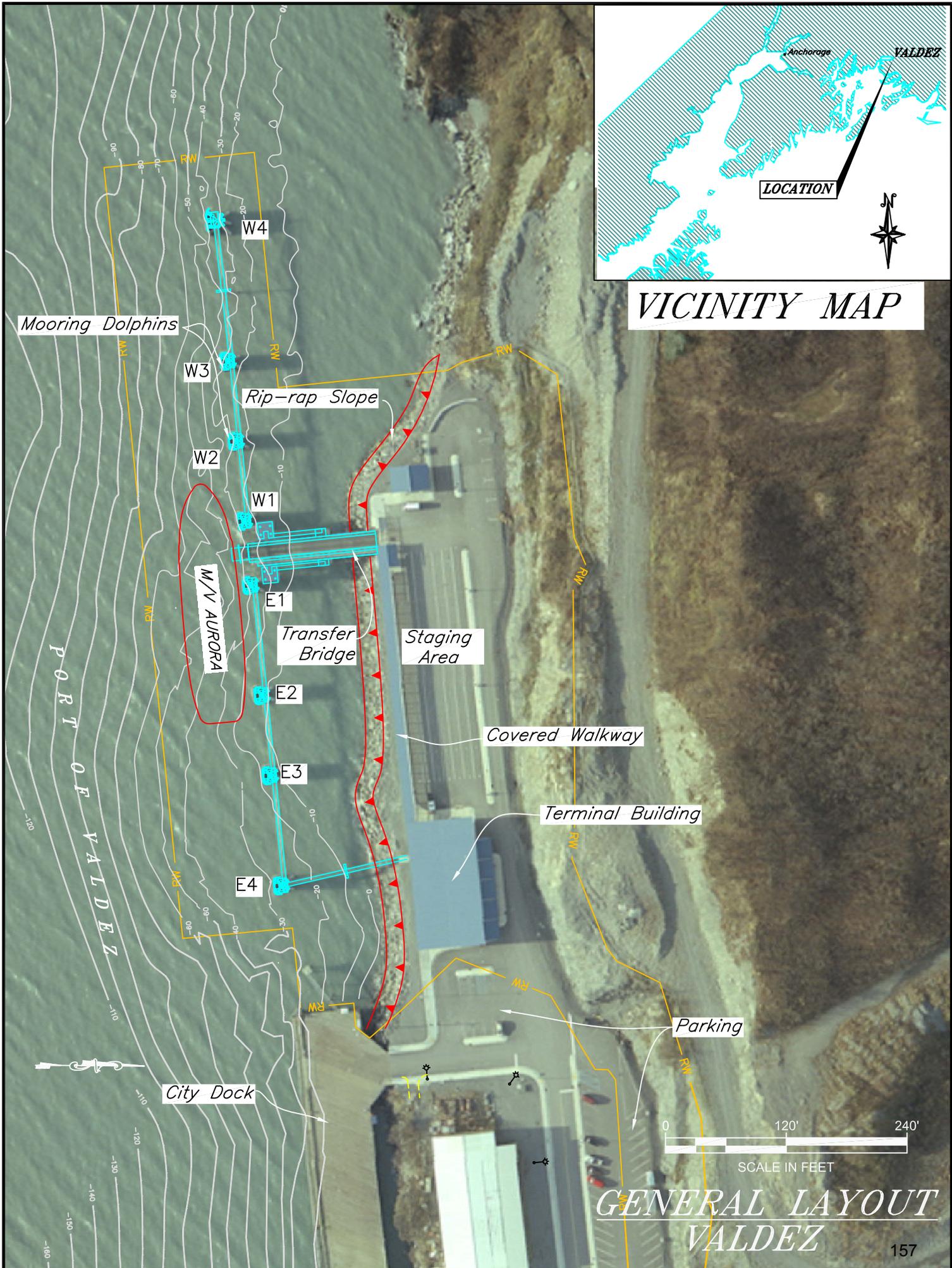


VICINITY MAP



GENERAL LAYOUT VALDEZ

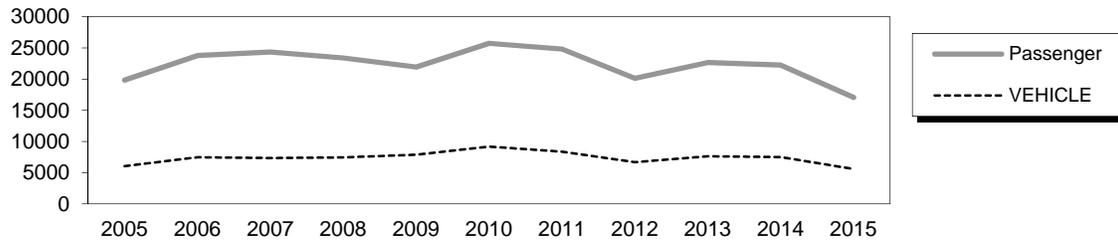
Valdez Ferry Terminal

520 Ferry Way

Owner: State of Alaska

Terminal Manager: Allen Chafin, 907-835-4503

Terminal Description: Valdez is a side-loading facility consisting of a dedicated staging and parking areas, terminal building, covered pedestrian walkways, steel transfer bridge with a cable supported bridge lift (Syncrolift) system, eight steel pile dolphins and catwalks/gangways for line-handling access. The past 10 years of total passenger and vehicle traffic at Valdez is shown below.



The most recent above water survey was completed on August 25, 2014. The underwater inspection occurred on September 15, 2012. The most recent fracture critical inspection occurred on September 7, 2014.

Vessels	
Name	Berthing, Alignment
Aurora/Kennicott	Port/Starboard
FVF	Starboard

Tidal Data (MLLW 0.0 feet)	
EHW	16.5
MHHW	11.8
MHW	10.9
ELW	-6.0

Terminal Building	
Year Built:	2006
Square Footage:	4500 s.f.
Heating System:	Furnace
Fuel Storage:	UST
Fire Protection:	Alarm Pyrotronics
Condition:	New

Generator & Building	
Year Built:	2006
Square Footage:	300 s.f.
Heating System:	Electric
Fuel Storage:	AST
Fire Protection:	Halon
