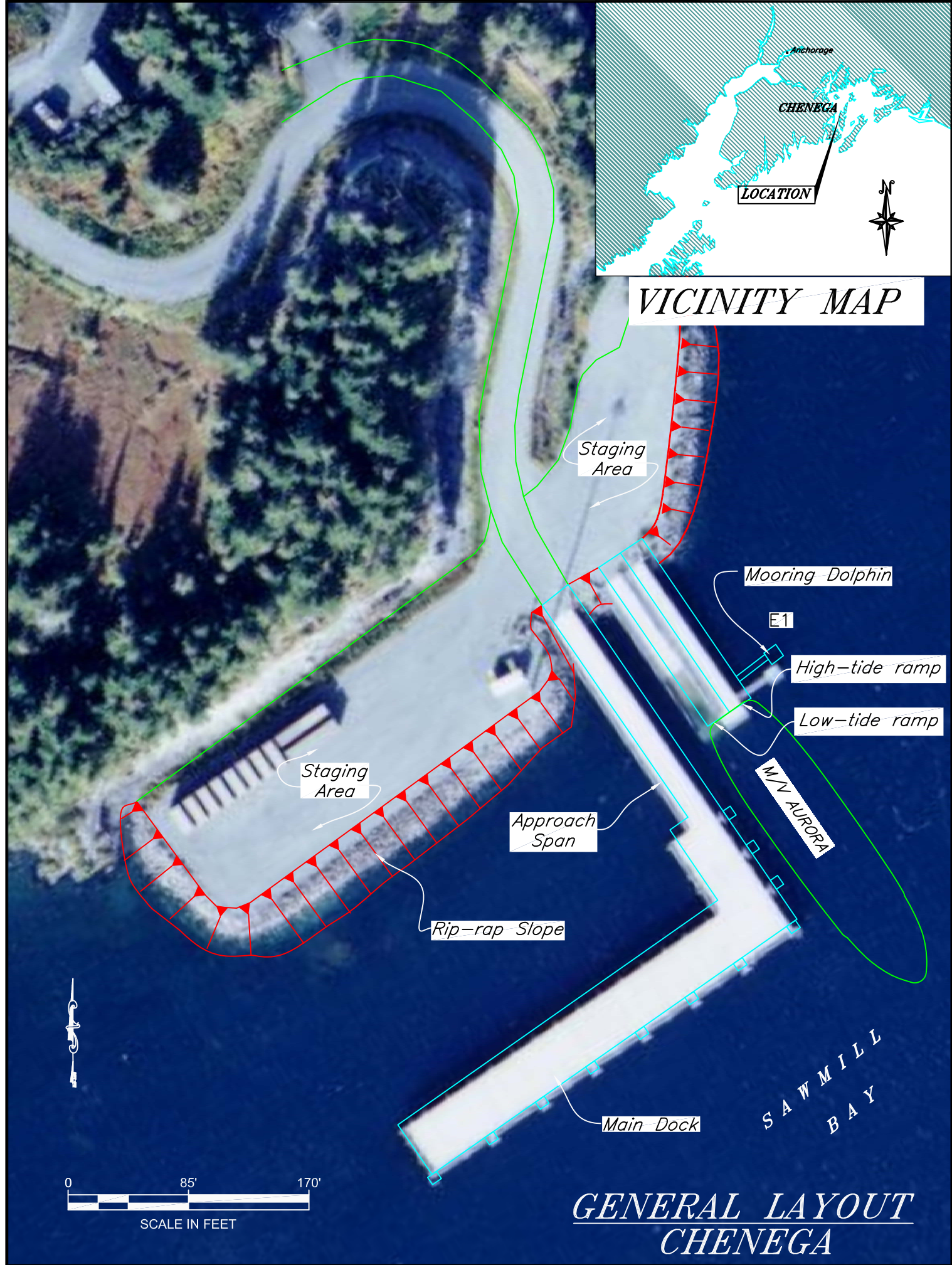


*VICINITY MAP*

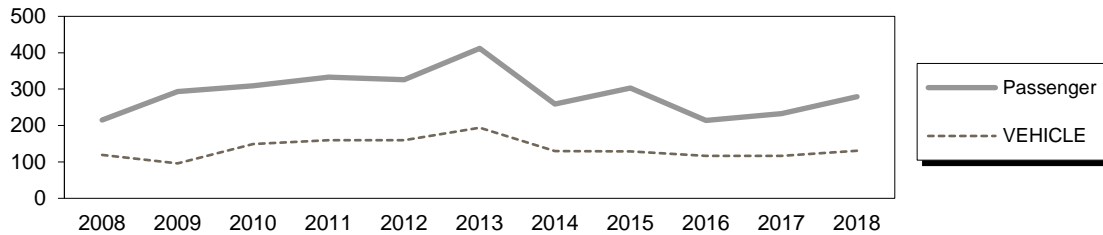


*GENERAL LAYOUT  
CHENEQA*

# Chenega Dock

**Owner:** North Pacific Rim Housing Authority  
**Contact Person:** Pete Kompkoff, 907-573-5132

**Terminal Description:** The Chenega dock and tidal ramps were originally constructed in 1995 to provide a terminal for the BARTLETT. The State of Alaska transferred ownership to the North Pacific Rim Housing Authority (NPRHA) in October, 1998. The Chenega facility consists of an approach, dock and two tidal ramps constructed of prestressed concrete panels welded to bridge beams supported by steel pipe piles socketed to the underlying bedrock. The M/V Tustumena has used the east face of this dock for moorage, while the M/V AURORA uses the tidal ramps located along the north face of the dock for stern loading. The past 10 years of total passenger and vehicle traffic at Chenega is shown below.



The most recent above water survey and fracture critical inspection occurred on August 22 & 17, 2018, respectively. The most recent underwater inspection occurred on August 4, 2018.

| Vessels   |                     |
|-----------|---------------------|
| Name      | Berthing, Alignment |
| Kennicott | Port/Starboard      |
| Aurora    | Stern               |

| Tidal Data (MLLW 0.0 feet) |      |
|----------------------------|------|
| EHW                        | 15.1 |
| MHHW                       | 12.6 |
| MHW                        | 11.8 |
| ELW                        | -4.0 |

| Generator & Building                     |  |
|--|--|
| This facility does not have a generator. |  |

| Utilities @ Dock                                   |  |
|--|--|
| This facility does not have utilities at the dock. |  |

| Tidal Ramp            |                        |
|-----------------------|------------------------|
| Dimensions:           | 22' wide x 230' long   |
| Year Built:           | 1995                   |
| Shoreward support:    | Concrete abutment      |
| Seaward support:      | Steel pipe piling      |
| Pile Coating:         | Galvanizing            |
| Anodes:               | No                     |
| Lighting:             | N/A                    |
| Condition:            | Good                   |
| Load Posting Sign:    | 20 Ton Axle/45 Ton Max |
| Original Design Load: | HS-25                  |

| Uplands             |        |
|---------------------|--------|
