



Public Works Department Streets & Waterways Division



Mandalay Bay Annual Report

Presented by
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Construction & Maintenance Manager



Outline



1. **Waterways overview**
2. **History of assessment rates**
3. **20 year plan**
 - **Repair types & priorities**
 - **Work completed**
4. **FY04-05 Dredging Project**
5. **FY05-06 Plan & Budget**
5. **FY05-06 Guardrail Replacement Project**
6. **Planning for the Future**
 - **Known seawall maintenance**



Waterways Overview



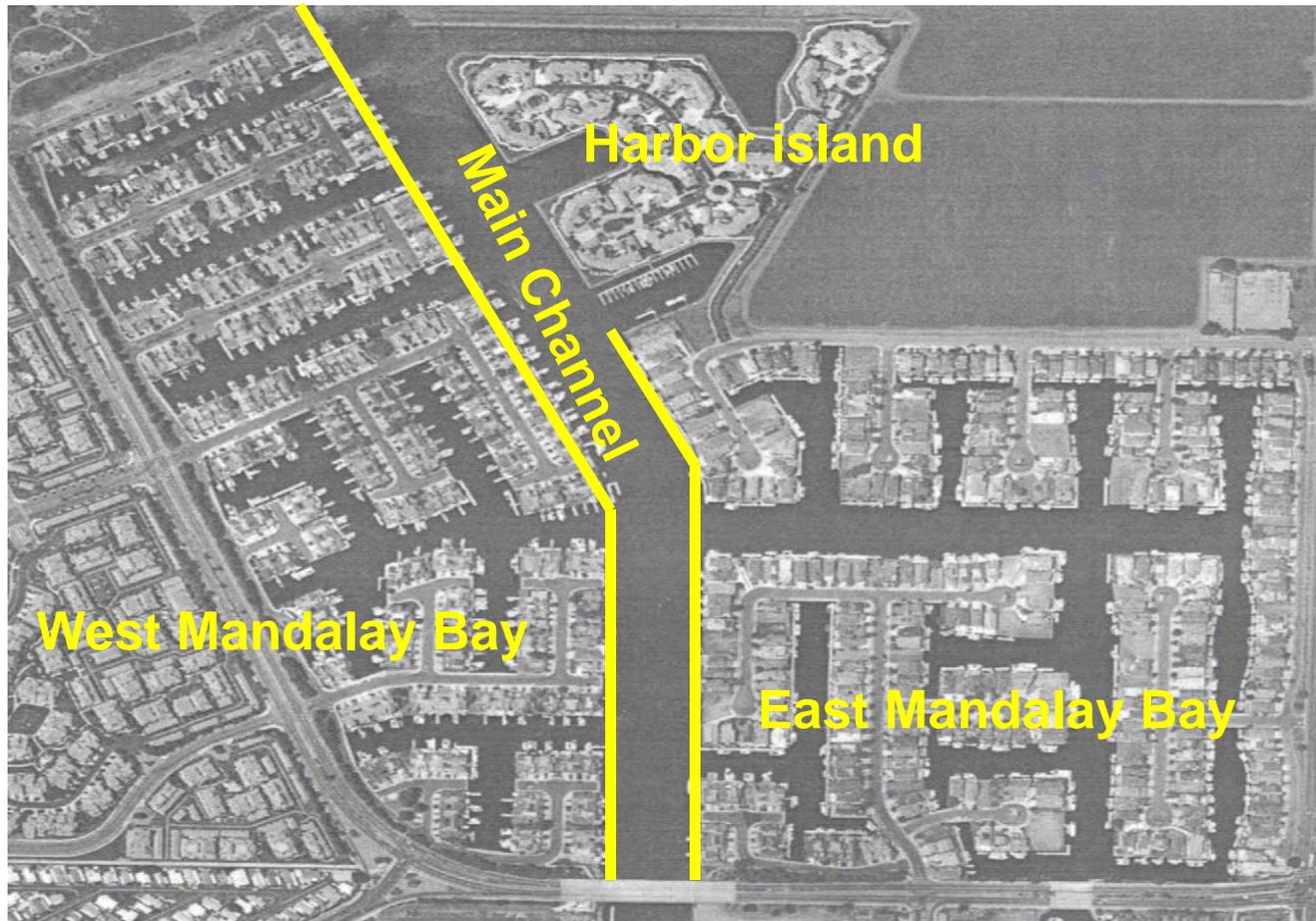
Mandalay Bay Facts



- ◆ **7.8 miles of seawall**
 - **3.4 miles Boise Wall**
 - **4.4 miles Zurn Wall**
 - **Estimated replacement cost of \$56,000,000 or 41,185 feet of seawall at \$1,359.72 per foot**
 - **3.4 miles of channels**
 - **Mandalay Bay 743 properties**
Harbor Island 132 properties



Site Map





Assessment District



Purpose

- Maintenance, repair, operation, cleaning, dredging and supervision of
- Waterway maintenance
- Maintenance resulting from discharge of the Oxnard West Drain
- Landscape Maintenance
- ◆ **Assessment calculation**
- ◆ Prior to 1978 (Proposition 13) - Based on a share of the total assessed valuation of the property and improvements
- ◆ 1978 to 1988 - Based on 1977-78 land value
- ◆ 1988 to present – Based on April 26, 1988 Engineer Report

