
| **GENERAL INFORMATION** | |
| Building Name/Location: | Depot, Restroom Building and Storage Shed |
| Purpose of Facility: | Coastal Classic embark and disembark, luggage handling |
| Supervising Department: | |
| Services Provided: | Water, wastewater, electrical heat and power |
| Date of Construction: | 1997 for Depot, Restroom Building in 2010, 2015 for Storage Shed |
| Date of Renovation: | No renovations have occurred |
| General Condition: | Good |
| Land Ownership: | ARRC |
| Lot Size: | |
| Building Size: | 1,155 sf with 527 sf of overhangs |

| | |
|---|---|
| **SITE** | |
| Outbuildings - Types | Restroom Building and Storage Shed |
| Outbuildings – Sizes | Restroom: 637 sf, Storage: 216 sf |
| Outbuildings - Uses | See names |
| **UTILITIES** | |
| Water Source | City water |
| Waste Water | City sewer |
| Electric Service Utility | City grid |
| Fuel Type & Storage Size | none |
| Heating System | Electric baseboard heat in Depot and electrical Cabinet Unit Heaters in Restroom Building. Storage Shed is unheated. |
| Building Controls System | Non-programmable thermostats |
| Security | Cameras in Depot waiting lobby |
| Survey Data provided by | Bettisworth North – Dena Strait and Emmanuel Daskalos |
| On-Site Space Use Audit | Bettisworth North – Dena Strait and Emmanuel Daskalos |
| **FIRE & LIFE SAFETY** | |
| Smoke/Heat/CO Detection | None present |
| Program Compliance | |
| Building Type Compliance | |
| Entry/Exit | ADA - compliant except at Storage Shed |
| Restrooms | Depot has one unisex ADA-compliant restroom (if storage lockers were moved out) and the Restroom Building has three stalls per sex with two sinks in each restroom. |
| Other | |
| **FACILITY CONDITION** | |
| Exterior Wall Finish | Depot and Restroom building both have horizontal painted wood siding in good condition |
| Exterior Entrance | Depot has two pairs of double doors, in good condition. Restroom Building has one exterior door each for men's and women's restrooms, in good condition |
| Interior Wall Finish | Depot has paint on gypsum wallboard in good condition, Restrooms have fiberglass reinforced plastic (FRP) in good condition. |
| Interior Floor Finish | Depot has vinyl composite tile (VCT) throughout and Restroom Building has sheet vinyl. |
| Interior Ceiling Finish | Depot has finished wood. Restrooms have painted gypsum wallboard (GWB). |
| Interior Casework | Wood at Depot Check-in Counter and plastic laminate (PLAM) at Restroom Building. |
| Windows | Double panes with operable sections at Depot. |
| **APPLIANCES** | |
| Commercial | |
| Residential | Depot has 20 gallon electric hot water heater, small refrigerator and microwave. Restroom Building has on-demand hot water heaters. |
| **LIGHTING & ELECTRICAL** | |
| Service | 120V/208 |
| Emergency Power - Uninterruptible Power Supply (UPS) | None |
| **MECHANICAL** | |
| Ventilation | Exhaust fan in bathrooms of Depot and Restroom building. Operable windows in Depot. |

| | |
|---|---|
| Controls | Non-programmable thermostats |
| **GROWTH & CONSTRAINTS** | |
| Site | Yes |
| Building | |
| Code | There is likely a distance setback between the buildings to eliminate the need to rate the exterior walls. |
| **ENERGY CONSERVATION** | |
| Energy Forms | Electricity |
| **GENERAL COMMENTS** | |
| | |
| | |

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# TERMINAL

Factsheet

## DESCRIPTION

The Dale R. Lindsey Railroad Intermodal Terminal (Terminal) is a 26,555 square foot, steel-framed, rectangular building located on the Seward Passenger Dock. Wall assembly consists of insulated metal panel curtain wall hung on the upper three quarters and poured concrete stem wall at the lower quarter of the wall. Roof assembly is a low pitched gable with corrugated metal roofing over insulated panels. The main entrance faces north toward the uplands zone, and debarking cruise passenger access is on the south end. There are three overhead doors and several man doors on the east façade. The west façade has one overhead door and one man door. Two stories of office space are framed in with wood and steel in the northeast corner. The remainder two-storey tall space is divided into open storage, mechanical and circulation areas.

Outbuildings consist of a free standing guard shack located near the northeast corner of the Terminal, which is a wooden, modular unit in good condition, likely less than 5 years old. It controls access to the passenger dock.

The Terminal or Intermodal Facility, is a staging facility for approximately 184,745 cruise ship passenger (2016), up from 176,050 in 2015, which was an increase from 135,000 (2014). The passengers embark and disembark from the cruise ships and move through the Terminal or utilize only the dock as explained further below. Annually, Seward receives approximately 65 cruise ships between mid-May to mid-September. At other times of the year the Terminal is lightly used for various events described in more detail below. Leased office space is typically leased all year, but only occupied in the summer with the exception of two offices other than the Railroad spaces. Several leased storage areas exist that are used all year. The Alaska Railroad Corporation (ARRC) occupies two offices on the Second Floor all year.

Between 2001 to 2004, the facility was connected to city sewer and the useable floor plan was increased by partially covering an existing depressed railroad track area. Improvements also included seismic/structural upgrades, concrete floor poured over radiant heat tubing, new lighting, replacement of some doors and windows, exterior lighting replacement, security fence additions, and mechanical and electrical systems were replaced and upgraded. The in-floor heating system appears to have been placed over dock decking that is not insulated which causes the system to use more energy than would be required if the floor assembly below was insulated.

Between 2004 to 2005, railroad tracks were removed from the west side of the Seward Passenger Dock and the facility received upgrades including security checkpoints, aesthetics, and better passenger and baggage transfer accommodations. Passenger Dock project for fixing cathodic protection on the steel piles was completed in fall 2016. Office upgrades were completed in Winter 2015-2016 and included new paint and office furniture.

The facility is generally in average condition with relatively recent upgrades. Dock activities are very industrial as are some winter time uses of the interior spaces. Considering these types of uses, the building is in average condition.

## General information

- Construction Date: 1966
- Years in Service: 49
- Structure Type: steel frame with foundation tied to dock structure

## Primary Features

Currently, the building is being used for a different purpose than what it was originally designed for: an unheated warehouse for dock operations. While the renovations and modifications have certainly made it functional as a passenger Terminal, some features of the original use and construction remain, such as the industrial appearance with no windows.

The Terminal is the only cruise passenger facility in Alaska with a foundation on a marine dock. Unfortunately, the location has resulted in a projected early demolition of the building due to the structural integrity of the dock itself which only has approximately seven years of service life remaining. Therefore, the Terminal must be demolished so the dock can be replaced.

## Site Information

The parking lot north of the building was paved between 2003 and 2005. In 2014, the parking and traffic pattern was reconfigured through restriping existing parking as well as adding more paving. It accommodates roughly 65 to 100 different permitted vehicles, including five local taxi companies. A one-way, circular drive-way through the site connects at two points along Port Avenue. The parking area and site is used heavily every Monday and Friday morning requiring the Port Manager to direct traffic for better control and traffic movement.

Site lighting is provided throughout the parking lot and driveways as well as on the exterior of the building. Between 2004 and 2005, site security upgrades were made including fencing, lighting and video surveillance to comply with U.S. Coast Guard and U.S. Department of Homeland Security requirements. Concrete planters protect the north entry doors from vehicular penetration. Train tracks for the Cruise Train run north and south along the eastern or exit loop of the Terminal parking lot.

## RELATED FACT SHEETS

- The Dale R. Lindsey Terminal is located in Zone 10: **Seward Passenger Dock**.
- The **Passenger Dock Tracks** #1 and #2 extend out onto the **Passenger Dock**, adjacent to the **Terminal.**

## OPERATIONAL DETAILS

Pedestrian traffic controls, signage, barriers and other moveable components are adjusted for several operational modes within the main Terminal area. These items vary depending on the cruise line, operating entity and direction of passenger travel. Components include a coffee cart, Chamber of Commerce display, car rental and information kiosks, tour operator tables and displays, benches, areas for luggage, security screening, Railroad check-in kiosks, cruise line check-in podiums, etc.

A covered, rectangular tent is located outside of the south doors to cover passengers as they walk between the ships and Terminal. Some buses, up to nine at a time, come onto the dock and load passengers directly from ship to bus. Other buses are loaded in the parking lot outside the Terminal, which requires passengers to walk directly through the Terminal and then load onto a bus. Loading the buses in this manner allows the cruise package coordinators to separate passengers going to different locations. Cruise ship and tour operators value loading passengers directly from the ship to the bus on the dock for the following reasons: reduced walking distance, improved organization and direction of passengers, utilization of tight Terminal space, and reduction of the number of areas and processes passengers must traverse, thus reducing the number of lost passengers. In the past, passengers were also able to load directly from the ship to the Cruise Train, but due to the reduced structural integrity of the dock, the train can no longer drive onto the dock. Train passengers must instead walk through the Terminal to waiting trains off the northeast corner of the building. Independent travelers walk across the dock, through the terminal, and then to their own destinations.

Luggage handling is very different for package passengers versus independent travelers. Package passengers have all of their luggage needs taken care with the exception of their carry-on. Their checked luggage handling and security needs are taken care of from when they leave their overnight accommodations until they arrive at their next night's accommodations, whether that is on the ship or at a hotel. They do not touch their luggage between one hotel or ship room and the next. Independent travelers, by contrast place their luggage into a bin in the parking lot of the Terminal upon arrival. It is then taken care of by the longshoreman, processed and put on the ship. When the bin is available during the day depends on the cruise line, as they hire the Stevedores to run dock operations for them. When independent travelers arrive in Seward via ship, their checked baggage is unloaded by longshoreman, whom are hired by the stevedores, and then placed inside the Terminal. Because the longshoreman have or have claimed luggage jurisdiction within the Terminal, only the passengers can carry or pull their luggage through the Terminal, no one can assist them other than longshoreman.

The shared bathrooms and break room are located on the second floor near a small conference area with a folding table and chairs. This conference space is open to the main Terminal area and is not on the separate office heat loop. During the winter months, the offices are kept at typical office tempertures, while the main terminal space, thus the conference table area, is kept much cooler.

Cruise Passengers as well as cruise ships themselves are serviced at the Terminal. Hotel services of water, fuel, internet and power are available to docked ships. Additional repair, maintenance and resupply services are available for hire as needed.

Community use of the Terminal in the off-season was noted as a community asset in many stakeholder meetings, particularly by Seward residents. It seems to be a very important space to the community with it noted as being the only space large enough to hold 350 or more people within one space. The Alaska SeaLife Center in downtown Seward can hold roughly 1,300 people spread throughout the facility. The largest event currently being held each year in the Terminal is the Music Festival, attended by 3,000 people over three days. In addition, the Terminal is used during the off season for various trainings, emergency preparedness exercises and other events that require them to be directly by the water. Off-season uses include:

- archery classes - one to two nights a week during November and January through March
- weddings and wedding receptions
- a kid's carnival
- a music and arts festival - end of September

- water safety training, which requires direct access to the water
- Alyeska Pipeline Services Company/SERVS - oil spill response training which requires direct access to the water
- Combat Fishing events
- a state-wide fire conference
- a Holiday Fair
- mural painting
- a Halloween carnival
- a New Year's Eve Party
- marine training
- various non-profit day-long meetings and banquets
- Military vessel rest, relaxation, and repair Port of Calls with garbage and waste offloading

## Daily Schedule

The Cruise Train pulls from Roundhouse to Terminal between 5:00am and 5:30am. Passenger debarking (unloading a ship into Seward) usually takes 4.5 to 5.5 hours, roughly 6:00am to 11:00 or 11:30am. The Cruise Train leaves Seward headed north to Anchorage at 7:00am. Embarking (loading a ship to leave Seward) stretches over about 8 hours, roughly 11:30am to 7:30pm. The busiest period inside the Terminal is 4:00pm to 6:30pm when the Cruise Train arrives with roughly 300 to 400 people between 5:15pm and 5:30pm at the same general time frame as multiple motor coaches coming from various Alaska Railbelt locations arrive. The ship needs to be loaded by roughly 7:30pm or 8:30pm, depending on carrier, and pulls out roughly 1 hour after loading is completed.

The most time a passenger spends in the Terminal is during embarking a ship when they need to check-in and also go through security. Due to cruise line policies, both processes are kept under 30 minutes each for a worst case scenario processing time of roughly one hour. On site observations timed most emabarking passengers in the terminal under 30 minutes total. During debarking, passengers are moved along to their destinations quickly, directly and as efficiently as possible. Thus most debarking passengers spend less than 15 minutes in the Terminal, while those on cruise company's bus tour packages typically don't enter the Terminal at all, but rather load directly from ship to bus on the dock.

## Weekly Schedule

Sunday = Holland America large cruise ship day, every week all summer in 2014 and 2015.

Monday = Premier Tours -Norwegian large cruise ship day, occurred every other week in 2014 and 2015.

Tuesday = one small ship entire 2015 cruise season, no Tuesday ships in 2014.

Wednesday = Premier Tour's client, typically Regent, small ship day, every other week in 2014 and 2015.

Thursday = Premier tour's client, typically SilverSea, small ship day, roughly every other week in 2014 and 2015.

Friday = Premier Tour's client, typically either Celebrity or Royal Carribean, large cruise ship day, every week all summer in 2014 and 2015.

Saturday = no ships typically, but Holland America Princess (HAP) preparing for Sunday ship.

2016 Cruise schedule looks very much like those for 2014 and 2015. In 2016, there were three "double ship days" on July 28th and 29th, and August 16th.

In general, Seward is a Turn Port, meaning ships unload one set of passengers and reload another set of passengers generally on the same day. The only other Turn Port in Alaska is in Whittier. Seward is

occasionally used, under five times a year, as a Port of Call where passengers get off the ship, tour the local area for the day and then return to the departing ship that evening.

### Building Occupant Load

Currently, the largest cruise ship docking in Seward holds 3,000 people and most ships hold under 2,000. Many small ships hold under 1,000 people. During the busiest Terminal period, 4:00pm to 6:30pm, roughly 1,300 to 1,400 people need to check in and move through security. These numbers vary per cruise line, but in general, the entire ship load of people is not in the Terminal at one time. This is because passengers are arriving via different forms of transport from different locations at different times. To further reduce congestion and wait times, the land-side operations companies stagger arrivals through constant communication with the busses, the cruise train and other entities who deliver large numbers of embarking passengers to the Terminal.

During active periods of cruise debark and embark, there can be roughly 50 nonpassenger people working in security, cruise operations, railroad operations, as vendors, as well as visitors and others. In addition, there can be 30 to 40 Stevedore's, longshoremen, vendors and cruise operations people on the dock.

Other than special events, which primarily occur on the weekends, the typical winter weekday occupant count in the Terminal is under 10 people. Special events can be 1000+ people at one time.

## ENGINEERING DATA

The fuel oil tank for the boiler is located off the northeast corner of the Terminal adjacent to the guard shack and internal boiler/mechanical room. Tank size is 1,350 gallons and the area is enclosed by a secure, 6' tall wood fence.

City water lines enter below grade at the northwest corner of the building and travel along the entire west length in a below floor line utilidor. A north and south pit provide access to controls, pipe joints, valves, control panels and other areas that require maintenance and operations access. None of this below grade mechanical utilidor is insulated from the exterior and requires heat trace its entire length.

