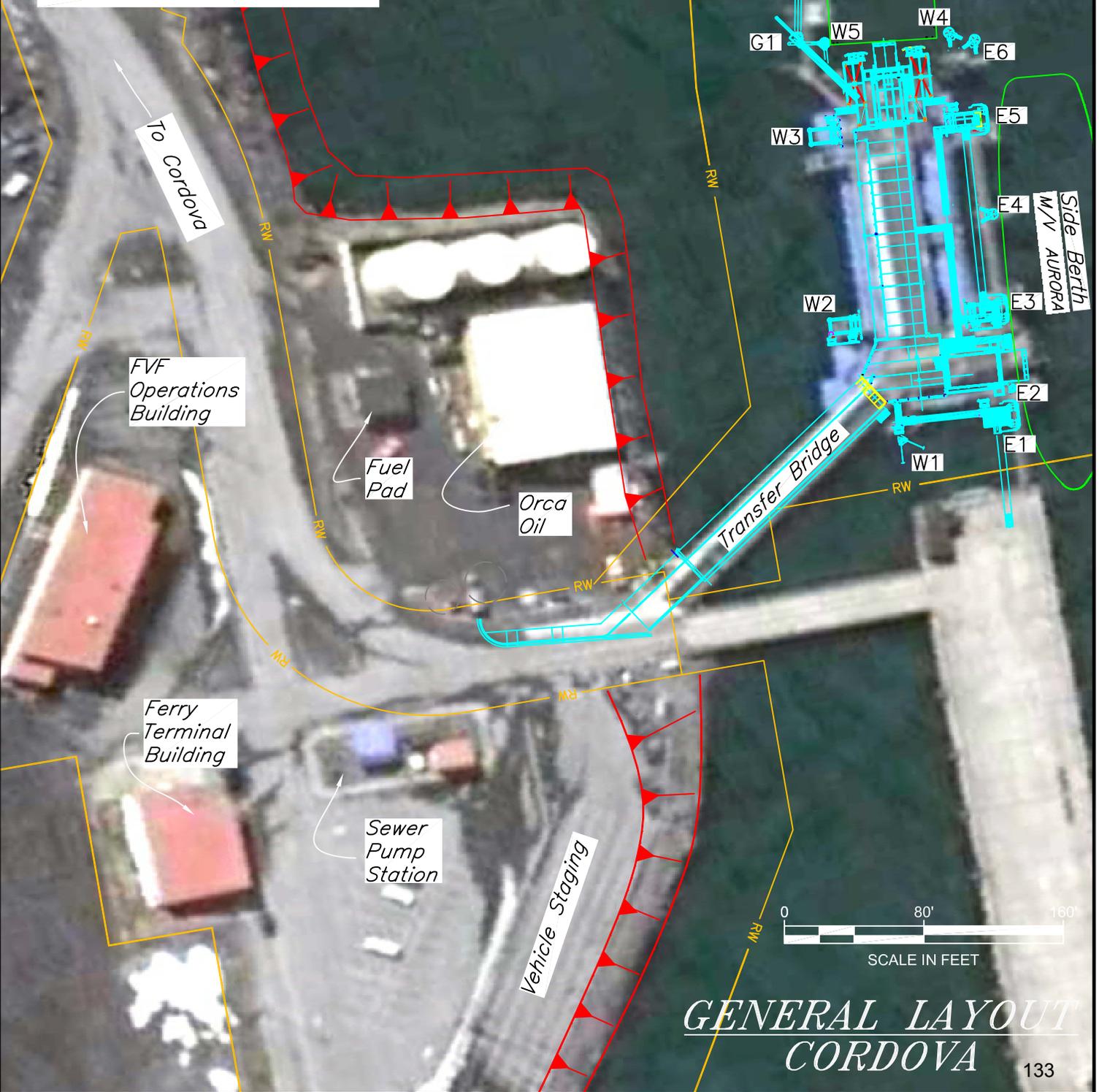


VICINITY MAP



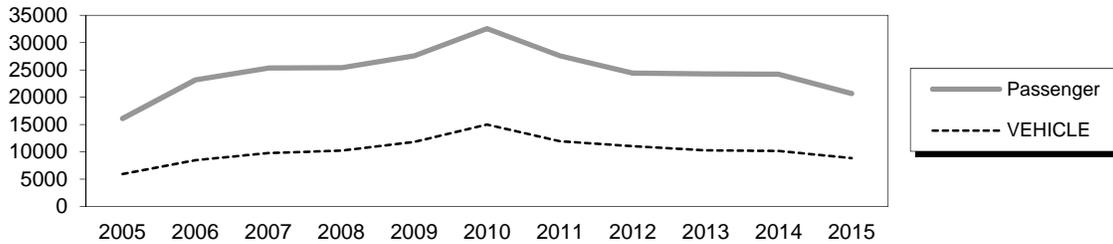
GENERAL LAYOUT
CORDOVA

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 26, 2014. The underwater survey occurred on September 20, 2013. The most recent fracture critical inspection occurred on September 9, 2014.

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
G1 = Gangway

V = Vertical Steel Pipe Piling
EGP = East Gangway Platform

B = Battered Steel Pipe Piling
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.

The concrete sidewalk in front of the terminal building was damaged with many spalls due to poor concrete mix design, deicing chemicals and the freeze-thaw cycle. Most of this sidewalk was replaced with new concrete in 2014.

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.

Observations (continued)

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.

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. Project 69617 added internal and external structural reinforcement frames to replace the structural capacity of the failed float locks. Welding repairs inside the floats was also performed to stop the leaks from the damaged locks. Construction was completed in December of 2011.

The flexi-float repairs made in 2011 are operating well & in good condition. 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.

5. Magnetic particle (MP) testing, performed during the 2014 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 (was 12" long in 2012 – crack has propagated 6-1/4")

(B) Between FB 9 & G1, 15-3/4" long indication along bottom flange of FB & wraps around seaward and shoreward corners (this is new within the past 2 year inspection cycle)

(C) Between FB 0 & G2, 1-5/8" long indication along weld on shoreward bottom corner of FB (this is new within the past 2 year inspection cycle)

