



# Public Works Department Streets & Waterways Division



## *Mandalay Bay Annual Report*

*Presented by*  
**Raymond Williams**  
**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

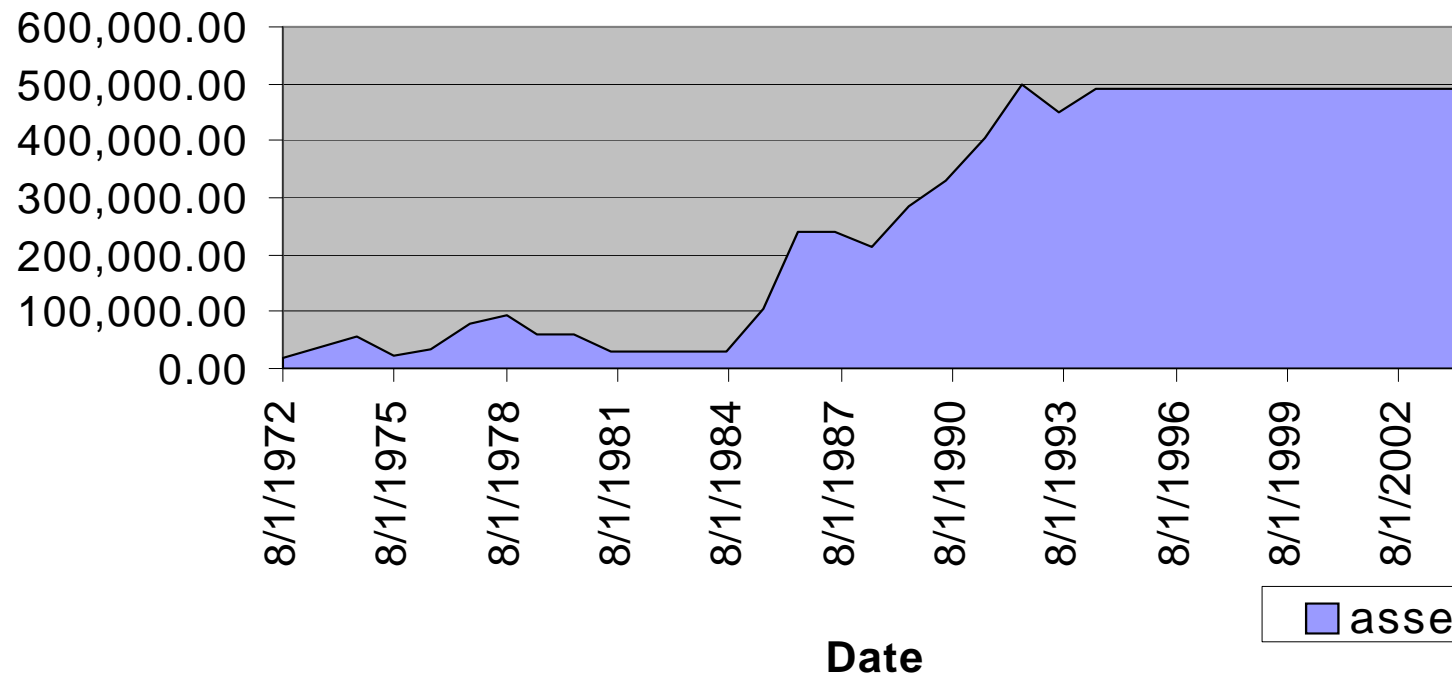


# History of Assessment Rates



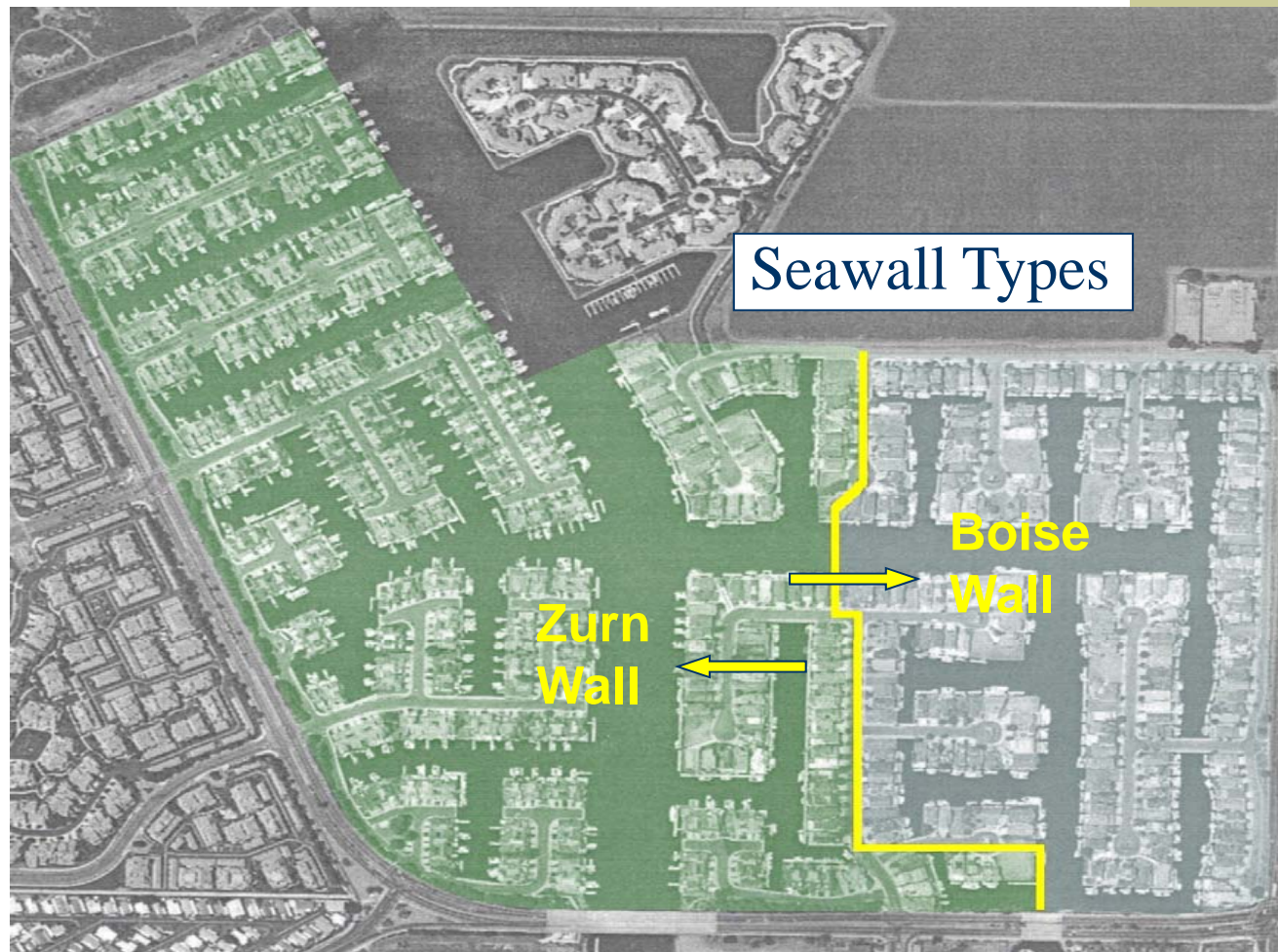
## Waterway Maintenance District Assessments