To the northeast of the facility, there is an underground utility corridor to the east of the railroad tracks including telephone, electricity and sewer. The sewer and telephone utilities cross under the tracks within 200 to 300 feet of the building. It is assumed that telecommunication lines also follow the northeast utility corridor from the tower and communications shacks located in the southeast corner of the intersection of Port Avenue and the exit driveway loop that serves Terminal traffic.

There is an emergency generator at the south end of the Terminal that powers dock security gates, x-ray machines and security lights. The intent of the generator is to allow cruise ships to load and leave port even when the city power is out. However, the current generator is not properly sized for this as it cannot run the cruise line's computers to check-in passengers. At the NW corner of the dock there is back-up power for use by small cruise and non-cruise vessel use for Maintenance and Repair so that a generator is not required. There is currently no train shorepower at the terminal or passenger dock, which requires the trains to run off their own power when loading and unloading passengers.

## LIST OF APPLICABLE DRAWINGS

- Multiple mechanical and electrical engineering drawings from 2001 Phase I Transit Building Passenger Upgrades – Files located on SharePoint project site
- Multiple mechanical and electrical engineering drawings from 2002 Seward Transit Building Passenger Upgrades - Phase II projects. – files located on SharePoint project site

## LIST OF APPLICABLE REPORTS AND STUDIES

- 01/05/2012 Seward East & West Dock Investments 2-page doc from ARRC – files located on SharePoint project site
- Seward Terminal Reserve Dock Facilities Masterplan Updated 2014– files located on SharePoint project site

## IDENTIFIED DEFICIENCIES AND AREAS OF CONCERN

### Issues Identified by ARRC Staff:

**Passenger Services:**

- Would like the train to be able to go onto the dock which would reduce walking distances.
- Want covered walkways from ship gangplanks to Terminal and entire length of travel.
- Requested master planning efforts to consider elderly passengers in the design such as providing shuttle carts for rides as needed.
- Railroad Passenger Services would also like to have better flow from the ships, through the Terminal and to the trains if the train is not on the dock. They would also like a waiting area capable of seating 50 people.
- While City Shuttle provides free transportation and is generally viewed in a positive manner, there are concerns that the school bus utilized for this service has a high first step, narrow aisles, and absence of space for luggage. A van, similar to airport shuttles, would be better.

**Economic:**

- Combine the Depot and Terminal into a single entity.
- Concerned with lack of activity and subsequent decrease in revenue during the winter season.
- Cautioned against a design that would increase the fees paid by the cruise ships; they want to ensure the cruise ships continue to return to Seward.

**Engineering:**

- A 2013 assessment of the Seward Passenger Dock found significant corrosion and deterioration of the structural supports which also support the Terminal. The Seward Passenger Dock is characterized as being at the end of its service life and must be reconstructed. As the Terminal is located on the Seward Passenger Dock, there is also a need to construct a new Terminal facility. With recent maintenance and repair work, the remaining life of the Seward Passenger Dock is projected to be 7 years from 2015.
- An alternative, less costly heat source is desired for the Terminal.
- Suggested integral fuel lines to service ships instead of fuel trucks on the Seward Passenger Dock. Other Railroad personnel preferred fuel delivered by truck.
- TV monitors in Terminal are too small, too high and have never worked. Suggested finding a way to repurpose them.
- Provide updated technology in the office space.
- Upgrade to LED lights
- Railroad Passenger Services would like programmable LED signs in order to provide updated messages to passengers.

## Issues Identified by External Stakeholders:

### Passenger Services:

- Gangways of the larger, anticipated ships land further away from land and the Terminal which increase the walking distance required to reach the Terminal. If possible, keep walking distances to a minimum.
- Provide wind and rain protection at all passenger locations outside of the building. A continuous, covered walkway is desired from the ship to the train or shuttle service.
- Premier Tours values being able to transport cruise passengers directly from ships to motor coaches or buses on the Seward Passenger Dock.
- Provide more seating for guests inside the Terminal.
- Suggested free Wi-Fi in Terminal.
- Requested the addition of a lounge and waiting area after check-in and security. However, one cruise operator said that since they provide passengers with access to their rooms, food, drinks and all other amenities on their awaiting ship, passengers would not use this feature.

### Operations:

- Improve safety by separating passenger and forklift operations, including ship service and luggage traffic. Many suggested elevating a covered passage for passengers, with the main dock surface reserved for service traffic. An alternative is to place luggage circulation below the main dock level and keep passengers above on the main dock level.
- Concern that two ships consumes the entire Terminal capacity during check in (embark).
- The cruise ship companies highly value the ability to load passengers on to the Cruise Train which reduces their need for motor coaches. They need direct connection to railroad in order to efficiently move a ship load of passengers. They do not have enough motor coaches to handle the load.
- Concern about “turning”, or unloading and loading, a 5,000 person ship in current Terminal.
- Would like a covered area to sort luggage before it goes onto the ship.
- Would like permanent check-in podiums for cruise lines and for the railroad. Cruise lines would like a total of 10 podiums for 20 cruise ship agents, two of which should be accessible, and one table for customer service.
- Need a place to securely store luggage between the time independent passengers may arrive at the Terminal and when they are able to embark onto the ship. Longshoremen service of independent baggage handling is not open all day, and is not coordinated with the arrival of the Coastal Classic, which carries arriving independent passengers.
- Luggage handling for independent travelers is a concern for drop-off, pick-up and transport between the Depot and the Terminal. Some cruise lines are more aware of this issue than others and have made adjustments to relieve the problems. These adjustments including tagging independent bags when loading the Anchorage Coastal Classic to be taken to the Terminal via a luggage truck and providing luggage pick-up at the Depot and transport to the Terminal for any bags missed.
- Luggage control and handling for independent travelers is handled differently than for the package passengers. Longshoreman have jurisdiction for luggage inside the Terminal so when a disembarking independent’s luggage is set down inside the Terminal at the southern end of the building, the passenger is the only person who can move it outside or to the north end of the Terminal. Local tour operators who are there to pick up their guests just coming off ships cannot go into the Terminal and assist with luggage. Tour operators are concerned that guests may wonder why their tour operator or accommodations host is not helping with their luggage. Passengers tend to be older and the Terminal itself is 150 feet long so it is quite a distance to carry or roll one’s luggage. Longshoreman contend that local operators could pay for their services to perform luggage handling inside the Terminal and are choosing not to. ARRC Seward

Terminal Tariff ARR 600-A Item 190 states "….stevedoring services include, but are not limited to…..loading/unloading cargo or baggage to/from rail cars or trucks or other means of land conveyance to/from the Terminal facility….." Luggage handling inside the Terminal seems to be a grey area.

- Hotel services are desired on the dock. Cruise ships would like, in order of priority: fresh water, fuel, shore power on both sides of the dock, and possibly oily waste disposal. Barges would like, in order of preference: fresh water, fuel, shore power, oily waste and sewage removal. It was noted that cruise and barge crews would appreciate the addition of Wi-Fi services.
- Would like to be able to use electronic screens for video feeds and information updates. Also could use that to direct waiting passengers to next available agent by numbering the check-in podiums.
- Freight customers would like to stage freight inside the facility during the off-season.
- Agencies servicing cruise ships value the ability to store materials and goods inside while waiting to load ships. Current overhead doors allow them to quickly and efficiently move materials inside with a forklift.
- There was a suggestion for a VIP lounge with check-in capability and a separate security screening.

### Aesthetics:

- The current décor and murals were noted as outdated.
- Need pleasing aesthetics at the main entrance.
- Would like the Terminal to look less industrial and feel more welcoming.

### Economics:

- Need to keep Terminal rates competitive so that they won't lose ships to Anchorage or Whittier.

### Engineering:

- An under floor inspection found no insulation under the in-slab heat. Areas below the main floor level, such as mechanical pits and bathrooms, seem to have no thermal barrier from the exterior other than the structure itself.
- The building has four heating zones, or areas that can be heated to different temperatures, which allows management to reduce the heat in the main, largest area of the Terminal during the off season. However, there appears to be no thermal insulation separating the walls of the zones, thus heat easily transfers between the zones somewhat defeating the purpose of the zones.
- Need better water supply system for ships and barges. Currently, fire hoses are used and damaged due to vehicle traffic over them.
- Dock users have requested power capabilities on both sides of dock.
- Data lines are not permanent and are draped, dragged, etc. for each ship docking. They would like a permanent, hard data line connecting the ship's computers to the check-in computers inside Terminal.
- Currently, there is not a compatible electrical connection between ships and the dock when generators go out.
- Freight Dock workers requested the addition of showers and bathrooms inside the Terminal that they could access 24/7. While there are currently bathrooms in the Terminal, they apparently do not have 24/7 access to them.
- Some stakeholders suggested locating the replacement Terminal off the dock, while others requested that it be placed further out on to the dock than the current facility.

### Other:

- Per cruise ship operator stakeholder engagement they "make do" with existing facilities.

- Request for better technology, kiosks, business advertisements
- Passengers don't seem to realize the Anchorage airport is 2.5 hours away and they don't have transportation, plans or time to get there.

## CODE & CONDITIONS SURVEY

| | |
|---|---|
| **GENERAL INFORMATION** | |
| Building Name/Location: | Seward Intermodal Facility or Terminal |
| Purpose of Facility: | Embarking and debarking of passengers and connection to Cruise Train, motor coaches, local tours, car rentals, taxis, etc. Plus luggage handling. |
| Supervising Department: | |
| Services Provided: | Fuel oil heat, city grid power, city water and sewer, fiber optics |
| Date of Construction: | 1966 original and 2001-2002 major renovation |
| Date of Renovation: | 2001-2005 |
| General Condition: | Average – industrial in nature |
| Land Ownership: | ARRC |
| Lot Size: | |
| Building Size: | 26,555sf |
| | |
| **SITE** | |
| Outbuildings - Types | Various connexes to south on dock, longshoremen trailer on dock, guard shack bldg. at NE corner |
| Outbuildings – Sizes | Various |
| Outbuildings - Uses | See names |
| **UTILITIES** | |
| Water Source | City water |
| Waste Water | City sewer |
| Electric Service Utility | City grid |
| Fuel Type & Storage Size | Fuel oil w/ tank |
| Heating System | Hydronic baseboard in office areas, radiant floor in Main space of First Floor. |
| Building Controls System | Honeywell |
| Security | Cameras through-out |
| Survey Data provided by | Bettisworth North – Dena Strait and Emmanuel Daskalos |
| On-Site Space Use Audit | Bettisworth North – Dena Strait and Emmanuel Daskalos |
| **FIRE & LIFE SAFETY** | |
| Smoke/Heat/CO Detection | NFPR 13 Sprinklers, alarm notifications, Fire Alarm Control Panel, multiple fire extinguishers |
| Program Compliance | |
| Building Type Compliance | |
| Entry/Exit | An automatic door may be required for one of the entry doors. Functions on 2nd floor are not duplicated on main floor. No Americans with Disability Act (ADA) compliant access between floors. |
| Restrooms | Single Men & Women's upstairs and multi-stall Men &Women's downstairs. Downstairs are ADA compliant. |
| Other | |
| **FACILITY CONDITION** | |

| | |
|---|---|
| Exterior Wall Finish | Concrete lower wall (52” AFF) w/ insulated metal panels (IMP) upper: decent to average condition |
| Exterior Entrance | Multiple double doors w/ paint damage |
| Interior Wall Finish | Main Area: exposed IMPs, painted concrete lower wall<br>Office areas: painted gypsum wallboard (GWB). Some wear and tear, more so in offices. |
| Interior Floor Finish | Painted concrete at Main Area, vinyl composite tile (VCT) at office areas & bathrooms, exposed concrete at remainder |
| Interior Ceiling Finish | Open To Structure (OTS) in mechanical/electrical and Main Area, Acoustic Ceiling Tile (ACT) in office areas and bathrooms |
| Interior Casework | Solid surface in bathrooms in good condition |
| Windows | Double pane w/ operable sections on 2nd level, fair condition |
| **APPLIANCES** | |
| Commercial | Three vending machines on 1st floor |
| Residential | Various microwaves and coffee makers in break rooms upstairs and single office space downstairs. |
| **LIGHTING & ELECTRICAL** | |
| Service | |
| Emergency Power/UPS | Yes, Generator. It does not have a tank so would need a fuel truck brought in to maintain extended operation. |
| **MECHANICAL** | |
| Ventilation | There is no building wide ventilation system, the only exhaust fans are in bathrooms, operable windows are only on second floor and one in downstairs office. |
| Controls | |
| **GROWTH & CONSTRAINTS** | |
| Site | Yes |
| Building | Yes due to Dock foundation |
| Code | |
| **ENERGY CONSERVATION** | |
| Energy Forms | Fuel oil, grid power and generator power |
| **GENERAL COMMENTS** | |
| Several things can be done to save energy in the Terminal while waiting for the construction of the replacement building. Replacement of weather stripping at operable doors, including overhead doors, will help alleviate cold drafts. The water pipes in the pit along the west side of the building have heat trace and also insulation that has been removed due to repairs and maintenance work. Confirming the heat trace is only operating at temperatures above freezing, typically set at 45 degrees or above, will save electricity. Reinstalling the pipe insulation will also help the heat trace be more effective and thus less energy intensive.<br>Existing boilers appear to be the originals installed when the in-floor heating system was installed in 2001. Boilers typically have a 20 year life meaning the boilers have roughly 5 years remaining to their anticipated service life. Because the dock has 7 remaining years, it is recommended the boilers be checked and serviced as scheduled to ensure they last the remaining life of the Terminal. Installing Vend Misers, http://www.vendingmiserstore.com, on the vending machines or turning them off September to May will save electricity. | |
| | |

# ARRC Seward Terminal Existing Space Utilization

| | Ex Qty | Ex Size | Ex Net | Operational Function |
|---|---|---|---|---|
| **Public Areas (Main Floor)** | | | | |
| Public Access & Multi-use Space | 1 | 21,114 | 21,114 | Supports passengers (in-coming/out-going), information distribution, access point to restrooms. Various areas are off-limits (screened off) to the public for equipment storage. Space used for off-season events. |
| Public Restrooms | 2 | 220 | 440 | Accessible, 3 WC for Women, 2 Lav & 1 UR |
| **Subtotal Public Areas** | | | **21,554** | |
| **Leased, Railroad, and Support Areas (Main Floor)** | | | | |
| Storage | 2 | 290 | 580 | Storage for various items and maintenance equipment |
| Leased office space | 1 | 337 | 337 | Leased office area |
| Depressed Water Supply & Fire Sprinkler pits | 2 | 265 | 530 | Depressed slab area with access to water mains and fire sprinkler risers, some seasonal storage too |
| Generator Enclosure | 1 | 64 | 64 | 12' x 9' modular generator enclosure |
| Mechanical Room | 1 | 325 | 325 | Combination Electrical and Boiler room |
| **Subtotal non-public areas** | | | **1,836** | |
| **Leased and Railroad Areas (Second Floor)** | | | | |
| Storage | 1 | 81 | 81 | Space for misc. storage items |
| Electrical & Mech Controls | 1 | 220 | 220 | Electrical panels, data rack, and boiler pump controls |
| Sitting/Conference | 1 | 93 | 93 | Space for 9+ chairs and large conference table |
| Tenant Restrooms | 2 | 37 | 74 | Non-ADA, 1 WC, 1 Lav, 1 UR in men |
| ARRC Office Spaces | 2 | 180 | 360 | Office space for facility admins |
| Tenant Office Spaces | 7 | 160 | 1,120 | Office space for cruise and transportation companies' support staff |
| **Subtotal Second Floor Areas** | | | **1,948** | |
| **Total Interior Building S.F** | | | **25,338** | |

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# PASSENGER DOCK

Factsheet

## DESCRIPTION

The Seward Passenger Dock was constructed in 1965 after the original dock, located near the present day Alaska SeaLife Center, was destroyed by the 1964 Good Friday Earthquake. The Seward Passenger Dock served as a multi-use dock servicing cargo vessels, cruise ships, and the Alaska Marine Highway System passengers until the construction of the Seward Freight Dock in 2001. While a majority of the current freight operations moved to the Seward Freight Dock, the Seward Passenger Dock continues to provide support and moorage space for freight vessels during the off season.