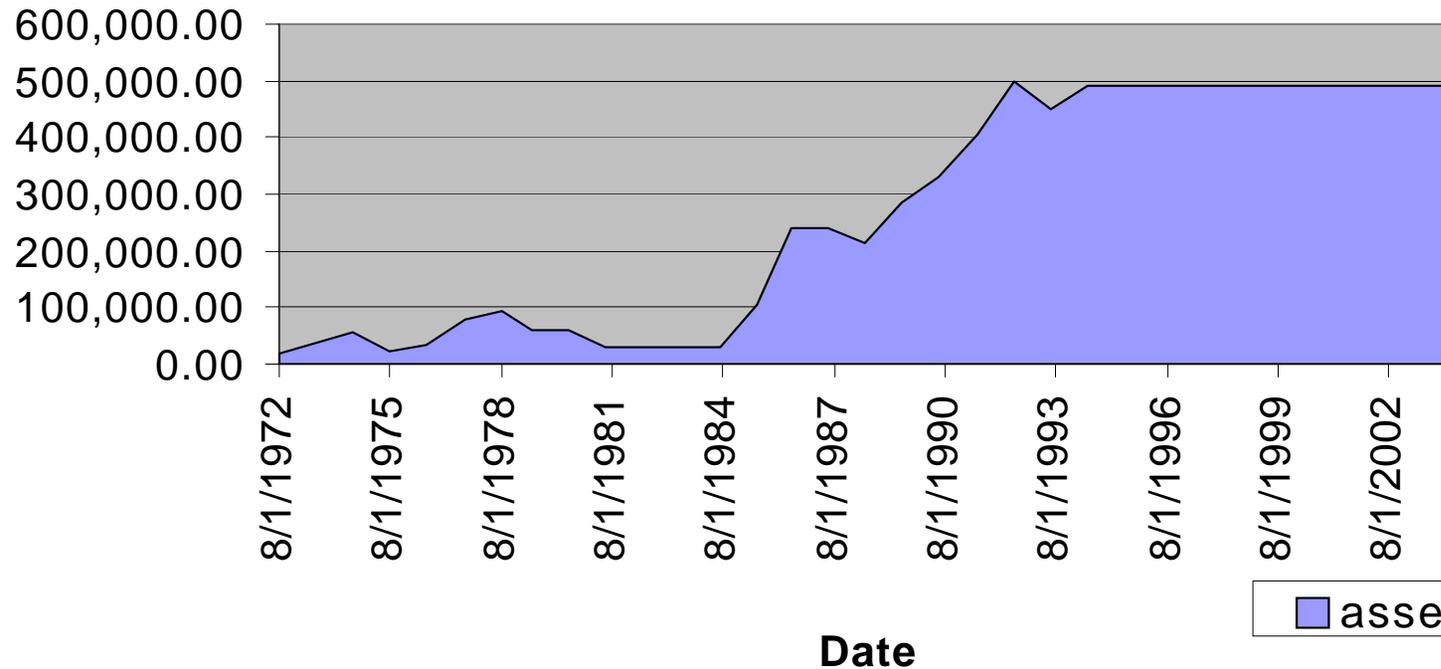


History of Assessment Rates



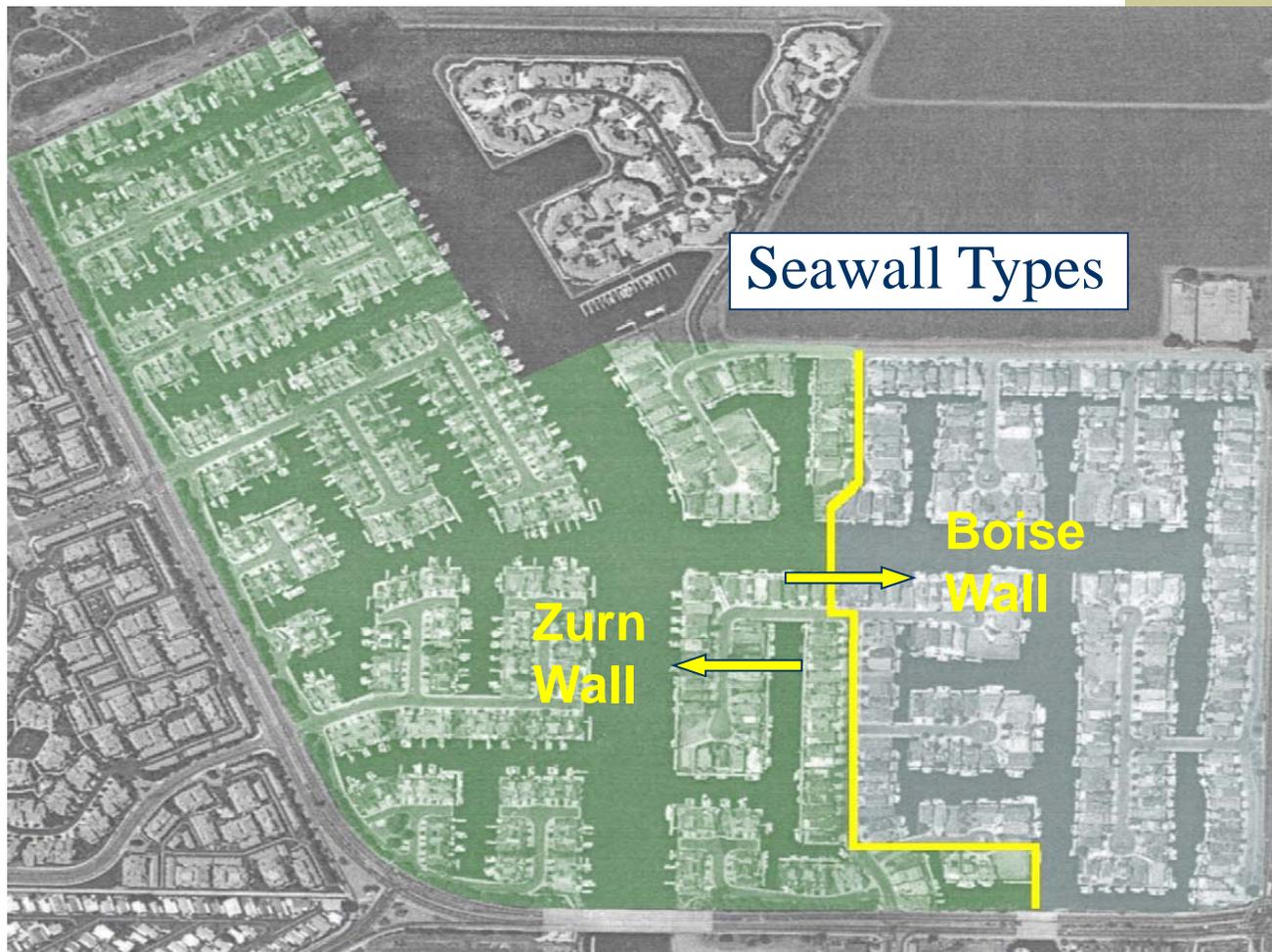
Waterway Maintenance District Assessments

