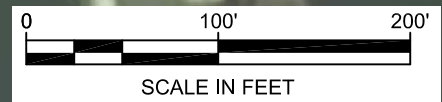
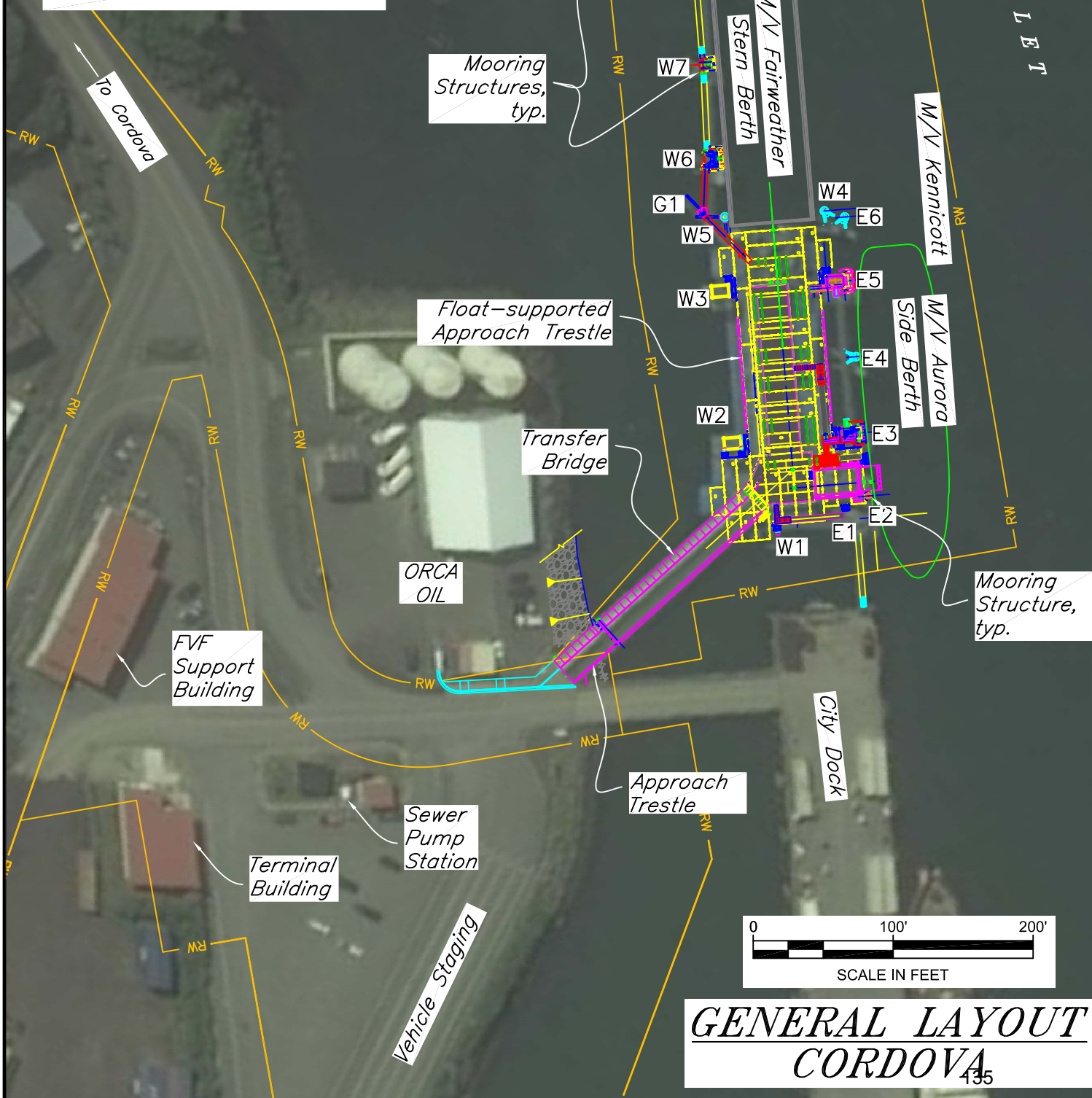