The foundation has experienced significant corrosion which has limited the remaining useful service life and increased weight restrictions. As a result, the single rail spur extending to the end of the dock is no longer in service. The current fendering system is in relatively good condition although there is minor damage present on the timbers of the corner fenders. The dock surface is worn but in generally good condition.

### General Information

- Construction Date: 1965
- Years in Service: Entering 51st year
- Structure Type: Pile-Supported Pier with Concrete Deck
- Length: 736 feet
- Width: 200 feet
- Area: 147,200 square feet
- Dock Elevation: 24 feet relative to Mean Lower Low Water (MLLW)

## Primary Features

- Pile-supported dock with concrete deck and asphalt-wearing surface
- Capable of mooring two vessels at one time
- Dock equipped with 7 ship fenders, 3 barge fenders, and 12 mooring bollards
- 12 mooring bollards and 2 mooring dolphins at 300 feet and 400 feet from the end of dock
- Dock supports the Alaska Railroad Corporation (ARRC) Seward Intermodal Terminal facility located on the north end of the pier and was rehabilitated to accommodate passenger operations

# OPERATIONAL DETAILS

- In 2015, the Seward Passenger Dock serviced 11 separate cruise ships in 64 visits
- Cruise ships ranged from 338 feet to 965 feet in length
- A total of 176,100 passengers embarked/disembarked in Seward; an average of 1375 passengers per vessel each way
- During the off season, this dock is used as a supplemental freight dock and provides moorage for vessels

# ENGINEERING DATA

- Design Vessel:
  - Cruise Ship: Crown Princess

    Length = 804 feet
    Beam = 106 feet
    Tonnage = 70,000 GT
- Largest Current Vessel:
  - Cruise Ship: Radiance of the Sea

    Length = 962 feet
    Beam = 131 feet
    Tonnage = 90,090 LT
- Design Seismic Acceleration:
  - Design Ground Acceleration:
    - Equivalent Lateral Force: 0.1g x (DL+0.5LL)
- Design Significant Wave Height: 7.8 feet (Spectral period: 5.5 seconds)
- Wind Data:
  - 110 mph Exposure “D” (UBC), except for mooring loads
  - Mooring Condition:
    - 80 mph in North-South direction October thru April
    - 50 mph in North-South direction May thru September
    - 32 mph in East-West direction year round
- Tidal Data:
  - Extreme High Water: 14.9 feet
  - Mean Higher High Water: 10.5 feet
  - Mean High Water: 9.6 feet
  - Mean Tide Level: 5.4 feet

- Mean Low Water: 1.3 feet
- Mean Lower Low Water: 0.0 feet
- Extreme Low Water: -4.8 feet

## LIST OF APPLICABLE REPORTS AND STUDIES

- Geotechnical Investigations – Methods and Findings (1999, PND)
- Seward Port Feasibility Study Final Report (97012 Seward Port Feasibility Study.pdf)
- An Investigation of Shoaling and Coastal Processes Occurring at the Alaska Railroad Corporation Dock, Seward, Alaska (1994, Coastal Processes Report)
- Alaska Railroad Corporation Seward Terminal Reserve Dock Facilities Mater Plan, (2014, ARRC Seward Master Plan)
- ARRC Seward West Dock Condition Assessment (March 2014, R&M Consultants, Inc.)

## RECENT IMPROVEMENTS

- 1980: Submerged pile splices were re-welded.
- 1980: Pile reinforcement work
- 1995 to present: Periodic pile reinforcement work
- To 2010: Annual timber fender pile replacement
- 2001: Connection to City of Seward sewer service, new Terminal concrete flooring and miscellaneous mechanical and electrical upgrades.
- Early 2000's: Reinforced corroding piles and coated existing piles above mean tide elevation; re-welded submerged pile splices; replaced timber fender piles, bull rail and fender camels; reconstructed the expansion joint between dock segments; conducted structural/seismic upgrades (steel frame bracing, dock piling repair, catwalk replacement/extension); replaced cathodic protection system rectifiers and anodes, and added sacrificial sack anodes near shore
- 2003-2005: West Dock parking areas were paved and added a circular asphalt roadway. A passenger train platform was built, along with a new pathway, to connect to the City of Seward sidewalk along Port Avenue. Installed a video surveillance system, security lighting and battery backup lighting.
- 2013: Expanded parking lot and repaved baggage drop-off. Installed 630 feet of steel panel security fence on either side of Passenger Dock. Erected card-reader controlled gates on either side of the Terminal building which was also equipped with security cameras and wireless card-reader connectivity.
- 2015: Current short term (5 to 7 years) cathodic protection repairs completed
- 2016: Pile repair currently underway
- 2016: Timber fender pile replacement

## DEFICIENCIES AND AREAS OF CONCERN

### Issues Identified by ARRC Staff

- The Dock is near the end of it's useable service life. Structural deterioration has led to reduced load capacity preventing use of existing railcar facility on dock.
- The current berthing configuration is insufficient to accommodate the largest cruise ships accessing the site.
- The Dock is currently too short to accommodate gangway ramps for larger vessels.
- Due to Homeland Security requirements, the Dock cannot accommodate freight vessel operations during the cruise ship season. The reduced load capacity also prevents the dock from being suitable for freight storage or heavy crane operations.
- Requests have been made for additional shore power connection to service cruise ships when docked.
- Covered walkways were requested to protect passengers from the wind and rain as they walk to their next destination.

### Issues Identified by External Stakeholders

- The dock is too high for optimum passenger and/or freight access.
- The foundation for this dock is not ideal; the small piles with a large surface area are prone to corrosion, especially in marine environments.
- Would like hotel services on the dock (power, water, etc).
- The dock provides a long expanse of uncovered area, which is not preferred by passengers walking long distances and exposed to the weather.
- The fixed position of the luggage slot dictates where boats moor and the location does not work for many ships.
- Covered walkways for passengers were consistently requested by entities responsible for passenger's needs and safety.

Factsheet

# PASSENGER DOCK TRACKS

## DESCRIPTION

The Passenger Dock Tracks, originally constructed in 1966, are used for loading and unloading chartered cruise ship passenger trains, and occasionally for loading and unloading freight from rail cars. Passenger Dock Tracks #1 and #2 are continuations of Tracks #6 and #7, respectively. These parallel tracks run between the Railyard and the Seward Passenger Dock on Resurrection Bay. The portion of Passenger Dock Track #1 that extends onto the Passenger Dock is permanently out of service due to weight restrictions on the aging dock.

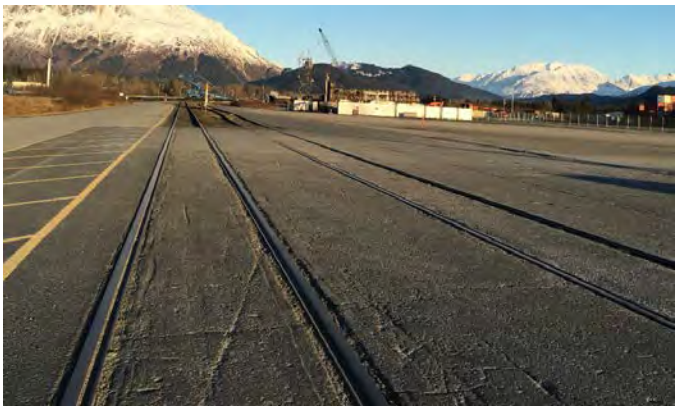
## RELATED FACTSHEETS

- The Passenger Dock Tracks are located within **Uplands Zone 7a: Former Materials Storage Area** and **Uplands Zone 7b: Passenger Terminal Traffic Management Area**
- The Passenger Dock Tracks #1 and #2 are continuations of Tracks #6 and #7, respectively, located within the **Railyard**
- The Passenger Dock Tracks service the Seward **Passenger Dock** and **Terminal**
- The ends of the Freight Dock Tracks extend out onto the Seward **Freight Dock**

## OPERATIONAL DETAILS


*Passenger Dock Tracks, Port Avenue At-Grade Crossing*

- Standard gauge rail
- Grade 0.0 percent
- Tangent track
- Track is within limits of Seward Yard and non-signaled
- Speed Limit:10 mph
- Useable track lengths for operational purposes by clearance point or accessibility:
    - Passenger Dock #1: 860 feet
    - Passenger Dock #2: 860 feet
- At-grade crossings:
    - Port Avenue, wood tie crossing
    - About 400 feet at the south end of Passenger Dock Tracks #1 and #2 has been paved with asphalt



## ENGINEERING DATA

- Rail is jointed 115 pound/yard (lb/yd), mostly rolled mid-1950s with some mid-1960s
- Wood ties, nominal dimensions 7 inches x 9 inches x 8.5 feet

## LIST OF APPLICABLE DRAWINGS

- Alaska Railroad Corporation, Track Chart, April 2015
- Alaska Railroad Corporation, Track centerline CADD Drawings

## DEFICIENCIES AND AREAS OF CONCERN

- At-grade crossing at Port Avenue is in poor condition and has a high grade differential over a short distance. This creates problems for fork lifts, trucks, and other equipment.
- Tracks on the Seward Passenger Dock are no longer used due to weight limitations on the dock. This limits the length of track available for passenger trains, which can block the Port Avenue crossing. Currently chartered cruise trains are built to ensure that they do not overhang Port Avenue, which limits the numbers of passengers that can be accommodated. Adding more cars to the chartered cruise trains will result in blocking the Port Avenue crossing when trains are loaded/unloaded.
- The location of the Passenger Dock Tracks at the end of the Railyard, combined with the limited length of available track in the Railyard, occasionally results in freight trains being pushed toward passenger trains which is not ideal.

# Appendix B

| P# | Zone | Project Size | Priority | Project | Need | Challenges | Related | Fatal Flaw? | In/Out | Which Study |
|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 10 | Large | - | **Replace Existing Passenger Dock with Multi-Purpose Dock Construction, Piles:** Rebuild existing passenger dock to be multi-purpose pile supported dock (ease side for freight; west side for passengers). | Passenger dock operations; replace passenger dock to more favorable location. | - | - | - | In | Passenger |
| 13 | 8 | Medium | Low | **Depot Upgrades:** Provide covered pedestrian facilities at the Depot (inside or outside options), beautify the depot with a mural, luggage handling and protection, separate baggage forklift movement area from passengers, modernize the depot, such as through the addition of free Wi-Fi and the ability to have food, drink and light entertainment available, add electronic signage at the depot, add a gift shop at the depot, put a trespass buffer in between the railroad boundary and Leirer Road to reduce trespass. | Enhances passenger safety and comfort, display train schedules, depot passenger amenities, aesthetic upgrade, train passengers waiting outside are exposed to the weather. | | This project is only recommended if the project combining terminal and depot in a single location does not proceed (P #17). | - | In | Passenger & Connectivity |
| 15 | 7B | Small | High | **Outdoor Amenities at Terminal:** Provide outdoor amenities at the terminal such as paving, parking organization and landscaping. | Ensure passenger operation safety and efficiency; provide appropriate amenities to facilitate staging and management of passenger activities at the terminal. | - | Place in every bundle of activities. | - | In | Passenger & Connectivity |
| 17 | 8 | Large | High | **Terminal and Depot Consolidated Facility:** Combine the depot and terminal near the current terminal location, in Zone 7B or 5. Includes some new fence relocation. Consider level platform loading. | Improve safety and efficiency of passengers and freight operations by consolidating locations of passenger/freight interaction; provides economic opportunity by increasing use of the Coastal Classic by cruise passengers; increased utility and shared facilities. | - | Dependent on Airport Road connection to Port Avenue – if this project doesn't proceed then unable to separate passenger and freight traffic. | - | In | Passenger & Connectivity |
| 19 | 8 | Medium | - | **Depot Expansion and Traffic Reconfiguration:** Reclaim physical possession of the lease space between the depot and Leirer Road, demolish existing three buildings, expand depot and reconfigure traffic circulation. | Alleviate traffic congestion; increase passenger safety and comfort; increase efficiency of passenger operations | Buildings are not owned by ARRC. Would need to be purchased to enable this project to occur. | - | - | In | Passenger |
| 25 | 7A | Large | High | **Port Avenue Train Accommodations:** Reconfiguration of Port Avenue to accommodate the length of the Coastal Classic (14 cars) to the south of the carriageway. Lengthen the passenger dock, reconfigure the uplands between the passenger dock and Port Avenue, and reconfigure Port Avenue. Move the existing at-grade crossing to the north, minimizing the number of track ties that need to be worked around. Assumes the depot and terminal are combined into one facility. | Long trains blocking Port Avenue (connectivity); safety. | - | - | - | In | Passenger & Connectivity |
| 29 | 7B | Large | High | **Railroad Pavilion:** Construct a terminal exclusively for seasonal railroad use. Include a fully heated core of restrooms and offices with the remainder of the buildings/shelter designed for seasonal use. | New passenger terminal building. | - | - | - | In | Passenger |
| 33 | 10 | Small | High | **Independent Luggage Handling Facilities:** Provide improved luggage handling drop-off for independent travelers or day visitors switching between trains and cruises that are not taken care of by package plans. | Currently independent travelers are not well provided for when they arrive at the terminal. There is no location for them to securely store luggage while they wait for their shop, thereby losing opportunities for these people to explore Seward. Luggage is dropped into a bin in the car park at the time the passenger checks into the cruise ship. The provided will enhance the passenger experience for independent travelers. | - | - | - | In | Passenger |
| 45 | 10 | Large | High | **Multi-Purpose Dock Construction, Fill:** Replace existing passenger dock with multi-purpose dock designed for freight operations on east side and passenger operations on the west side. Concrete slab surface. | Passenger dock operations; replace passenger dock to more favorable location. | - | - | - | In | Passenger |