Assessments



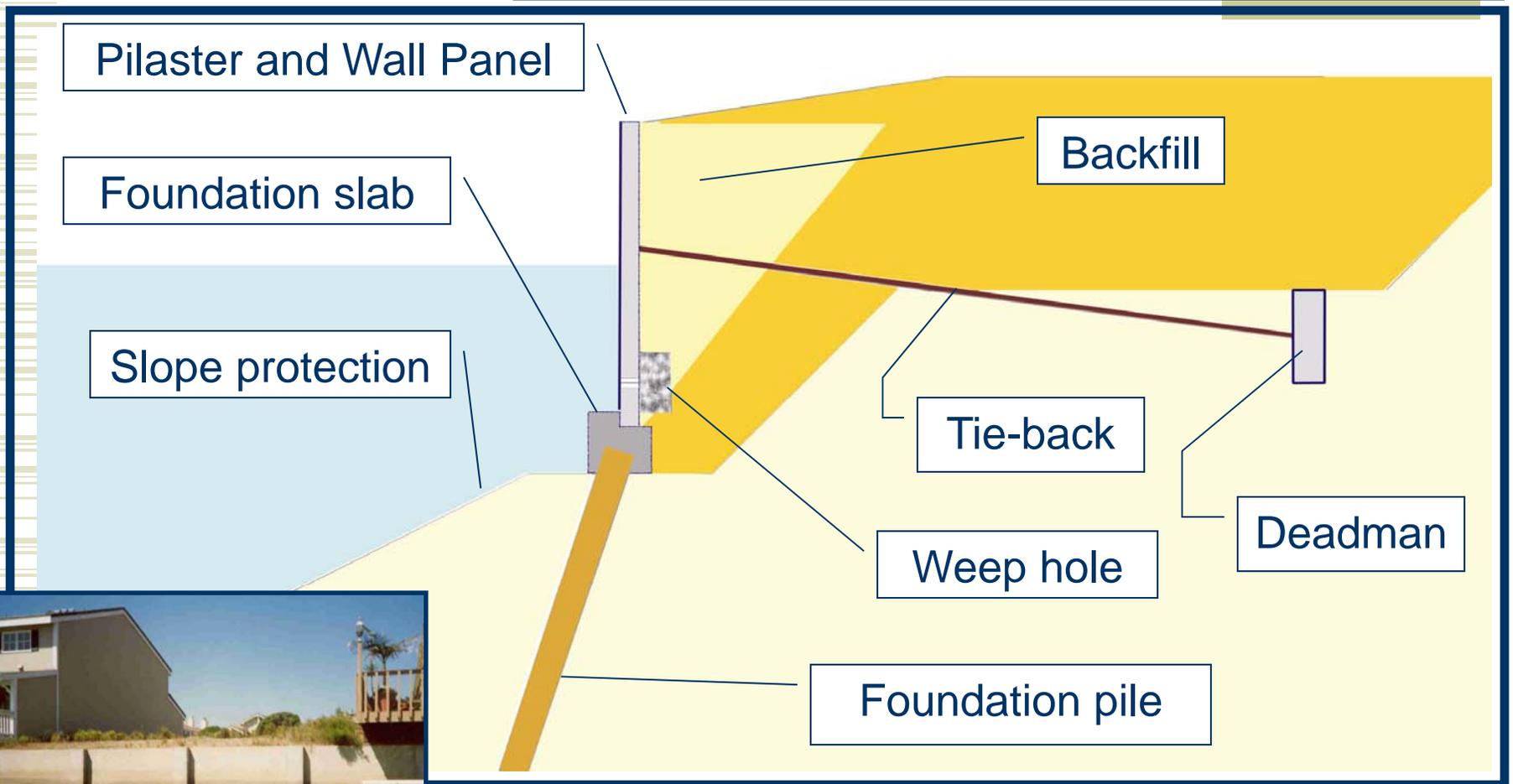


Seawall Types



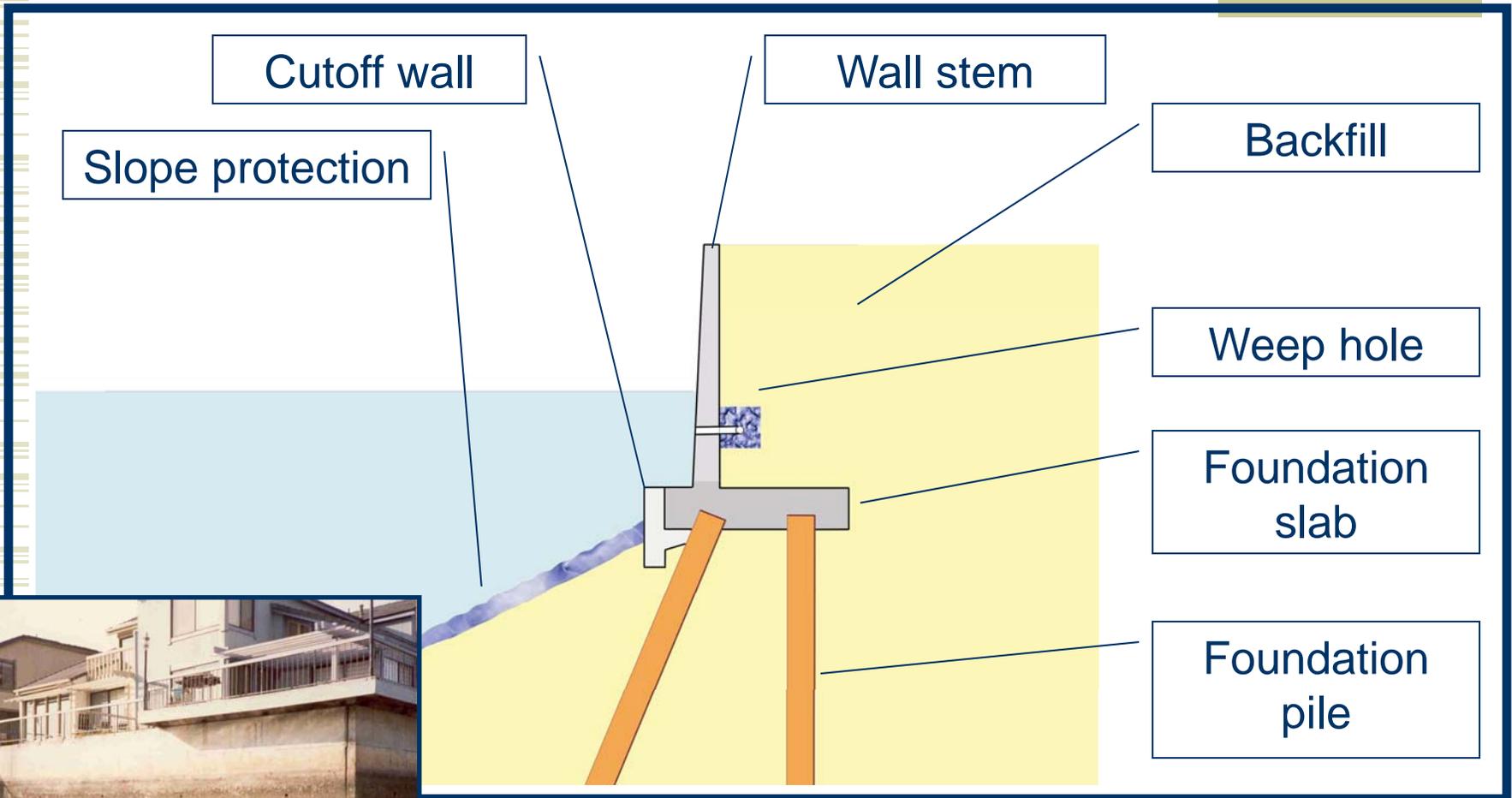


Boise Wall Nomenclature





Zurn Wall Nomenclature





20 Year Seawall Maintenance Plan



20 Year Seawall Maintenance Plan

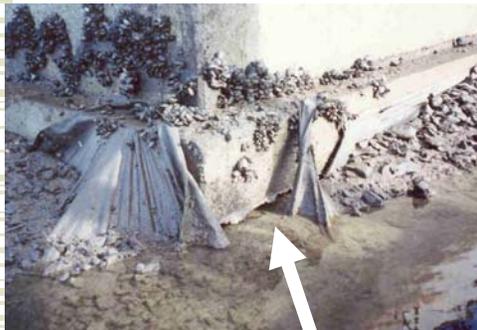


- ◆ **Begun in 1999**
- ◆ **6 Types of repairs in priority order**
 - 1 - Foundation & Slope Protection Repair
 - 2 - Boise Wall Pilaster Repair
 - 3 - Weep Hole Repair
 - 4 - Sink Hole Repair
 - 5 - Wall Panel and Joint Repair
 - 6 - Zurn wall stem crack repair