Additionally, MP testing found 12-5/16" & 24" 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. All weld cracking and plate deformation in the girders, floor beams and end plates are new findings occurring between the 2010 & 2012 FC inspections, coinciding with the winter storm damages in 2010-11.

6. During their annual work trip in May, 2012 the AMHS Maintenance crew noticed that the LT girder roller bearing, on the seaward end, lacked any clearance between roller and vertical stiffener plate. Upon disassembly they found that the bronze bushings were completely worn through and that the weld had failed between the roller shaft and the roller vertical end plate. They replaced the worn bronze bushing onsite, providing 1/8" clearance between roller and stiffener. A new shaft and roller assembly were machined and installed in 2013.
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. All paint systems are in good condition. The transfer bridge has a Sherwin Williams moisture cure coating system that had problems with the application and should be monitored for performance. A waterline leak was found during the 2009 inspection, on the seaward end of the transfer bridge. Access hatches to the girders of the transfer bridge have never been bolted shut, leaving them open to potential rain and saltwater intrusion.
9. The mooring structures and walkways are all new and have galvanized open steel grating. The 'goofy foot' mooring padeye was bent in 2007 when the Chenega pulled away from the dock with her bowline still fastened. The padeye still functions normally.
10. In November 2005, severe storms induced large float movements, which ultimately caused damages to the grating on gangway platforms for Structures E1, E3 and E5. The grating on these gangway platforms were replaced and reinforced. No new damage was noted. All piling at this facility are galvanized. The adjacent City Dock has an impressed current system.