| P# | Zone | Project Size | Priority | Project | Need | Challenges | Related | Fatal Flaw? | In/Out | Which Study |
|---|---|---|---|---|---|---|---|---|---|---|
| 51 | 11 | Large | - | **Breakwater Platform Dock:** Remove Seward Loading Facility or retrofit to allow pile supported dock along existing breakwater to accommodate passenger operations and/or freight. Construct to accommodate two cruise ships at a time. Fill the south end to accommodate bus turnaround. Modify uplands as needed. | Passenger dock operations, replace passenger dock to more favorable location. | - | - | Dependent on decision on the future of the Seward Loading Facility. | In | Passenger |
| 66 | 10 | Small | High | **Terminal Electronic Signage:** Install electronic signage at the terminal to provide public service announcements, and also as a potential revenue generator for advertisers, community activities, tours, etc. | Improve passenger operations safety and efficiency by enhancing communication; potential economic development opportunity. | - | - | - | In | Passenger |
| 67 | 7A | Large | - | **Business Facilities:** Construct a facility for tourism-related businesses. Include rental car accommodations such as car wash, paved lot, striping, wayfinding. | Passenger amenities, economic opportunity | - | - | - | In | Passenger |
| 74 | Conn | Medium | - | **Port Avenue Improvements:** Make pedestrian route along Port Avenue ADA compliant. Including the bridge, install way-finding from Port Avenue to Fourth Avenue, boardwalk along Small Boat Harbor, provide way-finding signage for pedestrians along Port Avenue and at the Terminal, improve street cleaning/maintenance on Port Avenue for a more functional, cleaner and safety pedestrian experience; provide informational signage, kiosks, along Port Avenue to explain what is happening in the industrial area, 1964 earthquake, fishing industry, point out specific mountains (Mt Marathon), things to do in town, etc.; install sign directing depot traffic from Port Avenue to Leirer Road. | Improved passenger/pedestrian safety; increased economic benefit by improving passenger access between the depot and the terminal, and to local retail facilities. | - | - | - | In | Passenger & Connectivity |
| 91 | Conn | Small | - | **Cruise Ship Passenger Covered Walkway:** Construct a covered walkway from the Passenger Dock to the passenger terminal to make the initial debarking more inviting. | Enhances passenger safety and comfort. | - | - | - | In | Passenger |
| 128 | Conn | Small | - | **Port Avenue Improvements:** Improve the aesthetics along Port Avenue to make a street presence in the uplands more appealing to potential leaseholders. | Increase economic opportunities, enhance passenger/pedestrian experience. | - | - | - | In | Passenger |
| 138 | 10 | Small | Low | **Luggage Sorting Area in Terminal:** Create a dedicated area for sorting luggage in the terminal prior to loading it onto cruise ships. | Improved passenger operations efficiency. | - | - | - | In | Passenger |
| 176 | 1, 4 | Large | - | Big box retail outlet. | Project considered as part of Economic Analysis | - | - | - | In | Passenger |
| 177 | 1, 4 | Large | - | Hotel | Project considered as part of Economic Analysis | - | - | - | In | Passenger |
| 190 | | Large | High | **Minimal Open Cell Sheet Pile Bulkhead Dock:** Create a smaller open cell sheet pile bulkhead dock serving minimum cruise ship requirements. | Provide a lower cost replacement passenger dock option. | - | - | - | In | Passenger |
| 191 | | Large | High | **Widened Open Cell Sheet Pile Bulkhead Dock Retaining Existing Terminal Building and Existing Foundation Piles Reinforced:** Create a new dock that preserves the existing terminal and foundation. | Provide a lower cost replacement passenger dock option. | - | - | - | In | Passenger |
| 192 | | Large | High | **Minimal Pile Supported Dock:** Create a smaller pile supported dock serving minimum cruise ship requirements. | Provide a lower cost replacement passenger dock option | - | - | - | In | Passenger |
| 193 | | Large | High | **Extend Freight Dock to Accommodate Cruise Ship Vessels:** Provide for extensions to the freight dock to enable cruise ship vessels to be accommodated. | Provide a lower cost replacement passenger dock option | - | - | - | In | Passenger |
| 194 | | Medium | High | **Retain Existing Terminal on Passenger Dock and Retrofit Replacement Dock:** Retain the existing terminal building. | Reduce overall project cost by eliminating need to construct a replacement terminal building. | Only available with one dock option. Upgrades to terminal building would still be required. | - | - | In | Passenger |

| P# | Zone | Project Size | Priority | Project | Need | Challenges | Related | Fatal Flaw? | In/Out | Which Study |
|---|---|---|---|---|---|---|---|---|---|---|
| 183 | - | Large | - | Office space | Project considered as part of Economic Analysis | - | - | Eliminated through Economic Analysis Screening | In | Passenger & Freight |
| 1 | Conn | Small | - | **Port Avenue Pedestrian Improvement:** Provide pedestrian improvements to Port Avenue Corridor | Improved passenger and freight operations safety; increased economic benefit by increasing passenger access to local retail and Coastal Classic | Part of Port Avenue – discussions with City of Seward | Combined with #74 | - | Out | Passenger |
| 2 | Conn | Small | - | **Terminal/Harbor Pedestrian Improvements:** Improve connection between Seward Marine Terminal and Small Boat Harbor. | Improved passenger and freight operations safety; increased economic benefit by increasing passenger access to local retail. | Part of Port Avenue – discussions with City of Seward. | Combine with #74 | - | Out | Passenger |
| 3 | 11 | Large | - | **Breakwater Passenger Dock:** Repurpose Seward Loading Facility (SLF) dock to be new Passenger Dock, or demolish to accommodate breakwater dock facility. | Increase efficiency of passenger operations; increase economic benefit by berthing larger passenger ships and increasing capacity and storage space; increase utility of SLF dock. | - | Duplicate of #51 | - | Out | Passenger |
| 7 | Conn | Small | | **Port Avenue/Airport Road Visitor Accommodations:** Contingent on the extension of Airport Road to Port Avenue, provide pedestrian facilities for visitor and community enjoyment of the wetland and views. | Enhance community recreation opportunities and amenities. | Concern over business use of the reserve on public recreation area. | Project #89 provides access for birding. | Considered unreasonable given the industrial purpose of the ARRC reserve. | Out | Passenger |
| 12 | Conn | Small | | **Port Avenue Wayfinding:** Provide wayfinding signage for pedestrians along Port Avenue and at the Terminal. | Improve passenger and freight operations safety; increased economic benefit by increasing passenger access to local retail. | - | Addressed in Project #74. | - | Out | Passenger & Connectivity |
| 14 | Conn | Small | | **Port Avenue Street Cleaning and Maintenance:** Improve street cleaning/maintenance on Port Avenue for a more functional, cleaner and safer pedestrian experience. | Increase passenger safety and aesthetics. | Operational, element of discussions with the City of Seward. | Combine with #74. | - | Out | Passenger & Connectivity |
| 16 | 8 | Medium | - | **Depot Relocation:** Move the depot closer to the terminal. Assume that the Coastal Classic would share the cruise train track. | Improve safety and efficiency of passenger and freight operations by consolidating locations of passenger/freight interaction; provides economic opportunity by increasing use of the Coastal Classic by cruise passengers; increased utility of shared facilities. | - | See #17, #27 | Projects that combine the terminal and depot are preferred, rather than simply moving the depot. | Out | Passenger & Connectivity |
| 18 | Conn | Large | - | **Port Avenue Closure:** Close Port Avenue where the railroad right of way crosses near Zone 7A, east of which is industrial and west of which is passenger and regular city traffic. Move terminal inland. Provide alternative road access to the east side of the site. | Coastal Classic train passenger connections to cruise ships, passenger access to local retail. | - | - | Project need not defined. | Out | Passenger |
| 20 | 10 | Large | | **Cruise Dock Relocation: East End of Small Boat Harbor:** Place new cruise ship at east end of Small Boat Harbor where north city dock is currently. Requires land swap with Icicle Seafoods. Develop a terminal/depot with restaurants and retail on the waterfront on the north side of the Small Boat Harbor. Extend train tracks to water east of Train Wreck Café by closing off Port Avenue at Railroad ROW. | Improve passenger and freight operations safety and efficiency; alleviate freight and passenger dock and traffic congestion; promote economic growth by creating commercial lease opportunities. | Challenging maneuvering for cruise ships, and conflicts with small boats. Icicle Seafoods is currently in negotiations for sale, and there is possible expansion planned. | - | Significant reconfiguration of the area; project would require/trigger numerous other large projects (relocating the passenger dock and terminal, relocating the depot); challenge of maneuvering cruise ships and conflicts with small boats require potential land use rezoning of industrial area to commercial. | Out | Passenger |
| 21 | 10 | Large | | **Terminal Relocation:** Place new terminal where Train Wreck café is located on the corner of 4th Avenue and Port Avenue. Adjust passenger dock, small boat harbor, etc to accommodate. | Improve passenger and freight operations safety and efficiency; alleviate freight and passenger dock and traffic congestion; promote economic growth by creating commercial lease opportunities. | - | - | - | Out | Passenger |
| 24 | 10 | Small | - | **Terminal Flow:** Use terminal like an airport where you have arrivals, departures, non-secured side and secured side. | Improve safety and efficiency of passenger operations. | This is an operational element rather than a project. | - | This type of arrangement already exists at the terminal, and will need to be designed into future terminal options. | Out | Passenger |

| P# | Zone | Project Size | Priority | Project | Need | Challenges | Related | Fatal Flaw? | In/Out | Which Study |
|---|---|---|---|---|---|---|---|---|---|---|
| 26 | 10 | Large | | **Passenger Dock Relocation – South End of Small Boat Harbor:** Place new passenger dock and terminal at south end of Small Boat Harbor where parking for Small Boat Harbor is located. Extend train to south of Port Avenue along Seward Highway. | Improve passenger and freight operations safety and efficiency; alleviate freight and passenger dock and traffic congestion. | The lagoon on the west side of the Seward Highway drains into this area. Active fishing ground for seals and people. Entire area has a tendency to flood. Would require a land swap. No bathymetric survey to support. | - | No existing access to rail; significant expense for little or no economic benefit, project would require/trigger numerous other large projects; challenge of maneuvering cruise ships and conflicts with small boats. | Out | Passenger |
| 27 | 7B | Large | | **Terminal Relocation:** Build a new terminal with east-west orientation, north of the current location. Construct freight support infrastructure in the east end of the building, including offices, bathrooms, and break rooms. Construct west end of the building as terminal/depot. | Freight user restroom and support facilities; new passenger terminal building. | - | - | Demand for freight facility not well established. Freight operators do not wish to share office facility. | Out | Passenger & Freight |
| 30 | 10 | Large | Medium | **Terminal Relocation and Re-skin:** Dismantle the steel frame of the terminal, move it to be on land and reskin it. | Terminal replacement to provide for passenger traffic requirements. | Terminal does not meet current or projected needs. Current utility of facility is the freight docks on the side, provides no benefit to uplands. Questionable on whether re-skinning the freight doors is feasible. | - | - | Out | Passenger |
| 31 | 7B | Large | High | **New Terminal and Events Facility:** In the passenger dock uplands, construct a new terminal with events accommodation for XXX people. Anticipate cruise and train use in the summer and event center in the fall to spring. Possibly co-locate the depot in the same facility. | New passenger terminal building. | This option was screened out at the ARRC Workshop | - | - | Out | Passenger |
| 32 | Conn | Small | - | **Port Avenue Interpretative Signage:** Provide informational signage, kiosks, etc., along Port Avenue to explain what is happening in the industrial area, history, 1964 earthquake, fishing industry, point out specific mountains (Mt. Marathon, things to do in town, etc.). | Passenger services and experience. | - | Combined with #74. | - | Out | Passenger |
| 34 | | | | **Depot Passenger Weather Accommodations:** Provide area at the Depot for people to get out of the weather providing at least cover from rain and wind, maybe heated. | - | - | Duplicate, combine with #13 | - | Out | Passenger |
| 35 | 8 | Small | - | **Permanent Luggage Accommodations:** Provide more permanent luggage protection at the Depot vs. seasonal tent that allows luggage to get wet. | Enhanced passenger comfort. | - | Duplicate of #156 | - | Out | Passenger |
| 38 | 8 | Medium | - | **Passenger Accommodations – Depot to Train:** Provide a passenger and/or passenger cart only corridor between the Depot and track so passengers have a protected, not covered, walking area away from forklifts, trucks, etc. | Improved passenger safety. | - | - | Combined with other Port Avenue projects, in discussion with City of Seward. | Out | Passenger |
| 39 | - | Medium | - | **Port Avenue Wayfinding:** Put wayfinding from Port Avenue to 4th Avenue and a board walk along Small Boat Harbor. | Improved passenger/pedestrian safety, increase economic benefit by increasing passenger access to local retail. | - | - | Boardwalk likely to be located on land owned by Icicle Seafoods. Need to consider whether they would accept this type of facility in their operational area. | Out | Passenger |

| P# | Zone | Project Size | Priority | Project | Need | Challenges | Related | Fatal Flaw? | In/Out | Which Study |
|---|---|---|---|---|---|---|---|---|---|---|
| 40 | Conn | Small | - | **Golf Cart Transportation:** Provide for golf cart transportation for passengers going from the Terminal to the Depot along the existing footpath on the north side of Port Avenue. | Provides motorized transportation for less mobile passengers to move between the depot and the terminal. May be a business opportunity. | Park – await discussions with City of Seward. | - | Increases congestion and conflicts with freight operations, potential movement issues associated with non-ADA compliance of existing Port Avenue footpath facilities, potential conflict with pedestrians moving along Port Avenue. | Out | Passenger & Connectivity |
| 41 | - | Medium | - | **SLF Pedestrian Bridge ADA Compliance Upgrades:** Make the bridge over the Seward Loading Facility (SLF) ADA compliant. | Increased utility of SLF bridge. | - | Combine with #74. | - | Out | Passenger |
| 44 | 11 | Large | - | **Loading Facility Retrofit:** Repurpose Seward Loading Facility (SLF) dock to provide long term moorage. | Given the lack of prospects for coal export in the foreseeable future, a more advantageous use of for the existing Loading Facility is desired. The current trestle/dock provides a suitable location for medium and large vessel moorage helping to alleviate congestion at the site by offering alternative mooring at the Passenger Dock. | Would need further detail to continue forward. Would serve cruise shops in the summer, long term moorage in the winter. | Combined with #49 and #51 – tour boats in summer, long term moorage in winter. | - | Out | Passenger & Freight |
| 46 | 10 | Large | High | **Multi-Purpose Dock Construction, Hybrid:** Replace existing passenger dock by constructing a multi-purpose freight dock of fill on west side, and an east side floating dock for passenger operations. | Passenger dock operations; replace passenger dock to more favorable location. | - | - | Floating dock not feasible due to wave environment. | Out | Passenger |
| 47 | 10 | Large | - | **Passenger Dock Replacement, Piles:** Replace Passenger Dock with longer version of existing dock using larger, fewer piles. | Increase economic benefit by berthing larger passenger ships and increasing capacity and storage space; increase efficiency of passenger operations. | - | Duplicate of #4 – description added to that project. | - | Out | Passenger |
| 48 | 10 | Large | - | **Passenger Dock Replacement, Fill:** Replace the passenger dock with a longer fill dock. | The Passenger Dock is reaching the end of its useful life and is in need of replacement. The current configuration of the dock is slightly short for accommodating the needs of the largest cruise ships visiting Seward. A full structure (bulkhead) provides high capacity at low cost and can service passenger and freight needs. | - | Duplicate #45. | - | Out | Passenger |
| 49 | 11 | Large | - | **Breakwater Bulkhead:** Remove Seward Loading Facility, replace with bulkhead along existing breakwater to accommodate passenger operations and freight. Include a road along the breakwater, and a bus turn-around at the south end. | Passenger dock operations, replace passenger dock to a more favorable location. | - | - | Dependent on decision on the future of the Seward Loading Facility. | Out | Passenger |
| 50 | 11 | Large | - | **Passenger Bridge:** Construct a bridge between the breakwater and the south side of the Small Boat Harbor. Proposal is a 70 foot high bridge to accommodate boats using the Harbor, and has long ramps and 'S' curves to meet ADA access requirements. | Passenger dock operations, replace passenger dock to a more favorable location. | - | - | Dependent on decision on the future of the Seward Loading Facility. | Out | Passenger |
| 68 | 8 | Small | - | **Depot Mural: B**eautify the train depot with a mural. | Enhance passenger experience. | - | Combine with #13 | - | Out | Passenger |
| 69 | 8 | Small | - | **Depot Modernization:** Modernize the depot, such as through the addition of free Wi-Fi and the ability to have food, drink and light entertainment available. | Enhance economic benefit and promote growth, enhance passenger experience. | - | Combine with #13 | - | Out | Passenger |
| 76 | Conn | Medium | - | **Port Avenue Bridge Repair/Replacement:** Repair or replace the Port Avenue bridge. | Increase the utility; improve freight and passenger/pedestrian safety, increased economic benefit by increasing passenger access to local retail. | Part of Port Avenue discussions with City of Seward. | Duplicate of #41 | - | Out | Passenger & Connectivity |
| 78 | Conn | Medium | - | **Leirer Road Projects:** Use cruise ship head tax funds to improve Leirer Road along the depot area. | Alleviate traffic flow issues and congestion, increase passenger/pedestrian safety. | City of Seward land. | Combine with #39 | Decisions around allocation of CPV tax funds are made by the City of Seward. | Out | Passenger |