**Priority 1 work completed in
February 2003**



Foundation & Slope Protection Repair

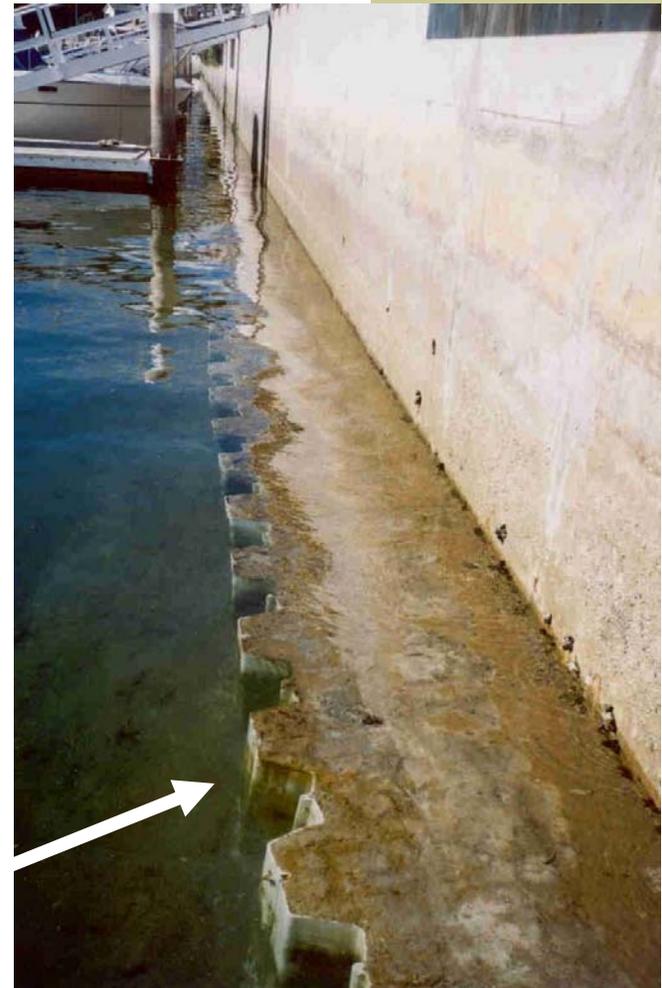


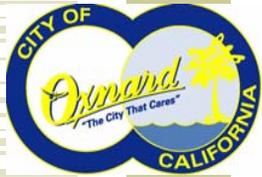
Bottom of foundation slab exposed



Hump in Fabriform slope protection

Repair foundation area with polyvinyl sheet pile cutoff wall with concrete seal

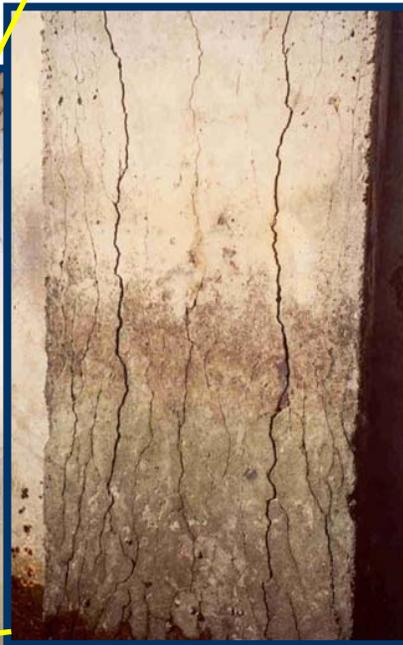




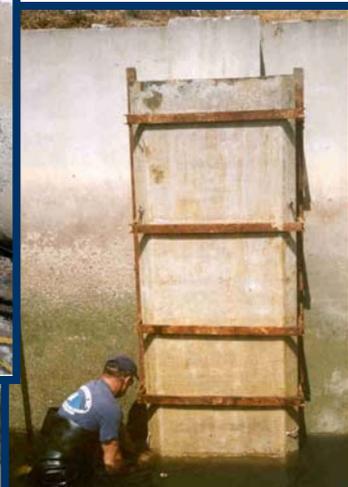
Boise Wall Pilaster Repair



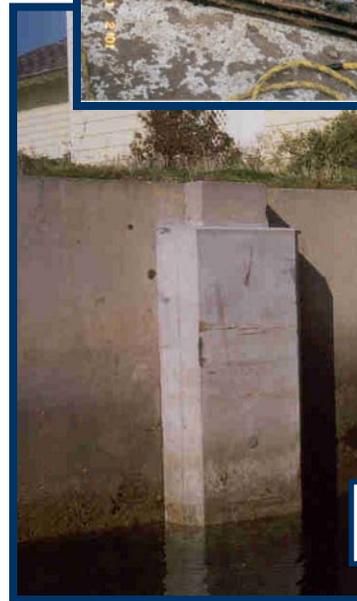
Typical deterioration



Reinforce with rebar



Form and pour concrete



Finished repair



Weep Hole Repair



Backfill leaks from weep hole and gap between pilaster and wall panel



Weep holes repaired with filter point inserts.
Pilaster gaps repaired with urethane grout



Sink Hole Repair



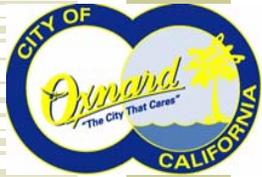
Small indication at surface



Excavate to uncover extent

Repair with sand/cement grout or gravel backfill



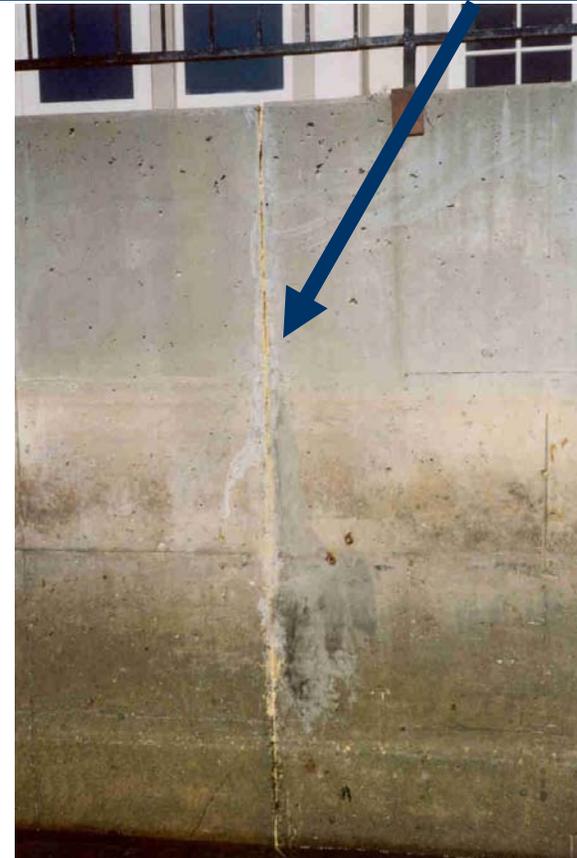


Wall Panel and Joint Repair



Typical Boise Wall panel crack

Zurn Wall joint repaired and sealed with urethane grout





Zurn Wall Stem Crack Repair



Before repair



After repair with urethane grout





Repairs completed since 1999



| Item | 1999 | 2000 | 2001 | 2002 | 2003 | Totals |
|-------------------------|-------|----------------|-------|-------|-------|---------|
| | | Number of Lots | | | | |
| Foundation Repair | | | 16 | 5 | 2 | 23 |
| Slope Protection Repair | 2 | 21 | 19 | 5 | | 47 |
| Sinkhole Repair | | 1 | | 6 | | 7 |
| Pilaster Repair | | 1 | 4 | 72 | 20 | 97 |
| Weep Hole Repair | | 52 | 44 | 26 | | 122 |
| Crack Repair | | | 4 | | | 4 |
| Guardrail Repair | | | | | 2 | 2 |
| Maintenance Dredging | | 67 | 2 | 5 | | 74 |
| Total lots | 2 | 142 | 89 | 119 | 24 | 376 |
| Repair Cost (\$1,000's) | \$182 | \$765 | \$969 | \$955 | \$456 | \$3,327 |