| Short-Term Parking: | N/A    |
| Long-Term Parking:  | N/A    |
| Staging Area:       | N/A    |
| Paint Striping:     | No     |
| Driving Surface:    | Gravel |

| Terminal Building                                |  |
|--|--|
| This facility does not have a terminal building. |  |

| Dock - #'s 184 & 185  |  |
|-----------------------|--|
| Type:                 | 40' x 300' Concrete Panel Dock;<br>(2) - 18' x 130' tidal ramps  |
| Year Built:           | 1995   |
| Support:              | Vertical & Battered Steel Pipe Piles   |
| Steel Coating:        | Galvanizing  |
| Fender Support:       | Steel Pin Piles  |
| Fender Face:          | 12" x 12" Douglas Fir  |
| Anodes:               | No   |
| Lighting:             | Tall Mast Light in parking lot   |
| Condition:            | Good   |
| Notes:                | Red navlight, southeast corner   |
| Load Posting Sign:    | 30 Ton Axle/45 Ton Max   |
| Original Design Load: | AASHTO HS-25/30 Ton Forklift<br>Axle load/250 psf Uniform<br>Load/40 Ton Mobile Crane w/<br>Crane Mats Centered on Girders |

| <b>Dolphins</b> |                      |                       |                    |               |              |              |              |
|-----------------|----------------------|-----------------------|--------------------|---------------|--------------|--------------|--------------|
| <b>Dolphins</b> | <b>Dolphin Piles</b> | <b>Fender Support</b> | <b>Fender Face</b> | <b>Anodes</b> | <b>Built</b> | <b>Cond.</b> | <b>Notes</b> |
| E1              | 2B, 1V               | -                     | -                  | No            | 1995         | Fair         |              |

| <b>Catwalks / Gangways</b> |                     |                   |                                      |              |                       |              |                 |              |
|----------------------------|---------------------|-------------------|--------------------------------------|--------------|-----------------------|--------------|-----------------|--------------|
| <b>#</b>                   | <b>From Struct.</b> | <b>To Struct.</b> | <b>Length / Style / Main Members</b> | <b>Built</b> | <b>Safety Chains?</b> | <b>Cond.</b> | <b>Lighting</b> | <b>Notes</b> |
| C1                         | TR                  | E1                | 25' / Catwalk / Pony Truss           | 1995         | No                    | Good         | None            |              |