| P# | Zone | Project Size | Priority | Project | Need | Challenges | Related | Fatal Flaw? | In/Out | Which Study |
|---|---|---|---|---|---|---|---|---|---|---|
| 79 | Conn | Medium | - | **Industrial Area Boardwalk:** Construct a boardwalk to get passengers past the industrial area between town and the passenger terminal. | Improved passenger/pedestrian safety, increase economic benefit by increasing passenger access to local retail. | Coordinate with Icicle Seafoods on their Master Plan and others | - | Would require land swap with Icicle Seafoods. Icicle Seafoods is currently up for sale and the project is considered to be not feasible. | Out | Passenger |
| 81 | Conn | Small | - | **Depot Traffic Flow Operations:** Improve traffic flow and add cab access at the depot. | Alleviate depot traffic flow congestion, increase passenger safety and comfort, increase efficiency of passenger operations. | - | - | Flow is already as good as can be achieved within existing space constraints. | Out | Passenger |
| 89 | 4 | Medium | - | **Bird Watching Area:** Add a bird watching area (designated), with related access. | Increase uplands utilization and safety; provide a facility for the community to minimize the likelihood of trespass at the railroad site. | - | - | - | Out | Passenger |
| 90 | 7B | Medium | - | **Welcome Wall:** Construct a wall to aesthetically welcome people to Seward and secure the freight area. | Increase site safety and security. | Can be accomplished with compatible use zones, park land and vegetation. | - | - | Out | Passenger |
| 103 | 2 | Large | - | **Separate Passenger Track from Industrial Use Areas:** Separate passenger track from industrial use areas. | Increase uplands site utilization; improve safety and efficiency of freight and passenger operations. | - | Duplicate of #11. | Only viable if Passenger Dock and Terminal are relocated, this project is included as parts of other reports. | Out | Passenger |
| 126 | 8 | Small | - | **Depot Parking Improvements:** Increase the amount of paved parking space available at the train depot and add striping. | Reduce traffic congestion, increase passenger operations efficiency and safety. | Current footprint has been maximized, no additional space. | - | This work has already been done to the maximum extent possible | Out | Passenger |
| 129 | Conn | Small | - | **Circulator Bus Frequency Increase: I**ncrease the frequency of free buses between town and the passenger terminal during the cruise ship season. | Promote economic growth by increasing passenger connectivity to local retail; enhances passenger safety and reduces pedestrian/freight conflicts. | - | - | - | In | Passenger |
| 133 | 10 | Medium | - | **Luggage Handling System:** Install a mechanized luggage handling system. | Increase passenger operations efficiency. | Should be provided by operators. Directly related to dock configuration, may conflict with floating dock option. | - | - | Out | Passenger |
| 137 | 10 | Small | - | **Check-In Podiums:** Add stationary check-in podiums and a VIP lounge to the terminal. | Improved passenger operations efficiency, enhanced passenger experience. | - | Combine with #66 | - | Out | Passenger |
| 141 | 11 | Large | - | **Tour Boat Accommodations:** Convert the Seward Loading Facility to a dock for tour boats (if the Depot is relocated closer to the passenger terminal). | Promote economic growth, increase utility of SLF, alleviate ship traffic and increase berthing space. | - | Combine with #51 | - | Out | Passenger |
| 148 | 10 | Small | - | **Waterfront Trees:** Plant trees along the waterfront near the passenger dock | Aesthetic upgrade. | ARRC pays for hotel for employees who do not have an RV | Combine with #77 | - | Out | Passenger |
| 151 | 8 | Small | - | **Electronic Depot Signage:** Add electronic signage at the depot. | Improve efficiency of passenger operations, promote economic growth. | - | Combine with #13 | - | Out | Passenger |
| 153 | | Small | - | **At-Grade Passenger Access:** Build at-grade access to train cars at the Depot. | Increases efficiency and safety of passenger operations, preserves intermodal operations. | - | Combine with #13 | Modifications not proposed at depot unless a rebuild occurs | Out | Passenger |
| 155 | - | Small | - | **Depot Covered Pedestrian Accommodations:** Build a roof between the Depot and adjacent restrooms building to provide roughly 20' of covered waiting space. | Enhances passenger safety and comfort. | - | Combine with #13. | - | Out | Passenger |
| 156 | - | Small | - | **Covered Area for Passengers and Luggage:** Build a permanent luggage handling facility where the temporary tent sits and connect the roof to the restroom building to provide covered waiting space. These spaces could be used as sorting areas for people loading onto various tours. | Enhance passenger safety and comfort. | Luggage accommodations screened out as vendor responsibility. | Combine with #13. | - | Out | Passenger |
| 157 | - | Small | - | **Luggage Handling Relocation:** Move luggage tent to the south of the Depot to get check-in and luggage handling closer to each other. | Improves efficiency of passenger operations. | - | Combine with #13. | - | Out | Passenger |

| P# | Zone | Project Size | Priority | Project | Need | Challenges | Related | Fatal Flaw? | In/Out | Which Study |
|---|---|---|---|---|---|---|---|---|---|---|
| 158 | - | Small | - | **Electronic Depot Signage:** Add electronic signage inside and outside the Depot and at site locations. | Improves efficiency of passenger operations. | - | Duplicate of #151 Combined with #13. | - | Out | Passenger |
| 163 | 10 | Large | High | **Passenger Dock Rail:** Extend passenger track onto new passenger dock. Size tracks appropriately (weight wise for possible dual use for freight. Include both west and east rails). | Preserve intermodal service to new Passenger Dock. | - | - | Not able to be used for passenger services. Viability of this project is dependent on the type, design and location of dock selected. | Out | Passenger |
| 164 | - | Large | - | **Rail Construction and Reorganizing:** If Passenger Dock is relocated add new passenger tracks west of existing location and repurpose existing passenger tracks for freight. | Increase utility of uplands, increase efficiency of freight operations, alleviate freight congestion, and promote economic growth by adding freight infrastructure, increases intermodal operations. | Contingent on passenger dock replacement. Projects #11 and #12 address for the time being. #163 addresses passenger dock rail, #97 addresses freight dock rail extension. | - | Project dependent on other projects relocating the terminal and passenger dock, significant reworking of the uplands area and track. | Out | Passenger |
| 170 | 10 | Medium | High | **“Hotel” Services – Passenger Dock:** Provide hotel services on passenger dock (Fresh water, fuel, shore power on both sides of the dock, possible oily waste and sewage removal). | Increase the utility and efficiency of the Freight Dock, promote economic benefits and encourage more use of the dock. | - | Combine with projects #45 and #46. | - | Out | Passenger |
| 171 | 10 | Medium | High | **Cruise Line Data Connection – Passenger Dock:** Provide a permanent hard line data connection for use by cruise ships at the passenger dock to connect with the check-in computers located in the terminal. | Increase the utility and efficiency of the Passenger Dock. | - | Combine with projects #45 and #46. | - | Out | Passenger |
| 175 | Conn | Large | - | **Kenai Rail Spur:** Provide a rail spur to the Kenai Peninsula. | Provides for additional track to new locations not currently served by ARRC. | - | - | - | Out | Passenger |
| 184 | Conn | Large | - | Expanded passenger train services (similar to White Pass) | Project considered as part of Economic Analysis | - | - | Screened out through Economic Analysis | Out | Passenger |
| 186 | - | Large | - | Housing development | Project considered as part of Economic Analysis | - | - | Screened out through Economic Analysis | Out | Passenger |
| 187 | 10 | Medium | High | **Fuel Lines – Passenger Dock:** Install fuel lines on passenger dock (in/out) | Increase the utility and efficiency of the Passenger Dock, promote economic benefits and encourage more use of dock. Potential link to #140. | Higher incremental cost than other ‘extra’ projects for the passenger dock (#170, 171). Could also be installed on existing passenger dock. | Project to be considered as part of a package of works for passenger dock replacement (#45 and 46). | - | Out | Passenger & Freight |
| 189 | | Large | High | **Sheet Pile Around and Backfill Existing Passenger Dock:** Place Sheet Piles around the existing passenger dock and backfill the dock sub-surface to create an open cell sheet pile dock utilizing the existing dock as a surface platform | Provide a lower cost replacement passenger dock option. | Backfilling under dock challenging owing to high likelihood of voids being created and causing future settlement issues | - | Option considered unviable following engineering assessment | Out | Passenger |

# Appendix C

## 1.1 Passenger Dock Options

All dock options will accommodate a cruise ship with a length of 1083 feet, beam of 155 feet, and tonnage of 141,000 Long Ton (LT) (displacement). Further details on dock materials, construction, and design criteria are included on the passenger dock replacement options description sheets (refer to Appendix C).

### 1.1.1 Option P-PD1: Full Size Open Cell Sheet Pile Bulkhead Dock

#### *Description*

The new passenger dock provided for Option 1 will replace the existing dock with a full size open cell sheet pile bulkhead dock measuring approximately 970 feet long and 200 feet wide. The heavy-duty dock will provide flexibility for rail freight activities, which can be easily accommodated by installing ties and rails as necessary. Other components include salvaging two existing mooring dolphins and installing one new mooring dolphin to provide mooring for vessels over 1,000 feet in length. The dock will be finished with a concrete surface, and fenders and bollards will line the east and west face for berthing on both sides (Figure 7-6).

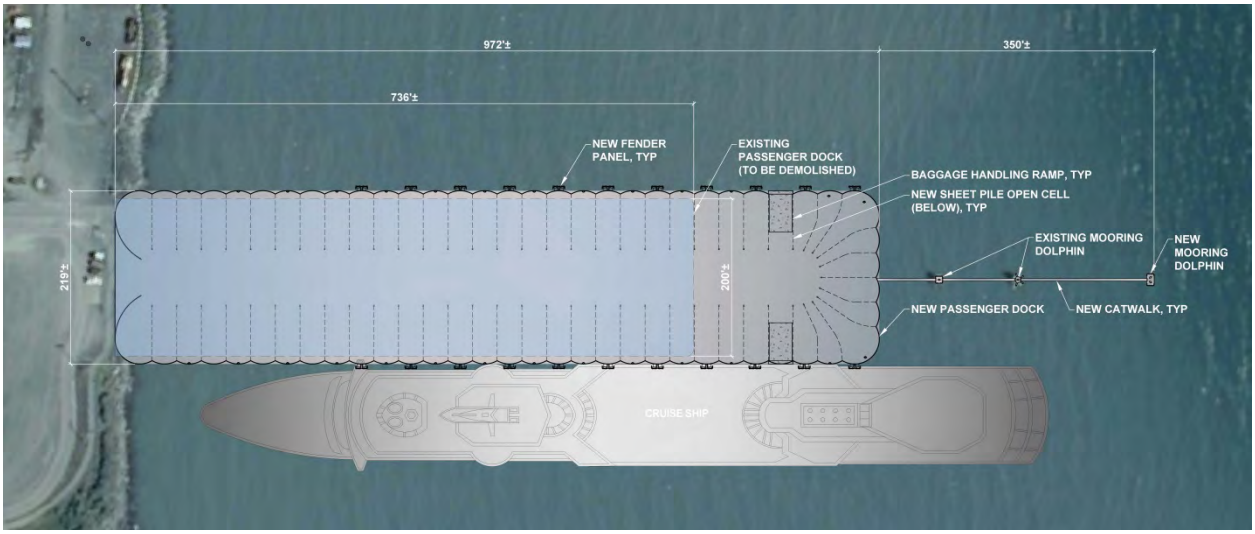



**Figure 7-6: Option 1 – Full Size Open Cell Sheet Pile Bulkhead Dock**

#### *Cost Estimate and Schedule*

Cost estimates and approximate completion timeframes for Option 1 is presented in Table 7-3, with major components broken out in itemized bullet points. Note that most activities occur concurrently, meaning that multiple crews will be working on multiple tasks simultaneously.

**Table 7-3: Cost Estimate for Dock Option 1**

*Option 1: Full Size Open Cell Sheet Pile Bulkhead Dock - $81.5M and 2 years construction time*

| Construction Activity | Cost | Duration |
|---|---|---|
| • Mobilization and demobilization | $4.5M | 4 months |
| • Demolition | $11.3M | 1 month |
| • Sheet pile dock (includes sheet pile installation, deep compaction, layer compacted fill) | $27.1M | 1 years and 6 months |
| • Fender system | $4.8M | 2 weeks |
| • Dock utilities (includes water service, fuel system) | $0.4M | 1 month |
| • Dock appurtenances (includes face beam, bullrail, mooring bollards, safety ladders) | $4.5M | 5.5 months |
| • Dock surfacing | $6.4M | 5 months |
| • Mooring dolphins | 0.45M | 2 weeks |
| • Catwalks | $0.4M | 1 week |
| • Rail Tracks | $0.4M | 2 weeks |
| • Cathodic protection (material and install) | $0.4M | 3 weeks |
| • Engineering, contract administration, project management, permitting | $6.6M | Throughout project |
| • Contingency (20%) | $14.5M | N/A |
| **Total** | **$81.5M** | **2 years** |

### 1.1.2 Option P-PD2: Minimal Open Cell Sheet Pile Bulkhead Dock

***Description***

Similar to option 1, option 2 will replace the existing dock with an open cell sheet pile bulkhead dock. However, option 2 has a minimalized approach measuring approximately 970 feet long and 150 feet wide, which is approximately 50 feet narrower than the current passenger dock (Figure 7-7). Also similar to option 1, option 2 will be finished with a concrete surface and can also accommodate rail activities.

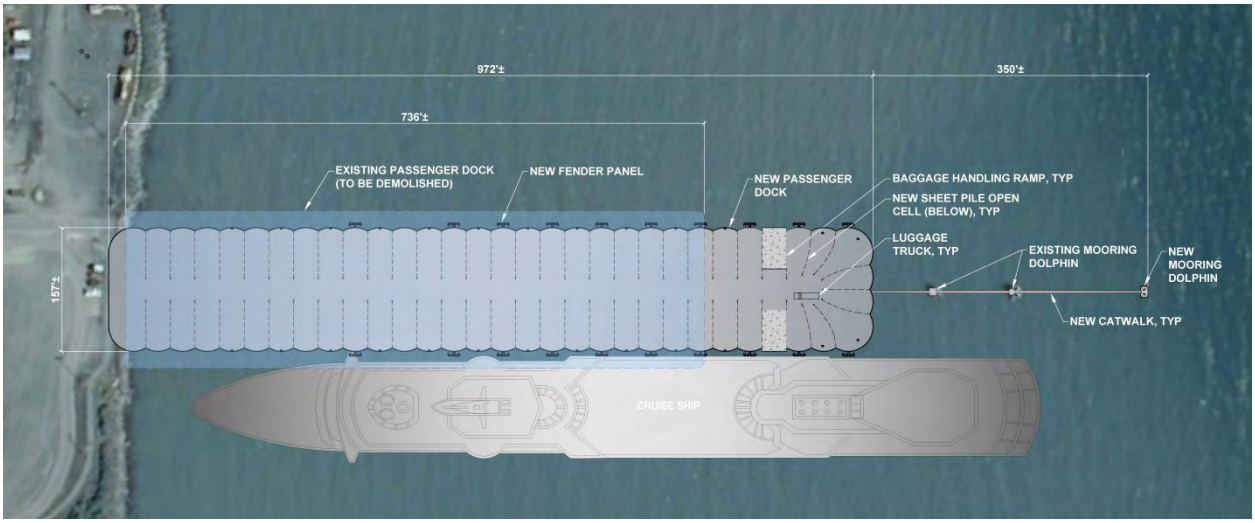



**Figure 7-7: Option 2 – Minimal Open Cell Sheet Pile Bulkhead Dock**

***Cost Estimate and Schedule***

Cost estimates and approximate completion timeframes for Option 2 are presented in Table 7-4, with major components broken out in itemized bullet points. Note that most activities occur concurrently meaning that multiple crews can also accommodate rail activities.