Condition:	New

Uplands	
Short-Term Parking:	6 cars, 2 hcp
Long-Term Parking:	38
Staging Area:	1500 lineal feet; 250 lineal feet-buses/trucks
Paint Striping:	Yes
Driving Surface:	Asphalt

Utilities		
	at Terminal	at Ramp
Electrical:	Yes, city & backup power	
Water:	Yes	Yes
Sewer:	Yes (City)	Yes
Telephone:	Yes	Yes
Fuel:	Yes, UST	No
Wireless Bridge:	Yes	-

Vehicle Transfer Bridge - #1429	
Type:	21' x 125' steel plate girder
Year Built:	2004
Shoreward support:	Concrete abutment
Seaward support:	Steel Lift Beam-Syncrolift
Coating:	Wasser Paint
Pedestrian Access:	Covered walkway, guardrail separation
Lighting:	Overhead fixtures
Condition:	New
Load Posting Sign:	N/A
Original Design Load:	HS 25

Dolphins								
Dolphin	Dolphin Piles	Fender Support	Fender Face	Anodes	Built	Cond.	Hawse Extensions	Notes
EG	1V	-	-	Yes	2004	New	Yes	
E4	2B, 2V	Hanging	UHMW	Yes	2004	New	Yes	Red navlight
E3	2B, 2V	Hanging	UHMW	Yes	2004	New	Yes	
E2	2B, 2V	Hanging	UHMW	Yes	2004	New	Yes	
E1	2B, 2V	Hanging	UHMW	Yes	2004	New	Yes	
ET	4V	-	-	Yes	2004	New	-	
WT	4V	-	-	Yes	2004	New	-	
W1	2B, 2V	Hanging	UHMW	Yes	2004	New	Yes	
W2	2B, 2V	Hanging	UHMW	Yes	2004	New	Yes	
W3	2B, 2V	Hanging	UHMW	Yes	2004	New	Yes	
WG	1V	-	-	Yes	2004	New	-	
W4	3B, 3V	Hanging	UHMW	Yes	2004	New	Yes	Red navlight