VICINITY MAP



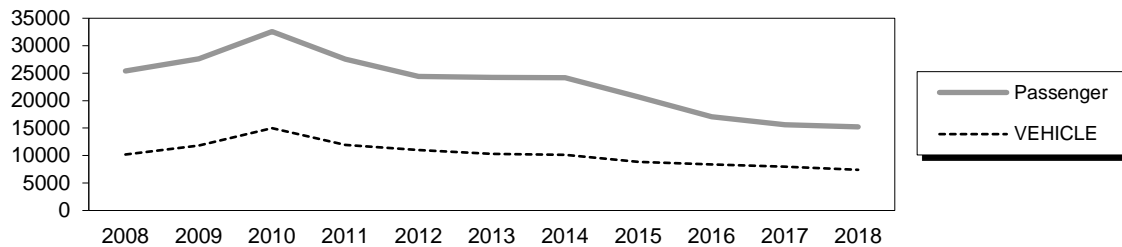
GENERAL LAYOUT CORDOVA

Cordova Ferry Terminal

201 Orca Avenue

Owner: State of Alaska
Terminal Manager: Toni Bocci – 907-424-7333

Terminal Description: Cordova has two berths, each connected to shore by a 40' approach, 140' transfer bridge and 60' x 210' flexifloat steel float system. The side-loading facility consists of an intermediate ramp & lift system, 6 steel pile dolphins and catwalks/gangways for line-handling access. The stern-loading facility consists of an intermediate ramp & lift system, 6 mooring dolphins and catwalks/gangways for line-handling access. The stern-berth is homeport of the Fast Vehicle Ferry (FVF) M/V Chenega. The past 10 years of total passenger and vehicle traffic at Cordova is shown below.



The most recent above water survey was completed on August 23, 2018. The most recent fracture critical inspection occurred on August 8, 2018. The most recent underwater inspection occurred on August 23, 2016.

Vessels	
Name	Berthing, Alignment
Tustumena/Kennicott	Port/Starboard/Stern
FVF	Stern/Starboard

Tidal Data (MLLW 0.0 feet)	
EHW	16.8
MHHW	12.4
MHW	11.5
ELW	-4.6

Terminal Building	
Year Built:	1998
Square Footage:	2200 s.f.
Heating System:	Furnace
Fuel Storage:	AST
Fire Protection:	Alarm Pyrotronics
Condition:	Good

Generator & Building	
Year Built:	1998
Square Footage:	252 s.f.
Heating System:	electric
Fuel Storage:	Daytank
Fire Protection:	Halon
Condition:	New

Uplands	
Short-Term Parking:	18 cars, 5 trucks, 4hcp
Long-Term Parking:	15
Staging Area:	1150 lineal feet; 230 lineal feet-buses/trucks
Paint Striping:	Yes
Driving Surface:	Asphalt
Utilities	
at Terminal	
Electrical:	Yes, city & backup power
Water:	Yes
Sewer:	Yes (City)
Telephone:	Yes
Fuel:	Yes, AST
Wireless Bridge:	Yes
Vehicle Transfer Bridge - #0180	
Type:	16'x140' twin box beam
Year Built:	2006
Shoreward support:	Steel approach
Seaward support:	Flexifloat pontoon
Coating:	Wasser Paint
Pedestrian Access:	Covered walkway, concrete deck, separated by guardrail
Lighting:	Tubuloid fixtures on rail
Condition:	New
Load Posting Sign:	N/A
Original Design Load:	HS 20-44

Catwalks / Gangways								
#	From Struct.	To Struct.	Length / Style / Main Members	Built	Safety Chains?	Cond.	Lighting	Notes
G1	W1	E1	46' / Gangway / 2.5"x2.5' Bottom Chord	2005	Yes	Good	Tubuloid	
C1	E1	CD	61' / Catwalk / 10"x10" Tube Girders	2005	Yes	Good	None	
G2	EGP1	-	15' / Gangway / 2.5"x2.5" Bottom Chord	2005	Yes	Good	None	
G3	EGP2	E3	46' / Gangway / 2.5"x2.5' Bottom Chord	2005	Yes	Good	Tubuloid	
G4	EGP2	E5	46' / Gangway / 2.5"x2.5' Bottom Chord	2005	Yes	Good	Tubuloid	
C2	E3	E5	102' / Catwalk / 12"x12" Tube Girders	2005	Yes	Good	Tubuloid	
G5	WGP1	G1	46' / Gangway / 2.5"x2.5' Bottom Chord	2005	Yes	Good	Tubuloid	
C3	G1	W6	31' / Catwalk / 2.5"x2.5" Bottom Chord	2005	Yes	Good	Tubuloid	
C4	W6	W7	57' / Catwalk / 10"x10" Tube Girders	2005	Yes	Good	Tubuloid	
C5	W7	W8	57' / Catwalk / 10"x10" Tube Girders	2005	Yes	Good	Tubuloid	