**Table 7-4: Cost Estimate for Dock Option 2**

*Option 2: Minimal Open Cell Sheet Pile Bulkhead Dock - $69.0M and 2 years construction time*

| Construction Activity | Cost | Duration |
|---|---|---|
| • Mobilization and demobilization | $4.3M | 3 months |
| • Demolition | $11.3M | 1 month |
| • Sheet pile dock (includes sheet pile installation, deep compaction, layer compacted fill) | $22.1M | 1 year 3 months |
| • Fender system | $4.8M | 2 weeks |
| • Dock utilities (includes water service, fuel system) | $0.4M | 1 month |
| • Dock appurtenances (includes face beam, bullrail, mooring bollards, safety ladders) | $4.3M | 5.5 months |
| • Dock surfacing | $2.9M | 3 months |
| • Mooring dolphins | $0.45M | 2 weeks |
| • Catwalks | $0.4M | 1 week |
| • Rail tracks | $0.4M | 2 weeks |
| • Cathodic protection (material and install) | $0.4M | 3 weeks |
| • Engineering, contract administration, project management, permitting | $6M | Throughout project |
| • Contingency (20%) | $11.7M | N/A |
| **Total** | **$69.0M** | **2 years** |

### 1.1.3 Option P-PD3: Widened Open Cell Sheet Pile Bulkhead Dock Retaining Existing Terminal Building and Existing Foundation Piles Reinforced

***Description***

Option 3 is one of two options that enable ARRC to keep the existing passenger terminal building in place. This option is aligned with terminal option P-TE2, which provides for the retention and retrofit of the terminal building. The cost of these options are separate. Figure 7-8 provides a concept layout, and Figure 7-9 shows a typical section through the proposed dock. Similar to options 1 and 2, this option incorporates an open cell bulkhead replacement option. In order to fit the open cell around the existing building, the dock must be widened to approximately 280 feet. With a similar length to the other options, the wider dock provides an additional 120,000 square feet of surface area relative to the existing dock. In order to keep the existing building in place, the pile foundation below that portion of the dock will be reinforced with grouted fiberglass reinforced polymer (FRP) wraps. Other components will be similar to options 1 and 2, including salvaging two existing mooring dolphins and installing one new mooring dolphin to provide mooring for vessels over 1,000 feet in length. Fenders and bollards will line the east and west face for berthing on both sides.

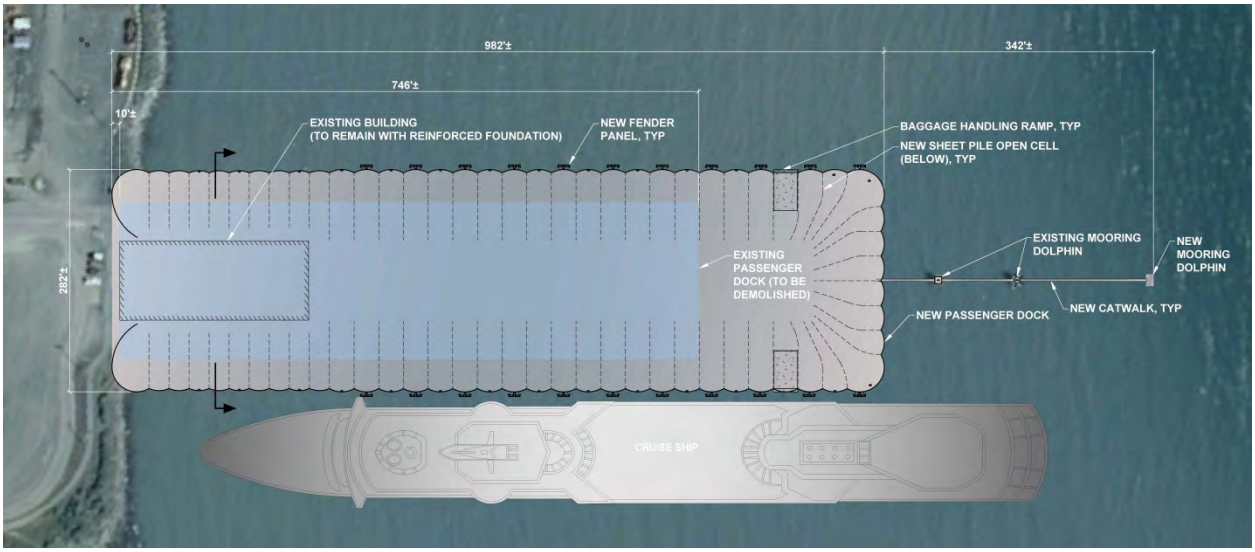



**Figure 7-8: Option 3 – Widened Open Cell Sheet Pile Bulkhead Dock Retaining Existing Terminal Building and Existing Foundation Piles**

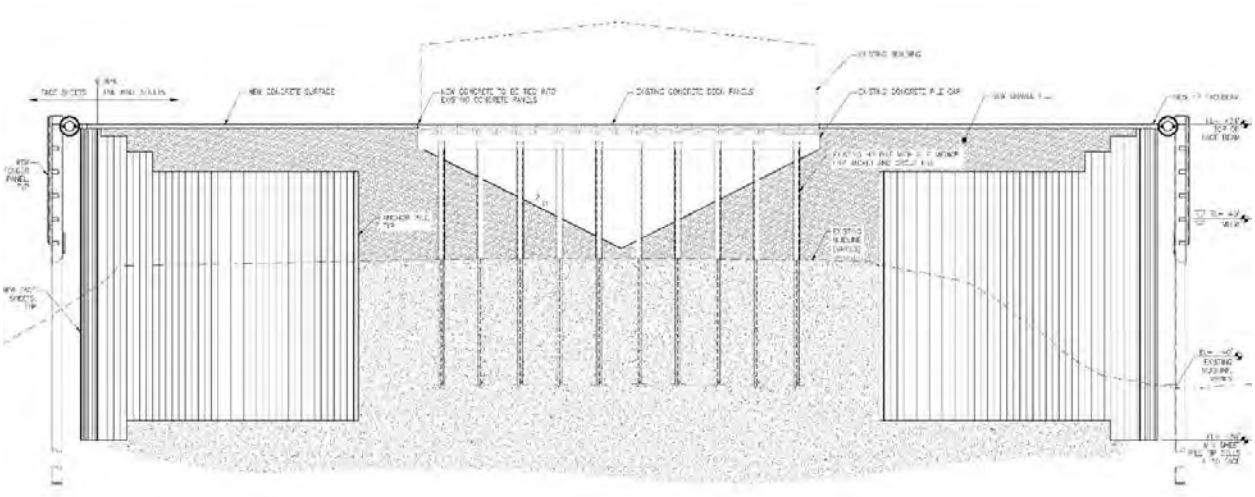


**Figure 7-9: Option 3 – Section of Open Cell with Existing Building Foundation Piles Reinforced**

To salvage the existing terminal building, the compromised piles that support the dock must be repaired. To repair the piles, a preformed fiberglass laminate will be installed on the pile in a 5-foot section. The laminate sections will be installed and slid down the pile to the mud line until the entire pile is encased. The annulus between the laminate and the pile is then filled with epoxy grout. Once the grout is cured the full strength of the pile is returned. The repair does not require any special equipment or experience.

### *Cost Estimate and Schedule*

Cost estimates and approximate completion timeframes for Option 3 are presented in Table 7-5, with major components broken out in itemized bullet point points. Please note that this cost estimate excludes the cost associated with salvaging and retrofitting the existing terminal building, which is covered in option P-TE2.

**Table 7-5: Cost Estimate for Dock Option 3**

*Option 3: Widened Open Cell Sheet Pile Bulkhead Dock Retaining Existing Terminal Building and Existing Foundation Piles - $83.7M and 2 years construction time*

| Construction Activity | Cost | Duration |
|---|---|---|
| • Mobilization and demobilization | $4.5M | 4 months |
| • Demolition | $9.5M | 1 month |
| • Sheet pile dock (includes sheet pile installation, deep compaction, layer compacted fill) | $28.2M | 1 year, 6 months |
| • Salvage terminal building foundation | $4.4M | 6 months |
| • Fender system | $4.8M | 2 weeks |
| • Dock utilities (includes water service, fuel system) | $0.4M | 1 month |
| • Dock appurtenances (includes face beam, bullrail, mooring bollards, safety ladders) | $4.5M | 5.5 months |
| • Dock surfacing | $6.0M | 5 months |
| • Mooring dolphins | $0.45M | 2 weeks |
| • Catwalks | $0.4M | 1 week |
| • Cathodic protection (material and install) | $0.4M | 3 weeks |
| • Engineering, contract administration, project management, permitting | $7.0M | Throughout project |
| • Contingency (20%) | $14.5M | N/A |
| **Total** | **$83.7M** | **2 years** |

### 1.1.4 Option P-PD4: Minimal Pile Supported Dock Retaining Existing Terminal Building and Existing Foundation Piles Reinforced

#### *Description*

Option 3 is one of two options that enable ARRC to keep the existing passenger terminal building in place. A concept layout of this option is shown in Figure 7-8. This option is aligned with terminal option P-TE2, which provides for the retention and retrofit of the terminal building. The cost of these options are separate. This option provides for a minimal pile-supported dock to be constructed. Approximately 280 feet in length by 160 feet in width of the remaining dock will remain in place, with a reinforced foundation. With this portion of the dock remaining, the existing terminal building can remain in use. The remainder of the dock would be replaced by a platform measuring approximately 400 feet in length by 120 feet in width, with access provided by a 300-foot long, 45-foot wide causeway. Four new breasting and mooring dolphins would be installed at the platform corners, with two existing and one new mooring dolphin beyond the end of the platform. Vessels of 1,000 feet in length would be able to berth at the facility, with fenders and bollards provided along the east and west faces of the platform.

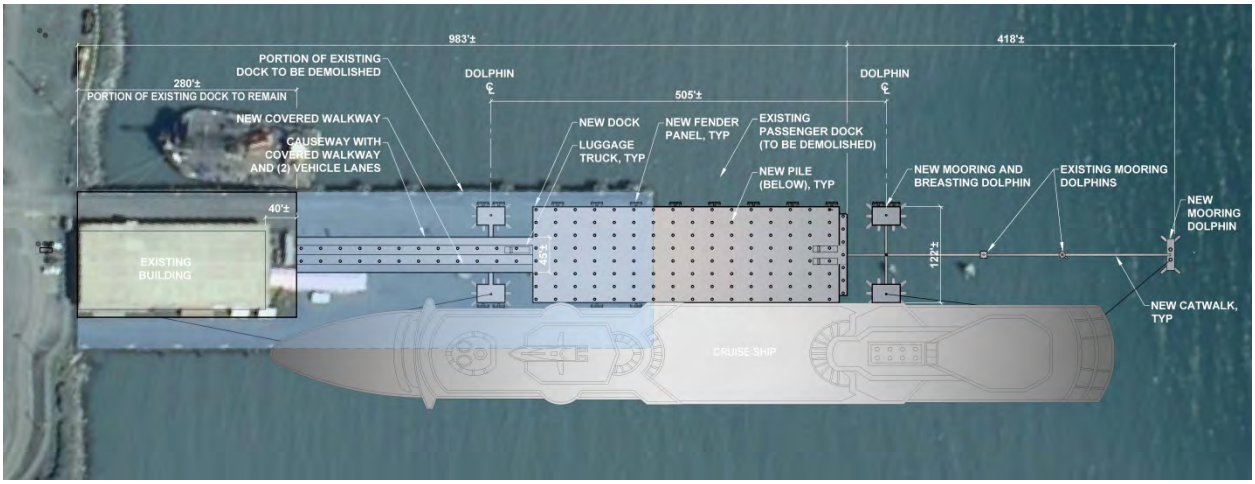



**Figure 7-8: Option 4 – Minimal Pile Supported Dock Retaining Existing Terminal Building and Existing Foundation Piles Reinforced**

#### *Cost Estimate and Schedule*

Cost estimates and approximate completion timeframes for Option 4 are presented in Table 7-6, with major components broken out in itemized bullet point points. Please note that this cost estimate excludes the cost associated with salvaging and retrofitting the existing terminal building, which is covered in option P-TE2.

*Option 4: Minimal Pile Supported Dock Retaining Existing Terminal Building and Existing Foundation Piles Reinforced - $57.M and 2 years construction time*

| Construction Activity | Cost | Duration |
|---|---|---|
| • Mobilization and demobilization | $5.6M | 2.5 months |
| • Demolition | $7.9M | 1 month |
| • Salvage Terminal Building Piles | $8.0M | 6 months |
| • Breasting dolphins | $2.7M | 1 month |
| • Catwalks | 0.1M | 10 days |
| • Breasting/Mooring Dolphins | $1.9M | 2 months |
| • Pile supported dock (includes pile material and install, concrete pile caps, concrete deck panels, fendering and appurtenances) | $16.1M | 1 year, 3 months |
| • Dock utilities (includes water service, fuel system) | $0.4M | 1 month |
| • Engineering, contract administration, project management, permitting | $5.0M | Throughout project |
| • Contingency (20%) | $9.5M | N/A |
| **Total** | **$57.1M** | **2 years** |

### 1.1.5 Option P-PD5: Full Size Pile Supported Dock

***Description***

Option 5 is a 'full size' pile supported replacement option (Figure 7-10). The dock would have steel pipe piles as a foundation and a precast concrete panel deck. The option is similar to option 1 in size, being approximately 970 feet long and 200 feet wide and providing approximately 50,000 square feet of additional surface area. However, unlike the open cell full size option 1, the pile supported dock will not accommodate freight activities. The pile supported dock proposed in option 5 is HS-20 load limited, which means it can provide for buses and truck traffic only and no major freight or container handling activities. The two existing mooring dolphins will be salvaged and one new mooring dolphin would be installed to allow for mooring of vessels over 1,000 feet in length. Fenders and bollards would extend along the east and west face to provide berthing on both sides of the dock.