Catwalks / Gangways									
#	From Struct.	To Struct.	Length / Style / Main Members	Built	Safety Chains ?	Cond.	Lighting	Notes	
C1	Shore	EG	50' / Catwalk / 10"x10" Tube Girders	2004	Yes	New	Tubuloid		
C2	EG	E4	64' / Catwalk / 10"x10" Tube Girders	2004	Yes	New	Tubuloid		
C3	E4	E3	99' / Catwalk / 10"x10" Tube Girders	2004	Yes	New	Tubuloid		
C4	E3	E2	69' / Catwalk / 10"x10" Tube Girders	2004	Yes	New	Tubuloid		
C5	E2	E1	99' / Catwalk / 10"x10" Tube Girders	2004	Yes	New	Tubuloid		
C6	E1	ET	9' / Catwalk / 2.5"x2.5" Bottom Chord	2004	No	New	None		
G1	ET	EBP	44' / Gangway / 2.5"x2.5" Bottom Chord	2004	No	New	Tubuloid		
G2	WT	WBP	44' / Gangway / 2.5"x2.5" Bottom Chord	2004	No	New	Tubuloid		
C7	WT	W1	9' / Catwalk / 2.5"x2.5" Bottom Chord	2004	No	New	None		
C8	W1	W2	69' / Catwalk / 10"x10" Tube Girders	2004	Yes	New	Tubuloid		
C9	W2	W3	69' / Catwalk / 10"x10" Tube Girders	2004	Yes	New	Tubuloid		
C10	W3	WG	64' / Catwalk / 10"x10" Tube Girders	2004	Yes	New	Tubuloid		
C11	WG	W4	64' / Catwalk / 10"x10" Tube Girders	2004	Yes	New	Tubuloid		

LEGEND

ET = East Lift Tower
G1 = Gangway

V = Vertical Steel Pipe Piling
EG = East Gangway Dolphin

B = Battered Steel Pipe Piling
WBP = West Bridge Platform

Terminal Projects			
Year	Project #	Project Name	Description
1963	WM 63419	Valdez Ferry Terminal Facilities	Original stern-loading terminal construction consisted of uplands fill, three timber tidal ramps, and seven timber Duncan dolphins. Built next to the Valdez Boat Harbor pre-Good Friday Earthquake.
1968	3-68419	Valdez Ferry Terminal	New terminal construction, adjacent to the City Dock, consisting of new terminal building, two timber tidal ramps, four steel pipe pile and concrete capped breasting dolphins and two steel pipe pile and concrete capped mooring dolphins, with four timber access catwalks.
1987	RS-0400(2)	Valdez FT Rehabilitation	Replace timber tidal ramps and timber support piles with steel tidal ramps and steel support piles. Installed water, shorepower and illumination upgrades.
2004	75098 & 73652	Valdez FT Replacement	Demolished the existing stern-berth. Constructed new side-loading terminal facility consisting of terminal building, new uplands parking and staging areas, steel transfer bridge with Syncrolift system, and 8 breasting dolphins with catwalk access.
2009	69050 / SHAK-0005(575)	Valdez - Ferry Dock Hoist Upgrade	Replaced the existing relay-based control panel for the transfer bridge lift system with a PLC-based control panel.
2009	73076	Valdez FT Security Upgrades	Installed security cameras on exterior of terminal building, in the staging area and at dolphins on either side of the transfer bridge. Cameras are tied in to the AMHS security network.

Observations

- The concrete sidewalk between the maintenance building and the transfer bridge is heavily scraped from snowplows pushing snow along the sidewalk and over the edge of the slope. There is a weight and length scale located on the north side of the terminal building for automated measurements of vehicles. The plastic wall covering in the terminal building has warped due to heat reflected from sunlight through the windows. Sections forward of the bathroom entrance are okay.
- The shoreward bearings for the transfer bridge are hinges welded to the bottom flange of each girder. In March of 2014, the hinges were damaged when the bridge was lowered onto a frozen pile of snow and ice, created by a leaking waterline. The ice pile acted as a fulcrum prying the hinges off the abutment. Emergency repairs were conducted in the field within a month to weld wider base plates to the hinges and anchor bolt into the concrete abutment. This repair is permanent and performing well in the field.