### Assessments





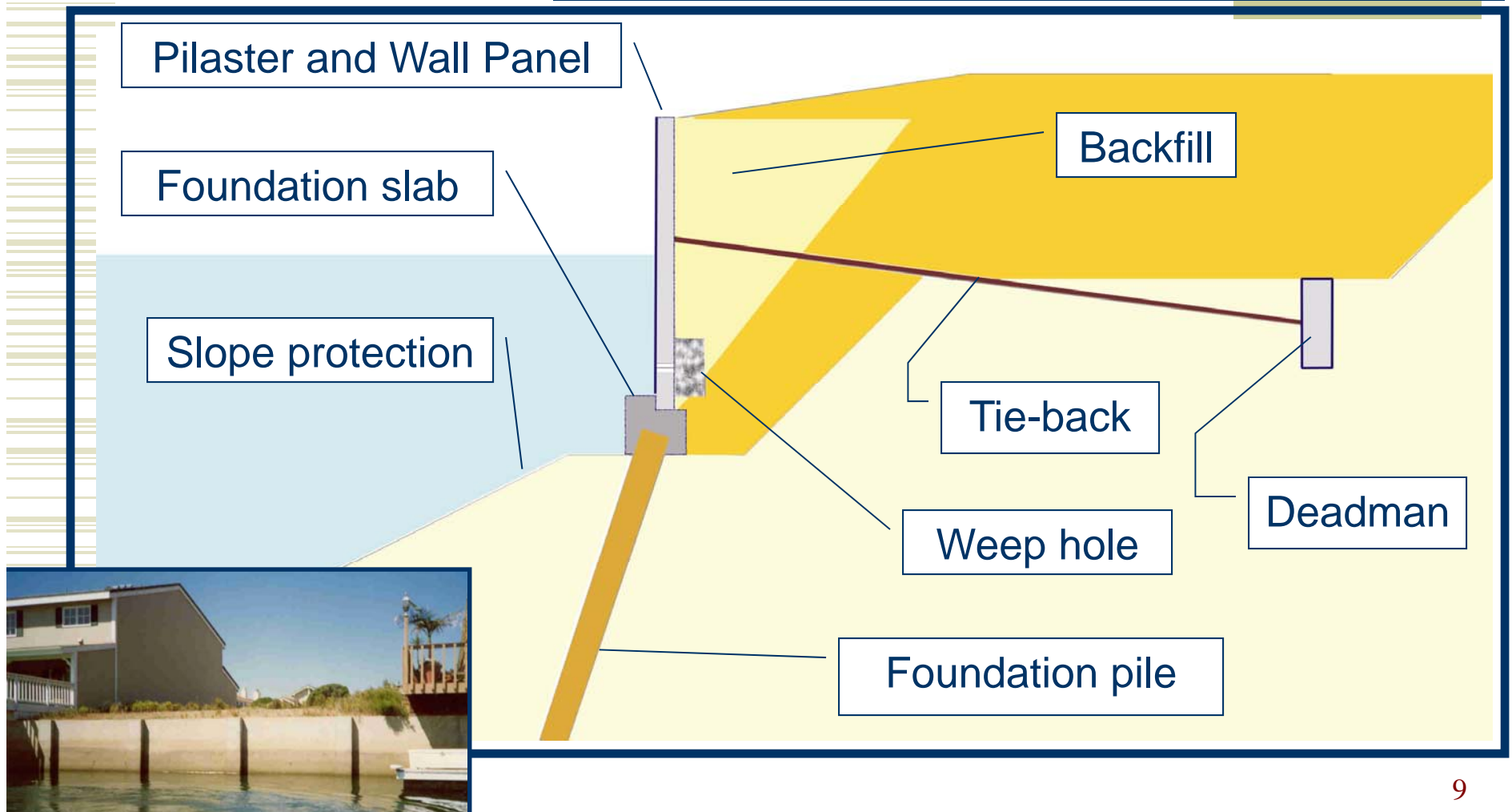
# Seawall Types





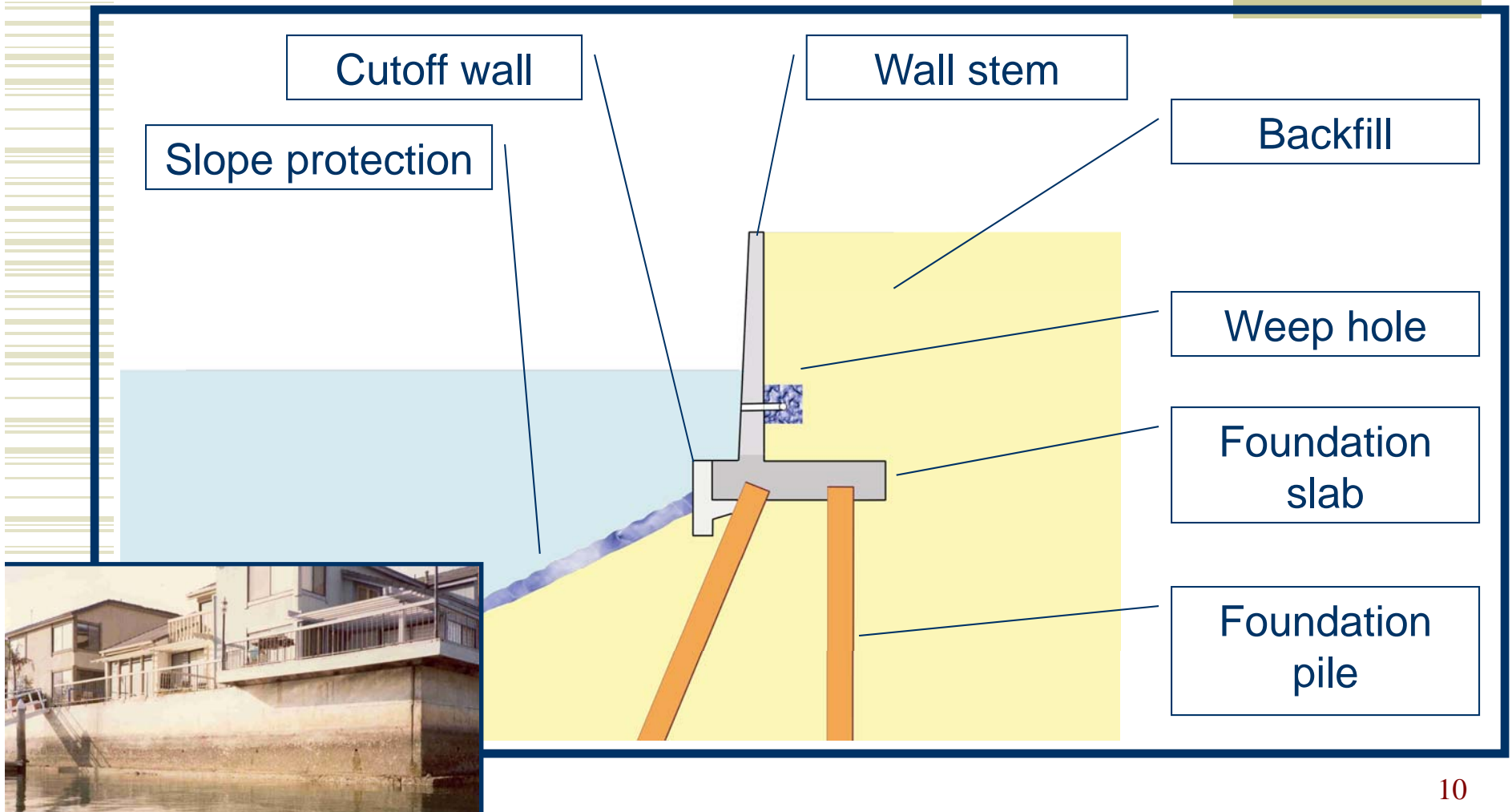


# Boise Wall Nomenclature





# Zurn Wall Nomenclature





# 20 Year Seawall Maintenance Plan



# 20 Year Seawall Maintenance Plan



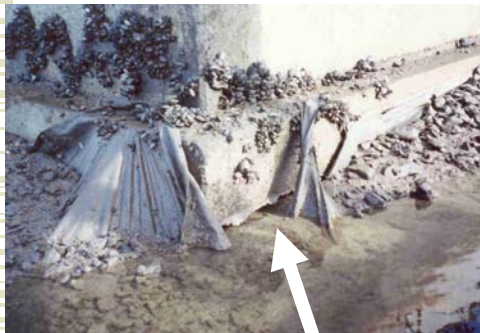
- ◆ **Begun in 1999**
- ◆ **6 Types of repairs in priority order**
  - 1 - Foundation & Slope Protection Repair**
  - 2 - Boise Wall Pilaster Repair**
  - 3 - Weep Hole Repair**
  - 4 - Sink Hole Repair**
  - 5 - Wall Panel and Joint Repair**
  - 6 - Zurn wall stem crack repair**