LEGEND

ET = East Lift Tower

V = Vertical Steel Pipe Piling

B = Battered Steel Pipe Piling

G1 = Gangway

EGP = East Gangway Platform

CD = City Dock

Dolphins								
Dolphins	Dolphin Piles	Fender Support	Fender Face	Anodes	Built	Cond.	Hawse Extentions	Notes
E1	4V	Hanging	UHMW	Yes	2005	New	Yes	
E2	1V	Floating	Rubber Fender	Yes	2005	New	-	
E3	4V	Hanging	UHMW	Yes	2005	New	Yes	
E4	2B, 1V	Floating	Rubber Fender	Yes	2005	New	-	
E5	4V	Hanging	UHMW	Yes	2005	New	Yes	
E6	2B, 1V	Floating	Rubber Fender	Yes	2005	New	-	
W9	2B, 1V	Floating	Rubber Fender	Yes	2005	New	-	
W8	2B, 1V	Hanging	UHMW	Yes	2005	New	Yes	
W7	2B, 1V	Hanging	UHMW	Yes	2005	New	Yes	
W6	2B, 2V	Hanging	UHMW	Yes	2005	New	Yes	
W5	2B, 1V	Floating	Rubber Fender	Yes	2005	New	-	
W4	2B, 1V	Floating	Rubber Fender	Yes	2005	New	-	
W3	4V	-	-	Yes	2005	New	-	
W2	4V	-	-	Yes	2005	New	-	
W1	2B, 1V	-	-	Yes	2005	New	-	
G1	1B, 1V	-	-	Yes	2005	New	-	

Terminal Projects			
Year	Project #	Project Name	Description
1968	MT 107	Cordova Ferry Terminal	Original stern-loading terminal construction consisted of orthotropic steel transfer bridge, (2) counterweight lift towers, (4) mooring dolphins, (2) stern dolphins, (5) steel catwalks, passenger waiting room building, and utilities. The shoreward bearing was built on the edge of the Cordova City Dock.
1988	RS-0851(42)	FT Fender Modifications	Replaced the stern dolphins, replaced the mooring dolphin fendering systems.
1988	RS-0851(44)	FT Recoating Project	Work included re-painting the steel transfer bridge, lift tower enclosures, and other miscellaneous coatings.
1993	RS-0851(46) 75128	FT Bridge Replacement	Replaced the solid plate deck bridge with an open-grate deck multi-girder structure. Modified existing steel lift towers for new lift system.
1993	STP-0851 (53) / 75339	Cordova Staging Area Phase "A"	Placed uplands fill adjacent to the dock approach road to expand the staging area.
1997	RS-0851(45) 75336	Cordova Staging Area Phase "B"	Work included paving, striping, curb & gutter, utilities, etc.
1998	N/A	Cordova Terminal Building	Construction of the terminal building.
2005	AK-03-0040 / 68447	Prince William Sound FVF Support Facility	Construction of the support facility for FVF Chenega
2006	MGS-0851(63)- 68263	Cordova FT Modifications	Removed existing marine structures with new side and stern berths.
2010	73741(5)	AMHS Cordova FT Heat Trace Modifications	Replaced the faulty heat trace originally installed on Proj 68263 for water & sewer lines on dock.
2011	69617	Cordova FT Float Repairs	Emergency project to repair weld the cracks @ the locks within several Flexifloat units & install new structural steel frames to strengthen the floats.