#### LEGEND

V = Vertical Steel Pipe Piling

B = Battered Steel Pipe Piling

TR = Tidal Ramps

| <b>Terminal Projects</b> |                  |                            |   |
|--------------------------|------------------|----------------------------|---|
| <b>Year</b>              | <b>Project #</b> | <b>Project Name</b>        | <b>Description</b>  |
| 1995                     | N/A              | Chenega Dock & Tidal Ramps | Original construction of the dock and tidal ramps, uplands, lighting and electrical installations |

#### **Observations**

1. The dock is currently in fair condition. The dock driving surface is prestressed concrete panels, with a rough traffic surface, welded to the bridge superstructure. The ends of the pre-stressed strands in the deck are exposed and beginning to corrode. The deck closure pour at the end of the high tide ramp is cracked and spalled with heavy scaling at the west edge.

The red navigation light on the Southeast corner of the dock is broken and should be replaced or repaired. There is damage to the bullrails and some are missing bolts on the post base plate on the dock.

2. The bridge girders are continuous span, welded box beams. The bents are composed of pipe piles driven and socketed to the underlying bedrock, with welded box pier caps.

White rust coats 100% of the spray metallized coating on the steel pile caps and girders. The coating on roughly 50% of the field welds have failed and are corroding. The December 2003 underwater inspection reported minor corrosion of the galvanized piles at the field splices, field connections, and at isolated locations of mechanical damage. The 2006 fracture critical bridge inspection noted that the box beam girders are sealed and cannot be inspected. There is no cathodic protection system for the piling, however the galvanized coating appears to be adequate.

According to the most recent fracture critical inspection report, the girders exhibit several isolated areas of surface corrosion which vary in size from an inch to three square feet in diameter. The corrosion was identified mostly on the undersides of the box girders and bent caps, and at the bottom flange to cap welds.

3. The ends of the lower tidal ramp are very slippery due to marine growth. The marine growth needs to be removed periodically for safe loading off the AURORA's stern ramp. The fender is substandard for vessel loading as well.
4. The swinging bullrail on the dock, opening for the TUSTUMENA vehicle ramp, is operational and user-friendly.
5. The concrete panel joints on the high tide ramp and on the dock are delaminating and deteriorating.
6. The most recent underwater report noted that all of the vertical, battered and fender pipe piles exhibit 100% loss of galvanizing and are discolored from approx.. 2-feet above HTL to sea level, with 100% coverage of surface corrosion. These areas of corrosion did not exhibit any pitting or measureable section loss. From sea level to the channel bottom, the galvanizing was mainly intact with isolated areas affecting less than 5% of the surface area.

There were no sacrificial anodes or cathodic protection observed on the entire structure.

| <b>Inspection Summary</b>                |          |  |
|--|----------|--|
| Structure                                | Priority | Recommendations  |
| <i>Category I - Safety Repairs</i>       |          |  |
| Nothing required                         |          |  |
| <i>Category II - Rehabilitation Work</i> |          |  |
| Concrete dock panels                     | 1        | Clean and seal exposed steel on ends of precast concrete panels. Repair damaged closure pour on high tide ramp.  |
| Steel superstructure                     | 2        | Install anodes on all piling and repair the coating on field welds using Galvcon or similar products to extend the pile life. Drill and tap the inspection port holes in the box beam end caps.                        |
| Miscellaneous                            | 3        | The marine growth needs to be removed periodically on the tidal ramps.   |
| Concrete Panels                          | 4        | Monitor the concrete panel joints for delaminating and deterioration.  |
| Support Piles                            | 5        | Monitor the rate of corrosion in the support piles, PT strand end terminals (tidal ramp concrete decks) and fender mounting bolts.   |
| Electrical Conduits                      | 6        | Repair the broken electrical conduit beneath the LT side of the high tide ramp.  |
| Mooring Bollard                          | 7        | Repair the base plate on the mooring bollard.  |
| Navigation Light                         | 8        | Repair the red navigation light on the dock.   |
| Ramp & Dock Abutment                     | 9        | Monitor the ramp and dock abutment backwalls for erosion.  |
| Bullrails                                | 10       | Make repairs to the bullrails throughout the facility.   |
| <i>Category III - Upgrades Needed</i>    |          |  |
| AMHS Coordination                        | 11       | AMHS has a 5-year MOA for prioritized use of the dock for normal ferry operations. Continue to maintain an agreement with the NPRHA.   |
| Fender Panel                             | 12       | Program a future project to install a fender panel in front of the tidal ramps. The Aurora has a narrow tidal window to safely bear on the substandard rubber D-fender mounted to the leading edge of the tidal ramps. |