Map of Completed Work 1999-2003





History of Work in Dollars

(\$1,000's)



| Date | Const. | Engr. | Inspec. | Survey | Permit | Admin | Totals |
|--------|---------|-------|---------|--------|--------|-------|---------|
| 1991 | | 6 | | | | | \$6 |
| 1992 | 26 | 7 | 11 | | | | \$44 |
| 1993 | 390 | 84 | 29 | | | | \$503 |
| 1994 | 2 | 37 | 10 | | | | \$49 |
| 1995 | 234 | 78 | 29 | 29 | | 14 | \$384 |
| 1996 | | 10 | | 6 | | | \$16 |
| 1997 | 15 | 43 | 22 | 21 | | | \$101 |
| 1998 | 171 | 26 | 17 | 12 | | | \$226 |
| 1999 | 141 | 3 | | 38 | | | \$182 |
| 2000 | 693 | 35 | 30 | | | 7 | \$765 |
| 2001 | 877 | 20 | 15 | 45 | 5 | 7 | \$969 |
| 2002 | 879 | 35 | 22 | 12 | | 7 | \$955 |
| 2003 | 238 | 87 | 15 | 83 | 26 | 7 | \$456 |
| 2004 | 1,295 | 60 | 77 | 35 | 50 | 10 | \$1,527 |
| Totals | \$4,961 | \$531 | \$277 | \$281 | \$81 | \$52 | \$6,183 |



FY04-05



Dredging Project



Background



Required permits

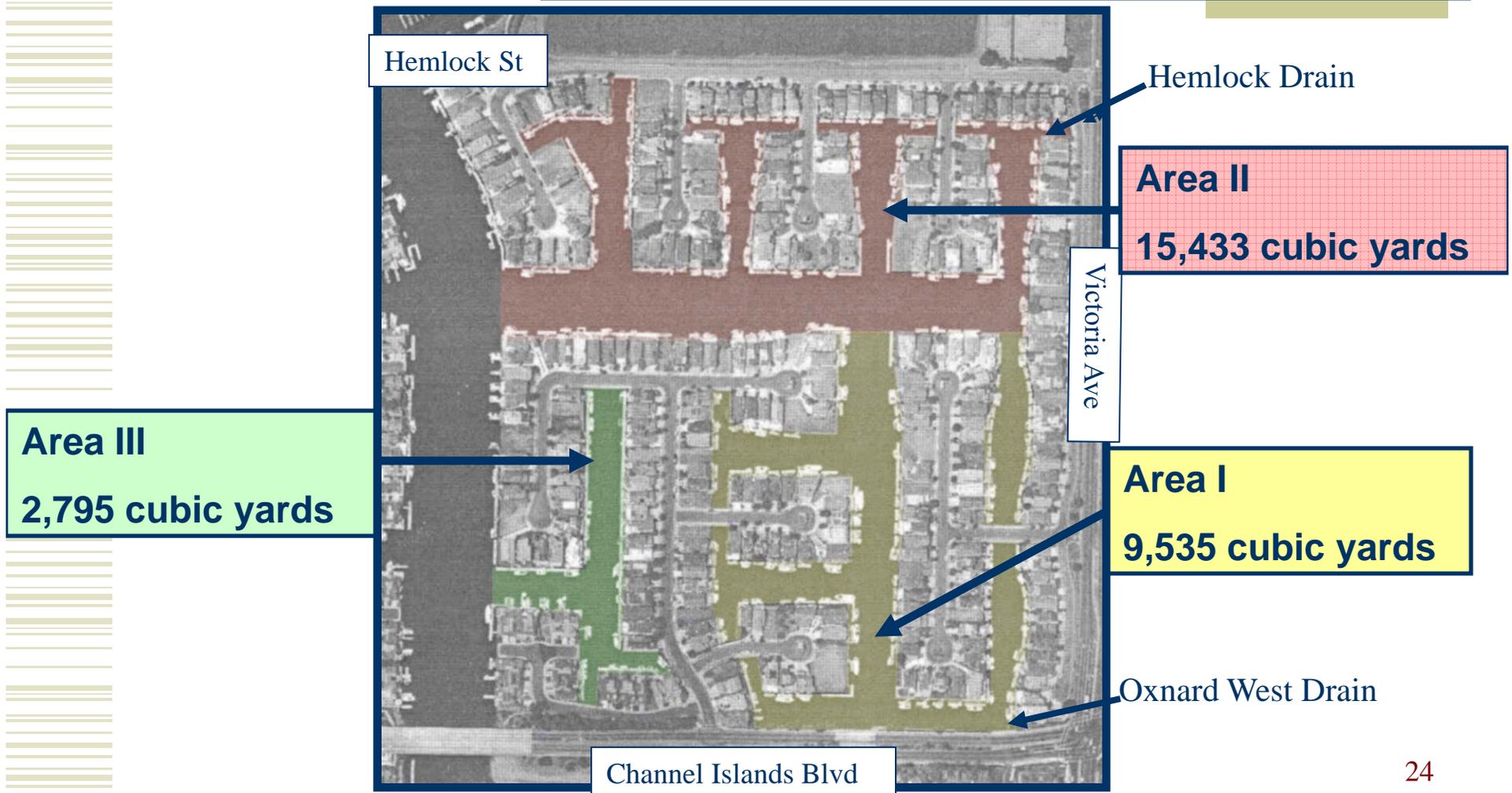
- ◆ Army Corps of Engineers
- ◆ California Coastal Commission
- ◆ Regional Water Quality Board