Observations

1. The Cordova transfer facility allows the M/V CHENEGA to stern and side load. The M/V AURORA mainly uses the side-berth, but may also use the stern berth with some restrictions.
2. The Cordova upland facilities were refurbished in 1998. Major improvements included a new paved staging and long term parking areas, a new 2,200 square foot terminal building and a standby power generator facility. The uplands and building facilities are in good condition. The curb near the generator shed and guardrail in the back of the staging area have been damaged by snowplow activities.

A 90'x34' vessel storage & maintenance building was constructed in the parking area southwest of the existing terminal building in 2005. The building is used as a shop and storage area for the AMHS fast vehicle ferry. The structure was completed in the Spring of 2005 and is in good condition. The building is constructed with steel frames, metal siding and metal roofing.

There is a heated concrete floor, two garage spaces and a mezzanine area for storage. Area drainage and lighting appeared to be adequate. The second floor in the garage of the maintenance shop has a removable railing that should be re-designed as a swing gate instead of a lift gate, as it is heavy and difficult to use.

Observations (continued)

3. The stern load transfer facility off the southern end of the Cordova City Dock was removed and replaced in 2006 with a stern/side floating berth for all-tide mooring the MV CHENEGA while also providing moorage for the AURORA/KENNICOTT on the side-berth. The older bridge and lift system (installed in 1992) were salvaged and transported to Ketchikan. A 40 foot steel approach trestle and a 140 foot steel transfer bridge access a 60'x210' Flexifloat pontoon system with a raised steel platform and open grate deck. There is an intermediate ramp and apron on the southwest end of the float for a stern berth, and a ramp and apron on the northwest side for a side berth. Refer to the layout for identification of the various dolphin and restraint structures.
4. In 2011 routine maintenance revealed the level of ballast water could not be maintained in four modules near the middle of the float assembly. An inspection of the module interiors revealed the hull plate surrounding the lock castings of the end wall locks had cracked and the float modules were leaking seawater.

A subsequent analysis showed that design loads such as unbalanced ballast water or environmental loading exceeded the capacity of the end locks. An emergency repair was underway to remedy the leaks and strengthen the float assembly when a severe storm occurred. The end wall locks of the weakened modules were damaged further; completely separating the locks from the hull and deck (8). The float assembly developed a concave downward profile (hump back) and gaps opened up between the individual trestle spans of the stern berth approach. The leaking modules were repaired and ballasted (Project 69617), and the gaps between the spans returned to their normal width. To strengthen the float assembly plate girders were installed to the exterior face of the float modules and tubular trusses were installed in the moon pools between the float modules. The top and bottom components of the end wall locks were enclosed with steel plate on the interior of the module to isolate the damage and make the module watertight.

On the most recent above water survey, ballast water levels were checked in float modules 09, 10, 11, 29, 30, and 31 (repaired in 2011) and levels were lower than recorded in 2015 – which indicates the modules remain watertight. Freeboard measurements are much similar to values recorded in 2015. No cracks or rust staining was seen at any of the truss to float connections, which indicates the female lock castings have not been overloaded.

5. Divers found that several of the UHMW plastic facing panels for the float fender units are missing mounting bolts & studs. Restraint chains for the fender units, located at water line, are beginning to show brown corrosion – sign that the galvanizing has worn off.
6. Inspectors on the 2016 Fracture Critical Inspection found indications of weld cracks between floorbeams (FB) and girders (G):
 - (A) Between FB 9 & G2, 18-1/4" long indication along bottom flange of FB & wraps around seaward and shoreward corners (first reported in '12; crack has not propagated since '14)
 - (B) Between FB 9 & G1, 15-3/4" long indication along bottom flange of FB & wraps around seaward and shoreward corners (first reported in '14)
 - (C) Between FB 0 & G2, 1-5/8" long indication along weld on shoreward bottom corner of FB (first reported in '14)

Additionally, inspectors found 12-5/16" & 24-1/2" long weld indications between shoreward and seaward angle stiffeners, respectively, and the G2 interior web plate @ FB 9. Further visual inspection also found evidence of deformation and corrosion around the welded connection between the girders and end plates.

The 2018 FC inspection found that none of the above cracks had propagated in length.