**Priority 1 work completed in  
February 2003**

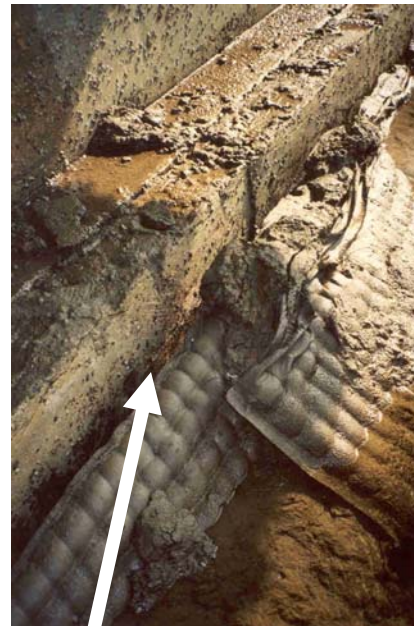




# Foundation & Slope Protection Repair



Bottom of foundation slab exposed



Hump in Fabriflex 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



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# FY04-05

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# Dredging Project



# Background



## Required permits

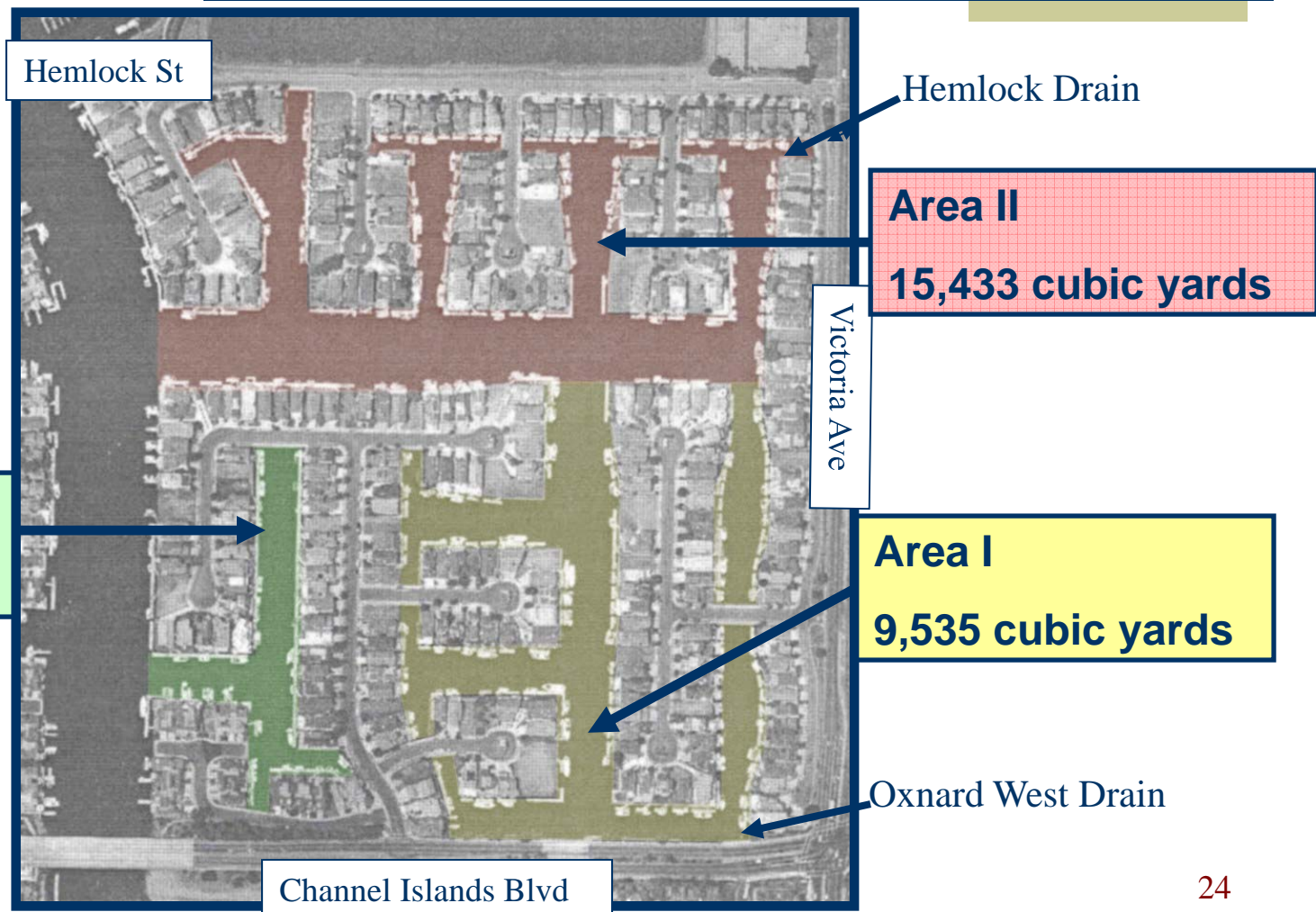
- ◆ Army Corps of Engineers
- ◆ California Coastal Commission
- ◆ Regional Water Quality Board