Project status

- ◆ Began dredging December 6, 2004
- ◆ Project completion June 30, 2005



Eastern Mandalay Bay Dredging Project





Western Mandalay Bay



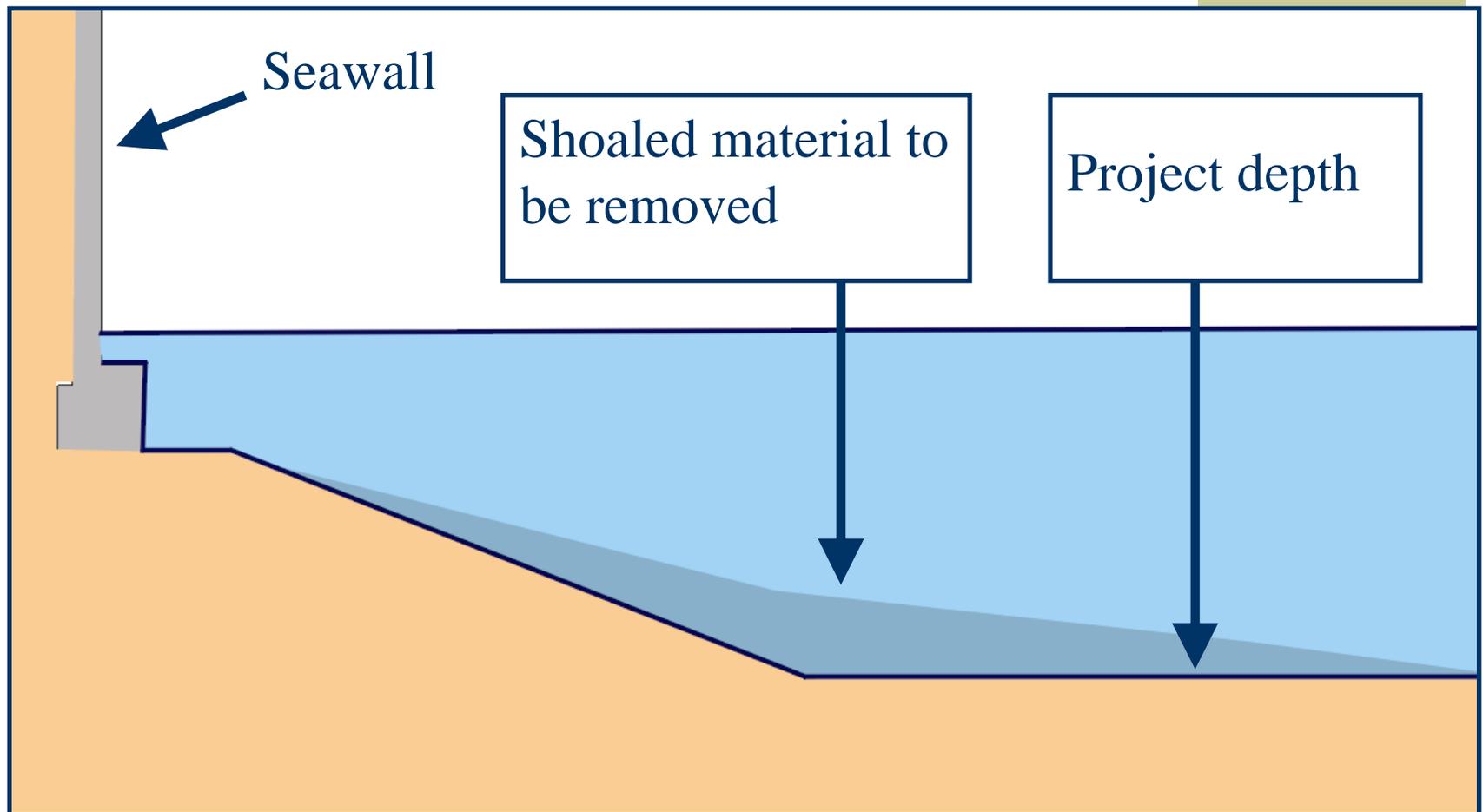
**Approximately
7,500 cubic yards of
material in 25
locations**

 Indicates location of
shoal area

Channel Islands Blvd



Typical Channel Dredging Section





Dredging & Dewatering Equipment



Mobile dewatering plant

Mixing tanks



Electric dredge



Centrifuge/ conveyors



Dewatered material



Homeowner Cooperation Outstanding!



- Working together to share available dock space to minimize the impact of channel closures.
- Advising absent residents of project progress and needs.



Dock Problem at Lowest Tides



Cannot dredge deeper without undermining seawall foundation



Slope as originally built

Tides range between +7 to -2 Dec. - March two to three days each month. Up to 9 feet difference between high and low winter / spring tide.



CHANNEL DEPTH LIMITATIONS



- ◆ Large draft
- ◆ Deep keels
- ◆ Low tide extremes

Boats with 6 FT or more draft can hit bottom



Plan for FY05-06



Complete Dredging Project June 30th.

Guard Rail Replacement Project.

Continue working with VCWPD, CIWHOA, City of Port Hueneme, and the Wastewater Division on measures to minimize the impact of the Oxnard West Drain on Mandalay Bay.