The crew expressed having regular issues during loading and unloading operations of long wheel base vehicles due to having too small of a turning radius. One of the primary concerns is a narrow apron and railing that limits maneuverability.
- The concrete bridge abutment was first noted as undermined in 2006. The construction drawings depict a 6"-thick layer of rock spalls beneath the abutment, with riprap piled ~12" above the front edge of the abutment toe. There is clearly a gap, ranging from 2-6" high, full-length and width, beneath the concrete abutment.
- The bridge uses a Syncrolift bridge lift system (electric winches with wire rope on both sides) to lift the seaward end of the bridge through the 20 foot tidal range. The apron is adjusted with hydraulic cylinders mounted on either side of the apron.

The non-skid coating on the apron has been scraped off in the middle due to low clearance vehicles bottoming out. The bridge has to be lowered and raised several times during loading and unloading operations to accommodate vehicles with low clearance.

The right syncrolift winch support beam was damaged in the winter of 2006 as a result of a frozen high-limit switch. The other side lowered while the right side stayed fixed, effectively transferring the

Observations (continued)

entire bridge load to this single support. The flange of the west lift support beam was bent upwards 3/8" at the seaward, right side bolted connection. Maintenance repaired this by installing a shim in the gap between the winch connection plate and the support beam.

Perlson Shiplift was hired by AMHS Shoreside Maintenance to provide inspection services of the syncrolift system in 2010. The final report noted that repairs to the frame of both hoists (from '06 damage, noted above) were temporary and required a permanent fix. They recommended replacing the section of damaged top flange with a new piece of plate.

Controls for both the bridge lift system and the apron are located on the seaward end of the covered walkway. The original solid-state controls were replaced with digital controls in 2009. The new controls are backed up by software that has limits on the freedom of movement between the two lift towers. Faults are logged online, and major faults generate an email to AMHS Shoreside Maintenance.

On the lift tower enclosures, most of the bolts that fix the steel frame to the concrete cap have backed out from not being epoxied in place, or the bonding agent failed. The entire surface of the lower sheave pin on the seaward bridge lift beam is openly corroding (both left and right sides).

There is localized paint corrosion on the underside of the girders 1, 2, 3, and 5.

5. The access gangways do not have angle treads, which make it difficult to climb during low tide. The roller bearings in these gangways are corroding, neither have grease fittings.
6. The 2012 underwater inspection (UW) noted that all of the support piles have light to moderate marine growth from the low water mark to the channel bottom. The protective coating is in good condition. All of the support piles have anodes, with roughly 75-85% remaining.
7. The dolphin caps were re-coated with a non-skid epoxy and are in good condition. Recoating of the caps was necessary as the initial coating had failed during construction.
8. Most of the non-skid coating application has failed on the bridge apron transition plate. There are several areas in which the paint has failed on the left side of the bridge apron, near the hinge beam-lift tower brace connection. The coating has failed on the inner flange of the sewer line valve at the bridge ramp. There are several areas in which the paint has failed on the left side of the bridge apron. The apron's hydraulic cylinders have leaky seals, and may require rebuilding soon.
9. The lowest donut fender bracket connection on the RT side (facing seaward) of dolphin E3 is broken or lost a mounting bolt.
10. The cover plate over the king pile was forced off the welded connection to the east gangway access dolphin (EG) cap assembly, exposing the interior of the king pile and bending a plate member of the cap above.
11. There are missing bolts on the UHMW panels on the following dolphins: W4: approx. 6 bolts, W2: approx. 32 bolts, 2 panels warping, W1: approx. 28 bolts, E1: approx. 16 bolts, 1 warped panel, E2: approx. 4 bolts, E3: approx. 25 bolts, 1 warped panel, E4: approx. 24 bolts, 2 warped panels
12. The splice in the mooring line for the Chenega bears and rubs directly against the hawse rail, causing high chafe.