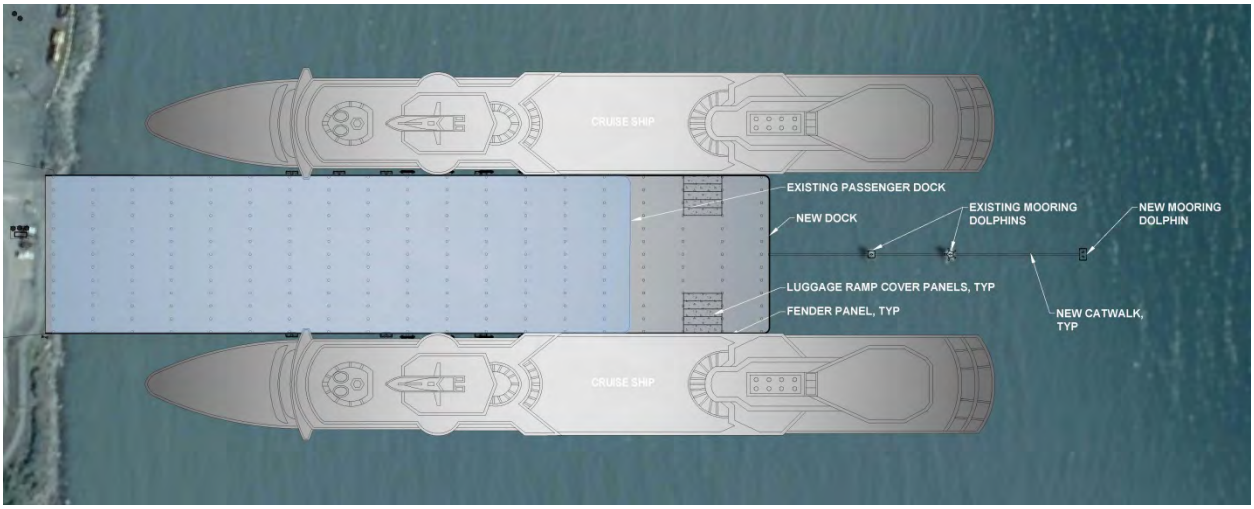



**Figure 7-10: Option 5 – "Full Size" Pile Supported Dock**

### *Cost Estimate and Schedule*

Cost estimates and approximate completion timeframes for Option 5: “Full Size” Pile Supported Dock are presented in Table 7-6, with major components broken out in itemized bullet points.

**Table 7-6: Cost Estimate for Dock Option 5**

*Option 5: “Full Size” Pile Supported Dock - $94.7M and 2 years construction time*

| Construction Activity | Cost | Duration |
|---|---|---|
| • Mobilization and demobilization | $6.3M | 3 months |
| • Demolition | $11.3M | 1 month |
| • Breasting dolphins | $7.0M | 1 month |
| • Catwalks | $0.4M | 0.5 month |
| • Mooring dolphins | $0.5M | 1.5 months |
| • Pile supported dock (includes pile material and install, concrete pile caps, concrete deck panels, fendering, and appurtenances) | $52.7M | 1 year, 6 months |
| • Engineering, construction administration, project management, permitting | $7.9M | Throughout project |
| • Contingency (20%) | $15.7M | N/A |
| **Total** | **$57.7M** | **2 years** |

### 1.1.6 Option P-PD6: Minimal Pile Supported Dock

***Description***

Option 6 is a minimal pile supported dock replacement option (Figure 7-11). This option significantly reduces the dock surface area by approximately 100,000 square feet relative to the existing dock. The platform would be approximately 400 feet long by 120 feet wide with access provided by a 475 feet long and 45 feet wide trestle. Four new breasting dolphins would be installed at the platform corners with two existing and one new mooring dolphin being located beyond the end of the platform, which would be accessed using catwalks. Vessels over 1,000 feet in length would be able to berth at the facility with fenders and bollards provided along the east and west face of the platform. Similar to option 5, this dock will not be able to be used for freight activities.

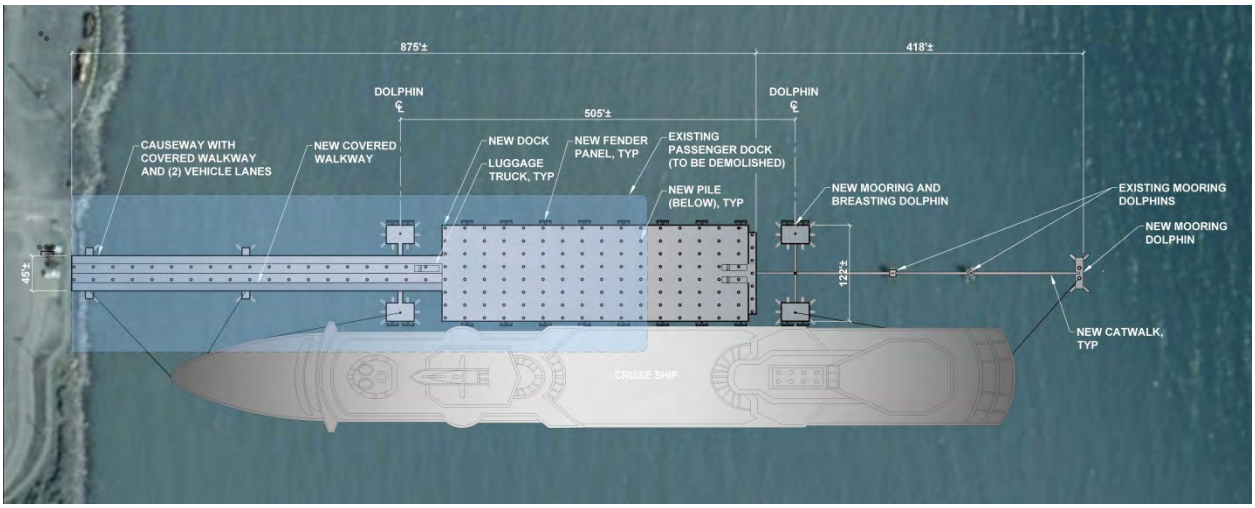



**Figure 7-11: Option 6 – Minimal Pile Supported Dock**

***Cost Estimate and Schedule***

Cost estimates and approximate completion timeframes for Option 6 are set out in Table 7-7, with major components broken out in itemized bullets.

**Table 7-7: Cost Estimate for Dock Option 6**

*Option 6: Minimal Pile Supported Dock - $59.4M and 2 years construction time*

| Construction Activity | Cost | Duration |
|---|---|---|
| • Mobilization and demobilization | $5.6M | 2.5 months |
| • Demolition | $11.3M | 1 month |
| • Breasting dolphins | $2.7M | 1 month |
| • Catwalks | 0.1M | 10 days |
| • Pile supported dock (includes pile material and install, concrete pile caps, concrete deck panels, fendering and appurtenances) | $19.8M | 1 year, 3 months |
| • Breasting/Mooring dolphins | $3.3M | 2.5 months |
| • Dock fender system | $3.0M | 2 weeks |
| • Dock utilities (includes water service, fuel system) | $0.4M | 1 month |
| • Engineering, contract administration, project management, permitting | $6.5M | Throughout project |
| • Contingency (20%) | $9.9M | N/A |
| **Total** | **$59.4M** | **2 years** |

### 1.1.7 Option P-PD7: Seward Loading Facility Dock Pile Supported Platform Expansion

***Description***

The Seward loading facility was originally designed to unload bulk material (specifically coal) from railcars, stockpile the material on ARRC land used for storage, and load the material into bulk ships via a stacker-reclaimer and conveyer belt system. However, due to the downturn in the global export coal market, the facility is currently not in use and has been put into a long-term shutdown. The SLF dock has been in service for about 31 years following construction in 1984. The dock is approximately 900 feet long and 28 feet wide with a trestle and conveyor. A platform and ship loader is located at the end of the trestle/conveyor. The dock is currently only set up to handle bulk carriers.

Since the dock is not currently in use, several options have been considered to find the best alternative to use the existing dock and space. One minimal option (Phase I) is to extend the platform with a pile support timber deck at the south end of the dock to provide berthing for cruise ships along the west side. The platform would have an approximately 630 feet berth face and be approximately 60 feet wide. Breasting dolphins and fenders would be added for adequate berthing. As part of Phase I, dredging to -35 feet MLLW would be required along the west side to provide adequate draft for cruise ships.

A more extensive option, Phase II, widens the platform and provides berthing and mooring for cruise ships along the east side of the platform. With Phase II, the overall berth face (east and west sides) would be approximately 630 feet long and approximately 120 feet wide. In addition to expanding the platform for cruise ships, the conveyer will be removed and replaced with a covered walkway to accommodate cruise ship passengers. To further accommodate passengers, an adjustable luggage platform would be built on the east and west sides to expedite the offloading process (Figure 7-12).

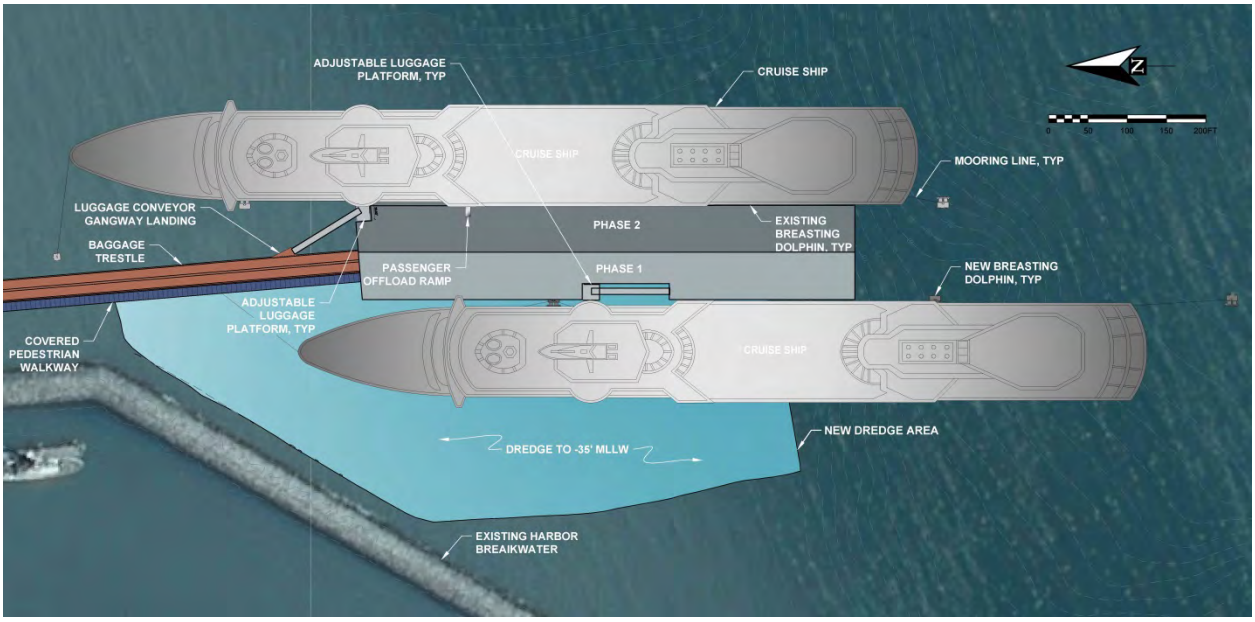



**Figure 7-12: Option 7 – SLF Dock Pile Supported Platform Expansion**

***Cost Estimate and Schedule***

Cost estimates and approximate completion timeframes for Option 7 Phases I & II are presented in Table 7-8 and Table 7-9, with major components broken out in itemized bullets.

**Table 7-8: Cost Estimate for Dock Option 7 (Phase I)**

*Option 7: SLF Dock Pile Supported Platform Expansion (Phase I) - $39.6M and 1 year construction time*

| Construction Activity | Cost | Duration |
|---|---|---|
| Mobilization and demobilization | $2.5M | 1 month |
| Demolition (includes offshore conveyor, ship loader, catwalks) | $0.9M | 2 months |
| Salvage and reinstall trestle superstructure | $1.5M | 2 months |
| Provide and install new trestle (piles, superstructure, running boards) | $15.1M | 6 months |
| Breasting dolphins | $1.7M | 1 month |
| Dock fender system | $2.6M | 2 weeks |
| Dock appurtenances (safety ladders, anodes, bullrail) | $0.5M | 1 month |
| Dock utilities (includes water service, fuel system) | $0.7M | 2 months |
| Engineering, construction administration, project management, permitting | $3.9M | Throughout project |
| Dredging | $3.7M | 2 months |
| Contingency (20%) | $6.6M | N/A |
| **Total** | **$19.5M** | **11 months** |

**Table 7-9: Cost Estimate for Dock Option 7 (Phase II)**

*Option 7: SLF Dock Pile Supported Platform Expansion (Phase II) - $20.8M and 8 months construction time*

| Construction Activity | Cost | Duration |
|---|---|---|
| Mobilization and demobilization | $2.5M | 1 month |
| Provide and install new trestle (piles, superstructure, running boards) | $9.0M | 3 month |
| Dock fender system | $0.9M | 2 weeks |
| Breasting dolphins | $1.7M | 1 month |
| Dock appurtenances (includes bullrail, safety ladders, anodes) | $0.4M | 2 weeks |
| Install utilities (includes water service, fuel system) | $0.3M | 1 month |
| Cathodic protection (materials and install) | $0.1M | 1 week |
| Engineering, construction administration, project management, permitting | $4M | Throughout project |
| Contingency (20%) | $3.5M | N/A |
| **Total** | **$22.6M** | **6 months** |

### 1.1.8 Option P-PD8: Extend Freight Dock to Accommodate Cruise Vessels

#### *Description*

The freight dock was originally designed to relieve the combined dock that is currently used as the passenger dock and to provide separation of freight and passenger operations. The freight dock is constructed using an open cell sheet pile bulkhead with a gravel surface and rail tracks running to the end of the dock. It has been in service for approximately 15 years and was constructed from 2000 – 2002. The dock currently measures approximately 600 feet in length and between 200 – 320 feet in width and has a total surface area of approximately 130,000 square feet. The dock elevation is +20 feet MLLW in height, and it primarily services barges carrying cargo.

Option 8 proposes to incorporate varying levels of extension to the bulkhead to enable the accommodation of cruise ships. Phase I is a minimal option, extending the west facing bulkhead approximately 600 feet with approximately 120 feet of width. The minimal extension would allow for cruise ships over 1,000 feet long to dock on the west side, in addition to standard freight and cargo. A more extensive option can be provided by Phase II, which would add a bulkhead face over 600 feet long on the east side of the extension. This would make the extension over 300 feet wide. Dredging will be necessary to provide adequate draft on the east bulkhead and a sediment groin or similar should be constructed to mitigate infill from sediment migration. This would enable larger vessels to berth at the dock, and would also add approximately 200,000 square feet of additional surface area for use by cruise ships and freight activities. An aerial view of Option 8 is shown in Figure 7-13.

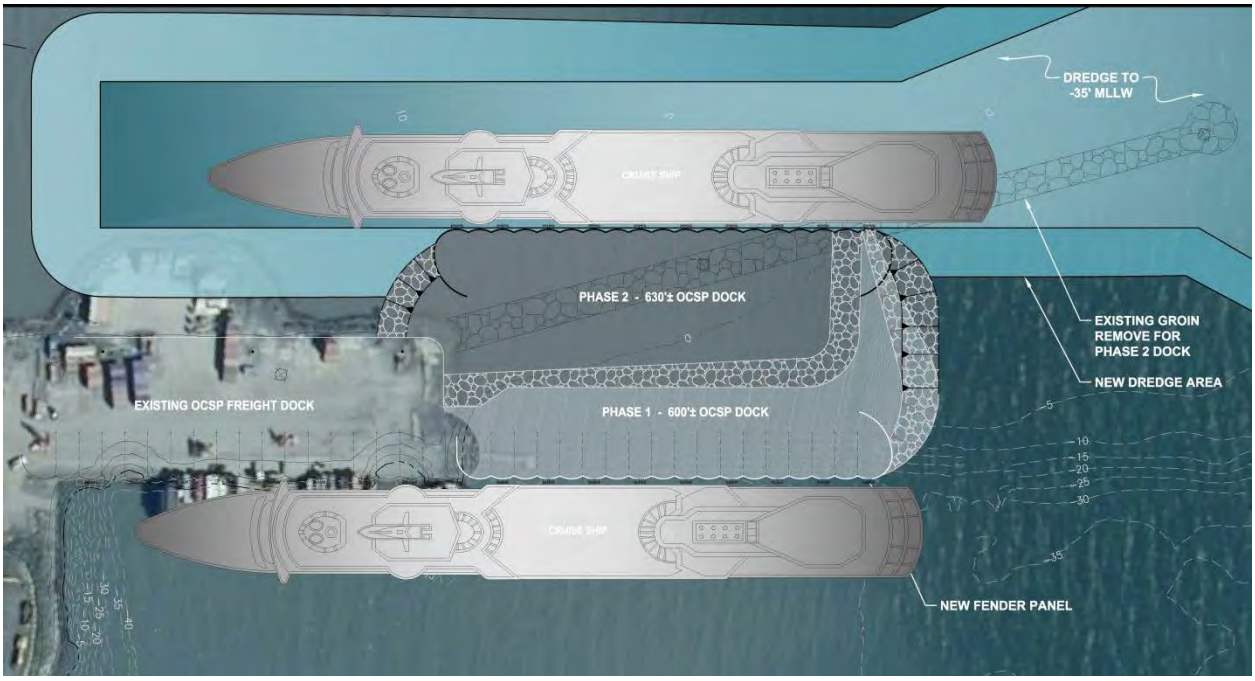



**Figure 7-13: Option 8 – Freight Dock Extension to Accommodate Cruise Ships – Phases I & II**

#### *Cost Estimate and Schedule*

Cost estimates and approximate completion timeframes for Option 8 Phases I & II are presented in Table 7-10 and Table 7-11, with major components broken out in itemized bullet points.