7. Vehicles have inadequate space in making the turn when offloading from the side-berth approach dock to the transfer bridge. Container vans are currently limited to 34-feet in length to avoid conflict.
8. Access hatches to the girders of the transfer bridge have never been bolted shut, leaving them open to potential rain and saltwater intrusion.
9. All piling at this facility are galvanized. The adjacent City Dock has an impressed current system.
10. The most recent underwater inspection (UW) indicated that the piles anodes are either missing or buried in the channel bottom, and the few piles that do have anodes attached to them have a remaining 50% or less. Cathodic protection readings taken during the most recent above water inspection were - 1.05V and -0.67V for the flexifloats and piles, respectively. This indicates the floats are protected from corrosion, while the piles are not.

Observations (continued)

11. The plastic panels that comprise the walking surface in the covered pedestrian walkway on the bridge have warped.
12. Many welds have failed field coating repairs & are corroding on the surface within the heat-affected zone. There is a common area of corrosion on the seaward end of the bridge, between the bottom of the girder and the roller bearing plate. This area isn't welded, so condensation and moisture weep out between these surfaces showing up as rust on the edge and the beam below. This is the case on both bridge girders.
13. The facility requires power-washing regularly due to accumulating guano from shorebirds visiting the nearby fish processor waste discharge outlet as well as the algae growth.
14. Tubular bridge-rail mounted light fixtures all leak, and should be replaced with 'jelly-jars' as they burn out.
15. At the angle point in the approach dock, where the car deck is paved over with concrete for peds, there is a steel support cap (that ties into the column below) and concrete is spalled in a 6" diameter (roughly). The spalling is on the surface, above the cardeck, and is not structural.
16. The surface of the side-load transfer apron is thoroughly scraped up and roughly 60% of non-skid coating remains.

Inspection Summary		
Structure	Priority	Recommendations
<i>Category I - Safety Repairs</i>		
Flexi-floats	1	Monitor the condition of the float lock assemblies & inspect the ballast water levels.
<i>Category II - Rehabilitation Work</i>		
Transfer Bridge	2	Hire a QA firm to perform NDT on the weld crack indications. Inspect the floor beam indications every year until either (1) cracks are not propagating or (2) weld cracks are repaired.
Dolphin Fender Panels	3	Several of the fender panel UHMW mounting studs have sheared off due to lack of extra space in the bore hole for thermal expansion. Program a project to remove the fender panel UHMW wearing surface, re-bore holes 1/4" larger and re-weld studs where they've sheared off. Monitor the condition of the UHMW plastic on fender panels during the next inspection cycle.
Shorebird guano	4	The facility requires regular power-washing due to severe shorebird guano (from nearby seafood processor slimeline discharge) and algae growth. Continue to regularly power wash the terminal marine structures and analyze the effectiveness of a seasonal bird deterrent system.
Catwalk Lighting	5	Tubular bridge-rail mounted light fixtures all leak, and should be replaced with 'jelly-jars' as they burn out. They will not be used on future designs.
Weld coating repairs	6	Many welds are corroding on the surface due to failures in the field-applied weld coatings. A project should be programmed to make hot-stick repairs to welds and other damaged areas on galvanized steel.
Stern & Side Berth	7	Repair the damaged coating on the apron. Replace the old, decaying mooring lines on the floating fenders.
Transfer Bridge	8	Monitor the corrosion on the seaward end of the transfer bridge, between the bottom girder and roller bearing plate. Program a project to install watertight gaskets and bolt down both girders access hatches. Repair and monitor the broken conduits where damage is observed. Patch or otherwise repair the leaking waterline near the seaward end of the bridge. Monitor the condition of the plastic floor panels in the bridge's covered pedestrian walkway.

Inspection Summary (continued)		
Structure	Priority	Recommendations
<i>Category II - Rehabilitation Work</i>		
Pedestrian Walkway	9	Monitor the damage in the pedestrian walkway panels that were caused by the vehicles at the intersection between the side berth loading and the stern berth loading bridges.
Anodes	10	Program a project to install anodes on all steel pipe piling.
<i>Category III - Upgrades Needed</i>		
Side Berth Approach	11	A project to increase the turning radius between the side-berth approach dock and the transfer bridge is currently under investigation.