Evaluate remaining work

- Required for safety/structural integrity

- Most cost effective repair method

Continue to refine cost estimates

Evaluate funding options



FY05-06 Mandalay Bay Budget



| | |
|------------------------|---------------|
| Seawall Maintenance | \$111,329 |
| Landscape Maintenance | 138,495 |
| Guard Rail Replacement | 190,000 |
| Channel Cleaning | <u>63,000</u> |
| Total Appropriation | \$502,824 |

*Leaves Waterway Fund Balance of \$475,269



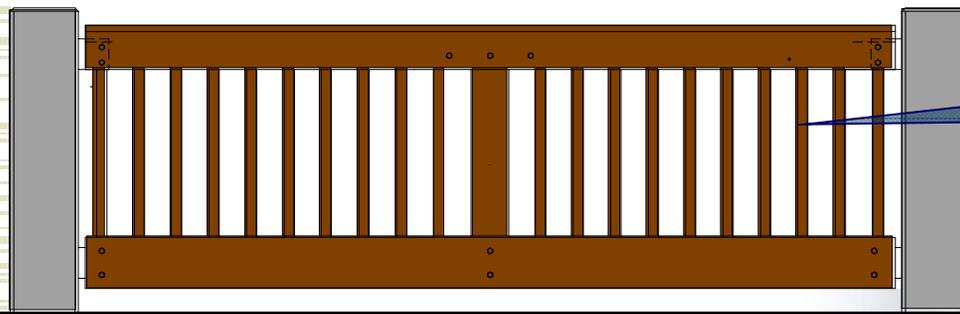
FY05-06



Guardrail Replacement Project



GUARDRAIL REPAIRS (REPLACEMENTS)



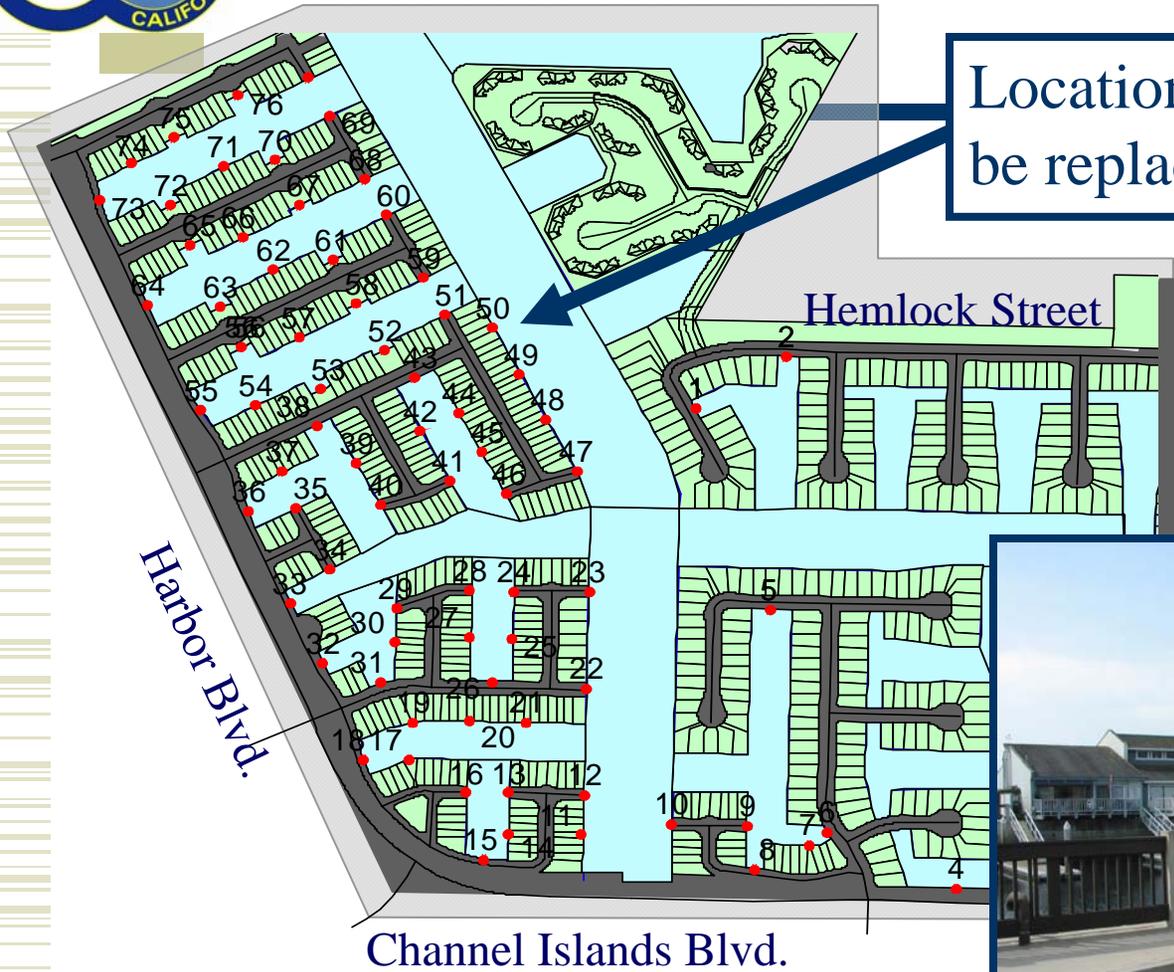
New
rail

- ◆ Existing have termite & dry rot
- ◆ New rails will be treated wood





Guardrail Replacement



Location of guardrail to be replaced



New design to meet code



FY07-08



Planning for the Future



Priority for Known Seawall Maintenance



| Repair/ Maintenance Item | Total Estimated | 1-5 years cost | 6-10 years In | 11-15 years dollars |
|--|-------------------|------------------|------------------|---------------------|
| Boise Wall Repair and Maintenance | | | | |
| Pilasters | 2,500,000 | 575,000 | 575,000 | 1,350,000 |
| Wall panel cracks | 4,500,000 | 35,000 | 2,000,000 | 2,465,000 |
| Sink hole | 400,000 | 100,000 | 100,000 | 200,000 |
| Weep hole | 550,000 | 550,000 | | |
| Zurn Wall Repair and Maintenance | | | | |
| Wall stem | 660,000 | 200,000 | | 460,000 |
| Slope protection | 1,300,000 | 100,000 | 200,000 | 1,000,000 |
| Joint repair | 180,000 | | | 180,000 |
| Weep hole | 50,000 | | | 50,000 |
| Grand Total | 10,140,000 | 1,560,000 | 2,875,000 | 5,705,000 |
| | | | | |



Questions