## 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**

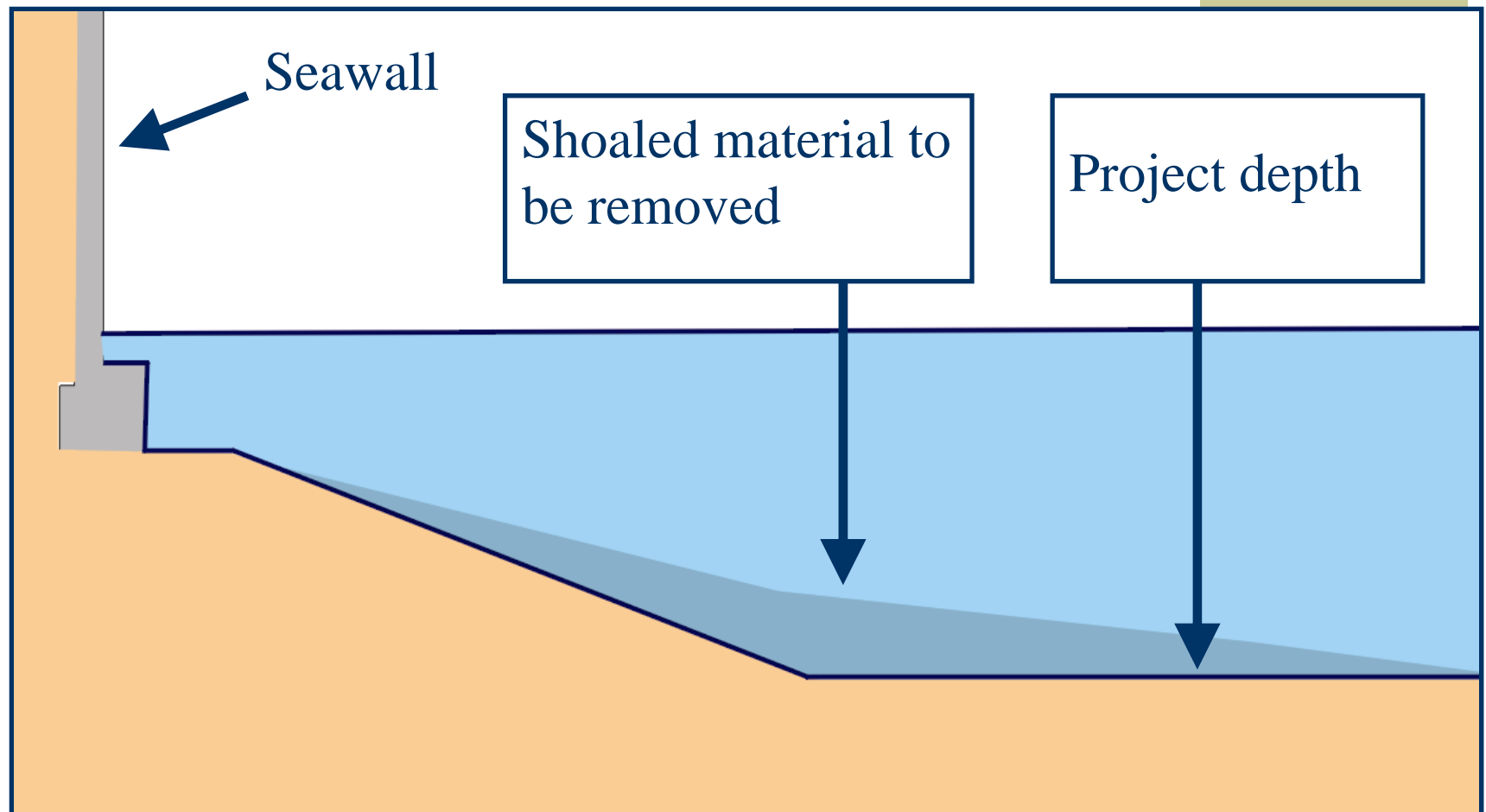


Indicates location of  
shoal area

Channel Islands Blvd



# Typical Channel Dredging Section





# Dredging & Dewatering Equipment



Mobile dewatering plant

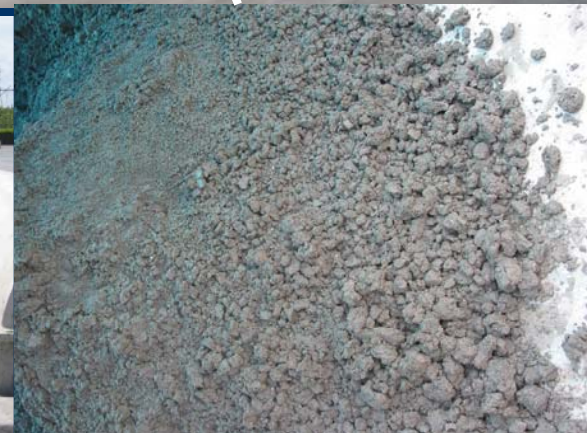
Mixing tanks



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**