**Table 7-10: Cost Estimate for Dock Option 8 (Phase I)**

*Phase I - $21.3 Million; 1 year and 3 months construction time*

| Construction Activity | Cost | Duration |
|---|---|---|
| • Mobilization and Demobilization | $2.3M | 2 months |
| • Salvage existing armor rock and reinstall | $0.6M | 3 weeks |
| • Sheet pile dock construction (includes: drive sheet, cut off sheets and weld interlocks, backfill, compact below and above waterline) | $6.7M | 8 months |
| • Install utilities (includes water service, fuel system) | $0.4M | 1 month |
| • Dock fender system (materials and install) | $2.0M | 2 weeks |
| • Dock appurtenances (includes: face beam, bull rail, mooring bollards, safety ladders) | $1.7M | 3 months |
| • Cathodic protection (materials and install) | $0.3M | 2 weeks |
| • Engineering, construction administration, project management, permitting | $3.7M | Throughout project |
| • Contingency (20%) | $3.8M | N/A |
| **Total** | **$21.3M** | **1 year, 3 months** |

**Table 7-11: Cost Estimate for Dock Option 8 (Phase II)**

*Phase II - $46.8 Million; 1 year and 3 months construction time*

| Construction Activity | Cost | Duration |
|---|---|---|
| • Mobilization and demobilization | $2.3M | 2 months |
| • Sheet pile dock construction (includes: drive sheet, cut off sheets and weld interlocks, back fill, compact below and above waterline) | $7.2M | 8 months |
| • Install utilities (includes water service, fuel system) | $0.4M | 1 month |
| • Dock fender system (materials and install) | $2M | 2 weeks |
| • Dock appurtenances (includes face beam, bull rail, mooring bollards, safety ladders) | $1.7M | 3 months |
| • Cathodic protection (materials and install) | $0.3M | 2 weeks |
| • Engineering, construction administration, project management, permitting | $3.7M | Throughout project |
| • Contingency (20%) | $3.8M | N/A |
| • Dredging | $23.8M | 1 year, 6 months |
| • Jetty | $1.9M | 1 week |
| **Total** | **$46.8M** | **1 year, 3 months** |

### 1.1.9 Small Dock Improvement Project

In addition to the projects considering the replacement of the passenger dock, the following smaller project was recommended for further consideration.

- **Option P-PD9: Cruise Ship Passenger Covered Walkway:** Construct a covered walkway from the passenger dock to the passenger terminal to make the initial debarking more inviting.

This project can be incorporated into the dock replacement option selection if required.

### 1.1.10 Dock Materials and Construction Methods

One structural option is an OPEN CELL SHEET PILE bulkhead composed of flat steel sheet pile and backfilled with gravel. Following gravel fill and compaction, concrete placement would provide a surface. Fenders would be along both sides and mooring dolphins past the end of the dock. The second structural option is a pile-supported dock with a concrete deck. The dock would likely be supported by 24-inch diameter steel piles, and the dolphins would likely be supported by 36-inch diameter steel piles. Following pile driving and pile installation, a concrete deck structure will be installed on top of the piles. The minimal pile-supported option will have four breasting/mooring dolphins at the corners of the platform in addition to mooring dolphins past the end of the dock.

#### *Construction Methods for the OPEN CELL System*

Construction of the OPEN CELL system is typically performed from a barge or from shore. Land-based construction is more common than marine-based construction and is often the most cost effective. Utilization of the OPEN CELL system's simple design allows a contractor to gain efficiency and shortens the overall duration of construction. PND Engineers has broken up the installation methods of the OPEN CELL system into four steps: (1) site preparation, (2) set pile driving template, (3) drive wye piles and sheet piles, and (4) compact backfill and finalize dock face.

#### Step 1: Site Preparation

The first step in OPEN CELL structure installation is site preparation. This includes preparing a crane pad for land-based construction, assembling a barge, if construction is marine-based, and removing any sheet pile driving obstructions such as armor rock. Crane pads are built with typical earth moving equipment, such as dump trucks, loaders, bulldozers, and roller compactors.

**Figure 1 Construction of Crane Pad for OPEN CELL Installation**

#### Step 2: Set Pile Driving Template

The cells are formed using a pile template to guide the flat sheet piles into place. Templates typically consist of two steel platforms, matching the shape of the arc and the straight tailwall.

**Figure 2 OPEN CELL Templates with Flat Sheet Pile Installed Around the Templates**

### Step 3: Drive Wye Piles and Sheet Piles

Construction usually begins at a wye pile driven at an end cell. A surveyor locates the position of the wye pile and it is partially driven with adjacent sheet piles in both the tailwall and structure face. Flat sheet piles are then threaded into an adjacent pile interlock, similar to z-sheet piles. Each pile is driven to stable embedment, supported by the driving template. Installation involves a vibratory hammer operated in conjunction with a crane to advance the sheet pile into position. Care is taken to maintain location and plumbness and to not advance a single sheet pile more than 5 feet ahead of the adjacent sheet pile.

**Figure 3 OPEN CELL Tailwall with Staggered (5 ft max.) Sheet Driving**

### Step 4: Finishing and Appurtenances

Gravel fill is then placed inside the OPEN CELLS with traditional earth moving equipment such as dump trucks, loaders, and bulldozers. During fill placement, fill height differential between two adjacent cells must be kept within 5 feet to avoid bending of the tailwalls. While fill above the water level is compacted with traditional equipment (i.e., roller compacters), fill below the water level is consolidated using vibracompaction. Vibracompaction is done by driving and vibrating a modified H-pile throughout the OPEN CELL to ensure consolidation. This is done with a crane, vibratory hammer, and a modified H-pile. Lastly, the dockside edge is finished with deck fixtures such as fenders, bollards, and surfacing.

**Figure 4 Gravel Backfilling of OPEN CELLS with Standard Earthwork Equipment**

Figure 5 OPEN CELL Dock face with completed Bullrail, Bollards, Fenders, Safety Ladders and Gravel **Surface**

### *Construction Methods for Pile-Supported Platform with Concrete Panels and Pile Caps*

Construction of pile supported structures is typically performed from a barge or from shore. Land-based is more cost effective, but some locations are only within reach of marine-based equipment. Pile supported marine structures are a conventional construction method that is adaptable to most configurations and environments. We have broken up the installation methods of pile supported structures into five steps: (1) site preparation, (2) set pile driving template' (3) drive piles, (4) place cast-in-place (CIP) concrete pile caps, and (5) place deck panels and finish dock face.

Step 1: Site Preparation

The first step for installing a pile-supported structure is site preparation. This includes preparing a crane pad for land-based construction, assembling a barge or temporary pile supported picking platform if construction is marine-based, and removing any pile driving obstructions such as armor rock. Land-based crane pads are built with typical earth moving equipment, such as dump trucks, loaders, bulldozers, and roller compactors.

**Figure 6 Crane Set-up on Shore for Driving Piles and Setting Structural Members (left) and a Crane Set Up on a Barge for Driving Dolphin Piles Offshore (background)**

### Step 2: Set Pile Driving Template

The pile grids are formed using a pile template to guide the piles in horizontal alignment. Templates typically consist of steel beams and timber dunnage set atop temporary piles to guide the dock piles, ensuring they are driven on location within specified tolerances (2 inches in any horizontal direction). Typically templates are set for a section of dock and then moved as construction progresses.

**Figure 7 A Steel Pile Set on Location with a Steel Template and Timber Dunnage**

### Step 3: Drive Piles

Construction usually begins at the shore end and progresses seaward. A surveyor locates the position of the pile, and it is driven with guidance from the template. Each pile is driven to design embedment and capacity. Installation involves a vibratory hammer operated in conjunction with a crane to advance the pile within 20 feet of estimated embedment. At this point, a diesel impact hammer is operated in conjunction with a crane to drive the pile to final embedment/capacity. Field engineers record hammer blow counts per foot of progress to verify adequate capacity is reached. Throughout the driving process care is taken to maintain location and plumbness.

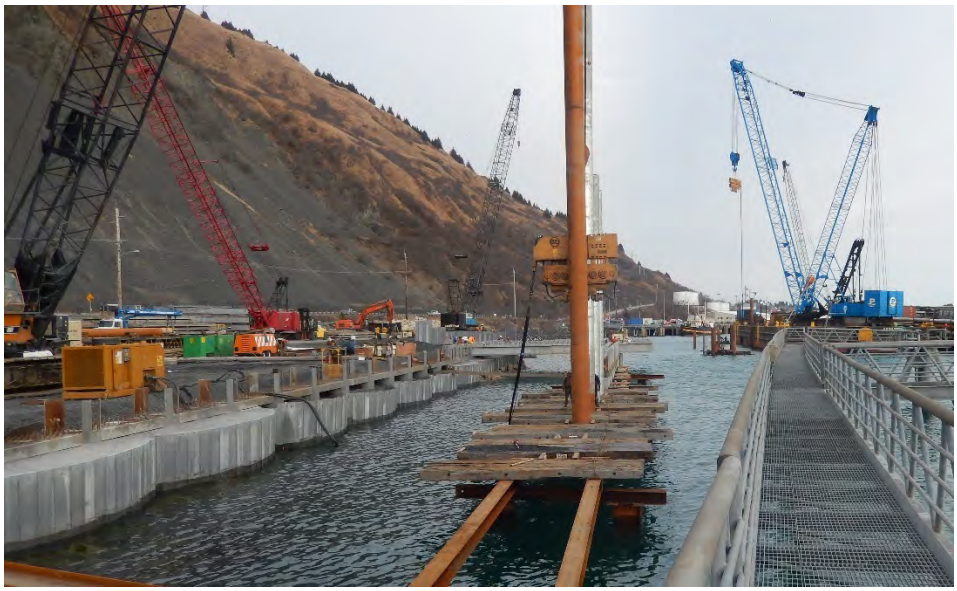


**Figure 8 A Pile Being Driven with a Vibratory Hammer and Crane. Note the Template and Land-Based Construction.**

### Step 4: Concrete Cast-In-Place Pile Caps

Upon completion of final pile driving, piles are cut off at the specified elevation. Following that, the contractor will construct temporary form work for the concrete CIP pile caps. Following placement of all the rebar, concrete is placed in the formwork and allowed to cure. Once the concrete has cured to adequate strength, the temporary formwork and templates are removed.

### Step 5: Place Deck Panels and Finish Dock Appurtenances

Precast concrete deck panels are set in place via a crane, spanning between pile caps. Once all the precast deck panels have been placed, concrete is placed in the joint between deck panels. Lastly, the dockside edge is finished with deck fixtures such as fenders, bollards, bullrail, and safety ladders.

**Figure 9 Precast Concrete Deck Panel Set in Place**

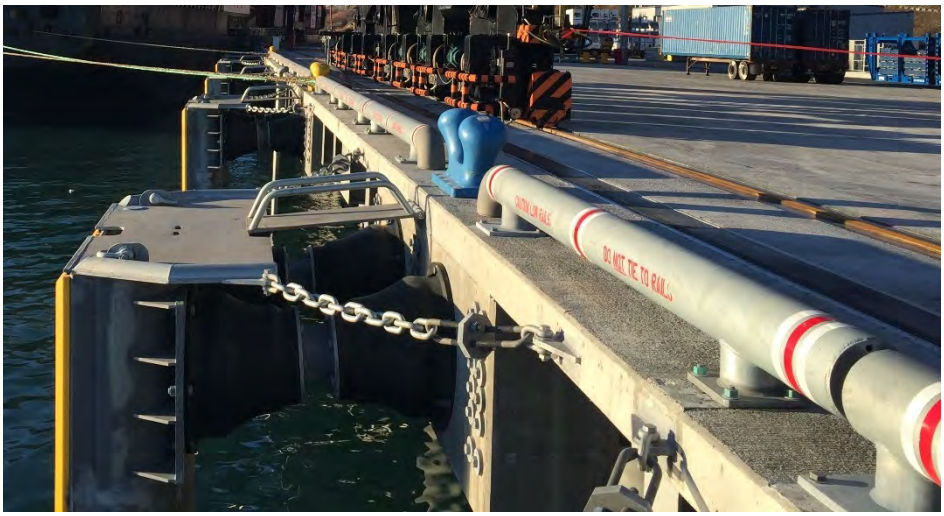



**Figure 10 Pile-Supported Dock Face with Completed Bullrail, Bollards, Fenders, Safety Ladders, and Concrete Surface**

## *Construction Methods for Reinforcing Existing Foundation Piles Below Building*

Construction of fiber reinforced polymer (FRP) pile reinforcement, such as PileMedic®, can be done at a relatively low cost with little disruption to the structure's daily use. This reinforcement allows piles to increase their capacity after deterioration to the original piles. We have broken up the installation methods

of pile-supported structures into three steps: (1) prepare pile surface, (2) install FRP cylindrical shell, and (3) mix and place non-shrink grout.

### Step 1: Prepare Pile Surface

The first step is cleaning off the existing pile's surface. This is done primarily with high-pressure water jetting to remove all marine growth. Severe corrosion may need to be removed with hydraulic or pneumatic hand tools. The time lapse between cleaning and completing the installation must not exceed 72 hours.

### Step 2: Install FRP Cylindrical Shell

After proper cleaning of the piles, epoxy is troweled on the end of an FRP sheet and wrapped around a pile to form a cylindrical shell. Ratchets straps are then placed to temporarily hold the shell's shape. FRP wraps are then continually added to the top of the previous sheet until the desired length is achieved. In marine applications the cylindrical shells are continually pushed down to mudline.

**Figure 11 Epoxy Being Troweled onto FRP Sheet (photo from QuakeWrap, Inc)**

**Figure 12 FRP Sheet Being Installed Around a Pile (photo from QuakeWrap, Inc)**

**Figure 13 FRP Sheet Wrapped Around a Pile with Straps (photo from QuakeWrap, Inc)**

### Step 3: Mix and Place Non-Shrink Grout

With the FRP cylindrical shell installed to the desired length, a non-shrink, high-strength grout is pumped inside the shell, fully encapsulating the pile. Following the curing of the grout, the pile reinforcement is complete.

**Figure 14 Pumping Grout into FRP Wrap (photo from QuakeWrap, Inc)**

**Figure 15 Finished FRP Wrap on Offshore Piles (photos from QuakeWrap, Inc)**

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