Inspection Summary		
Structure	Priority	Recommendations
<i>Category I - Safety Repairs</i>		
Syncrolift	1	Perform permanent repairs to lift hoist frame, both LT & RT towers. Repair the broken grout leveling pads as well. Installing the PLC system should solve most of syncrolift reset problems. Train all terminal personnel to properly reset the syncrolift and add the procedure to standard training manuals.
Bridge Abutment	2	Place shot rock fill beneath the abutment, and add riprap scour protection in front of the toe at least 12" high, full-length.
<i>Category II - Rehabilitation Work</i>		
Bridge - shoreward bearing	3	Remove the sheared off bolt, grout the hole, re-drill and place new anchor bolt.

Inspection Summary (continued)		
Structure	Priority	Recommendations
<i>Category II - Rehabilitation Work</i>		
Bridge Apron	4	Re-coat the apron transition plate with non-skid.
Concrete sidewalk damage	5	Talk to the plow truck driver about lifting the blade before pushing snow over the sidewalk. Fill-in the gouges with repair grout.
Terminal Building	6	Replace the warped plastic wall covering with thin veneer plywood or other. Consider installing a dual-signal wireless router for public & business Wi-Fi.
Bridge Ramp	7	Monitor condition of the inner flange of the sewer line valve at the bridge ramp.
Bridge Apron	8	Monitor the condition of the steel in these areas.
Lift tower enclosure	9	Re-install bolts that fix the lift tower enclosure to the concrete cap; epoxy in place.
Lift system - cable sheave pin	10	Replace the lower sheave pins on the seaward bridge lift beam with new hot-dip galvanized pins, or blast clean and spray metallize the existing pins.
Field-applied weld coating repairs	11	The field-applied weld coating is failing on the steel structures of the facility. Program a project to re-coat field-welds with zinc solder.
Anodes	12	Program a project to install anodes and bonding cables to all fenders.
Dolphin E3	13	Repair the damaged fender donut bracket.
Pedestrian Walkway	14	Monitor the crack in the plastic of the gerbil cage pedestrian walkway along the bridge.
Syncrolift	15	Monitor the condition of the broken grout pads beneath the syncrolift winch support beams; replace if they deteriorate further. Monitor the corrosion of the lower syncrolift sheave and bridge lift beam pins and program for NDT testing at the 10-year service mark.
Dolphin W2	16	Remove debris caught in the lower fender connection bracket.
Access Dolphin	17	Repair the pile cap that has pried off of the east gangway access dolphin.
Tubuloid Lights	18	Tubuloid light fixtures found on the railing are failing. Replace these with jelly-jars when they have failed.
Fender Panels	19	Remove the UHMW plastic, replace failed steel studs on fender panels, increase the bore hole in the UHMW, and set the UHMW back in place.
Handrails	20	Drill a 3/8" Ø hole 4" from the base of each vertical handrail pipe in catwalks and especially gangways for drainage.
Terminal Building	21	There is only one public drinking fountain in the terminal building, at the time of inspection the water fountain was inoperable. Program the water fountain to be fixed.
Bridge Apron	22	When funding is available, install rubber bearing pads on the apron to replace the wooden pads that are being used during the loading and unloading operations.
Bridge	23	Re-apply paint coating to areas of localized failure on the underside of the girders.
Concrete Abutment	25	Monitor the corrosion of the water pipe fittings inside the enclosure by the concrete abutment on the RT.
Dolphins	26	Monitor the corrosion of the donut bracket bolts on the cap side of the dolphin structures.
Syncrolift Gangways	27	Install a grease fitting, and grease the roller bearing for the syncrolift tower access gangways.
<i>Category III - Upgrades Needed</i>		
Bridge Apron	28	Program a project to install a wider apron with foldable railings to improve maneuverability for larger vehicles, also program a project to replace the hydraulic cylinders.
Gangways	29	Install gangway angle treads to improve surface traction when funding is available.