Observations (continued)

11. 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 -0.95V and -0.67V for the flexifloats and piles, respectively. This indicates the floats are protected from corrosion, while the piles are not.
12. On the side berth, one of the support tubes for the moveable platform has a vertical crack, likely from confined ice pressure. The plastic panels that comprise the walking surface in the covered pedestrian walkway on the bridge have warped. Terminal personnel have installed a wood plank with rope hand rails from dolphin W8 to W9, most likely to access the top of W9 for changing the red navlight. There is a 3-inch gap between sections of open-deck grating on the platform to a dolphin access gangway.
13. 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. Approach platform base plates were not painted during the 2011 project and are freely corroding.
14. 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.
15. Tubular bridge-rail mounted light fixtures all leak, and should be replaced with 'jelly-jars' as they burn out.
16. There is a fuel line that runs along the north side deck of the approach trestle. It snakes up between the transition plates for the bridge and ped walkway from below.
17. 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.
18. The surface of the side-load transfer apron is thoroughly scraped up and roughly 60% of non-skid coating remains. In some places the scratches have made it down to bare steel and show light surface rust. This is likely due to bottoming out of vehicles during loading of the vessel.
19. The access stairway from the bridge to the pontoon was once welded at the lower supports to the pontoon. These welds were ground off and now the steel stringers bear directly on the float.
20. On the moveable platform, the hydraulic cylinders are rusted, likely due to their proximity to spray and wave action along the edge of the pontoon. The piston is in the 'fully retracted' position, with respect to the shaft, so the minor amount of corrosion is not an operational issue.
21. On the apron hanger pin lock actuator device mounted below deck, the spring is freely corroding. The cable fork swages also display moderate surface corrosion.
22. Collapsed joint seals are located at several locations throughout the transfer bridge grating of the stern berth loading facility.

Inspection Summary

Structure	Priority	Recommendations
<i>Category I - Safety Repairs</i>		
Maintenance Shop	1	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 lift gate to provide a safer method of transferring materials in the garage.
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.
Flexifloats	3	Monitor the condition of the float lock assemblies & new brace frames.

Inspection Summary (continued)		
Structure	Priority	Recommendations
<i>Category II - Rehabilitation Work</i>		
Movable Platform	4	Repair weld the cracked tilt frame post tube, and drill (2) 3/8 diameter drain holes 4" from the base of each vertical tube on opposing sides of each tube. Also, monitor the corrosion of the hydraulic cylinder and components/ weldments on the movable platform.
Dolphin Access Gangway Platform	5	Install a small section of grating between the gap in sections of open-deck grating on the platform to a dolphin access gangway or move existing panels closer to eliminate gap.
Shorebird guano	6	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	7	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.
Dolphin Fender Panels	8	Several of the fender panel UHMW mounting studs have sheared off due to lack of extra space in the bore hole for thermal expansion. A project should be programmed to remove the fender panel UHMW wearing surface, re-bore holes 1/4" larger and re-weld studs where they've sheared off. The condition of the UHMW plastic on fender panels should be monitored during the next inspection cycle.
Weld coating repairs	9	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.
Terminal Building & Uplands	10	Re-key the building locks. Replace the damaged sections of guardrail in the staging area.
Side Berth	11	Repair the damaged coating on the apron. Replace the old, decaying mooring lines on the floating fenders.
Approach Fuel Line	12	The fuel line running along the north side of the approach deck should be fastened securely to the lower bridge rail, and should make a more secure exit between the transition plates.
Pontoons	13	Program a project to repair the pontoon coating and install UHMW pads beneath the access stairway from the bridge to the pontoon stair supports.
Transfer Bridge	14	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.
Apron	15	Monitor the non-skid coating loss and gouging of the apron surface. Monitor the corrosion of the apron hanger pin lock actuator device and components/weldments.
Stern Berth	16	Replace the mooring lines on the floating fender mooring crowns.
Dolphin W9	17	Install another pad eye at W9 and re-install missing bolts from the exterior flange plate.
Pedestrian Walkway	18	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.
Intermediate Ramp	19	Replace missing bearing pads underside of the intermediate ramp platform at the side berth loading facility.
Sewer Pipe	20	Fix the loose stainless steel sewer pipe straps near W2.
Anodes	21	Program a project to install anodes on all steel pipe piling.
<i>Category III - Upgrades Needed</i>		
Side Berth Approach	22	A project to increase the turning radius between the side-berth approach dock and the transfer bridge is currently under investigation.