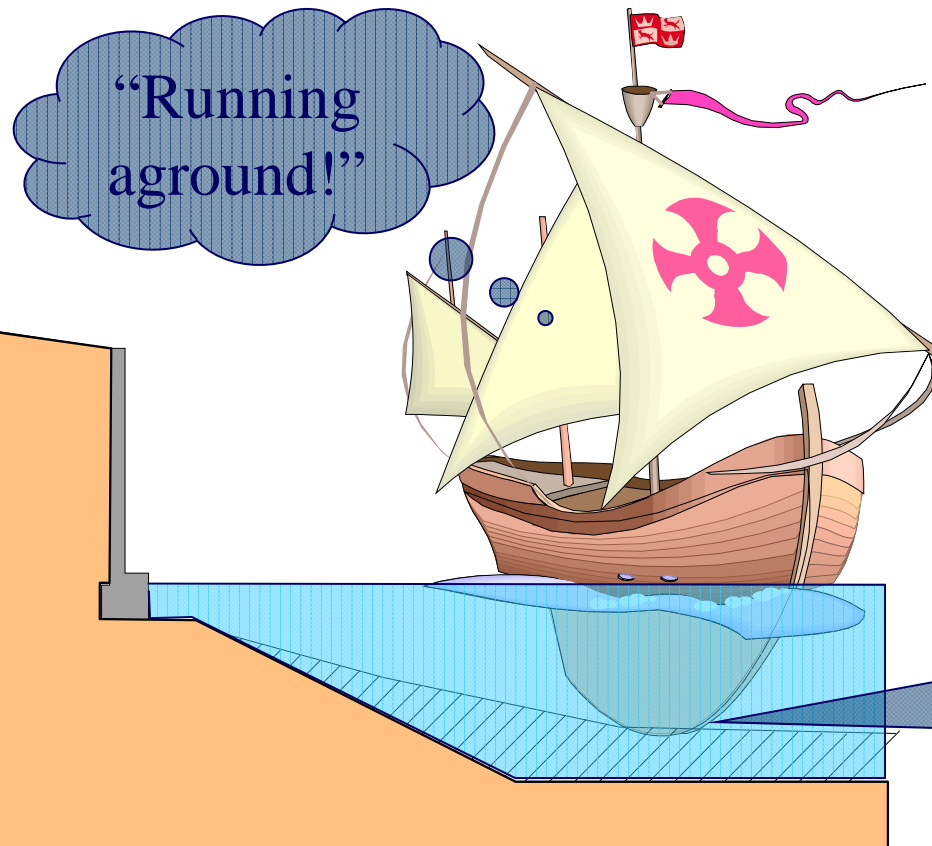
**Slope as originally built**

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 30<sup>th</sup>.

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





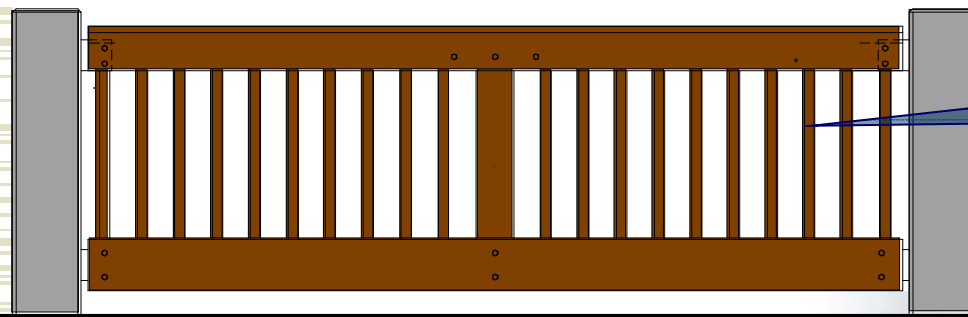
**FY05-06**



# Guardrail Replacement Project



# GUARDRAIL REPAIRS (REPLACEMENTS)



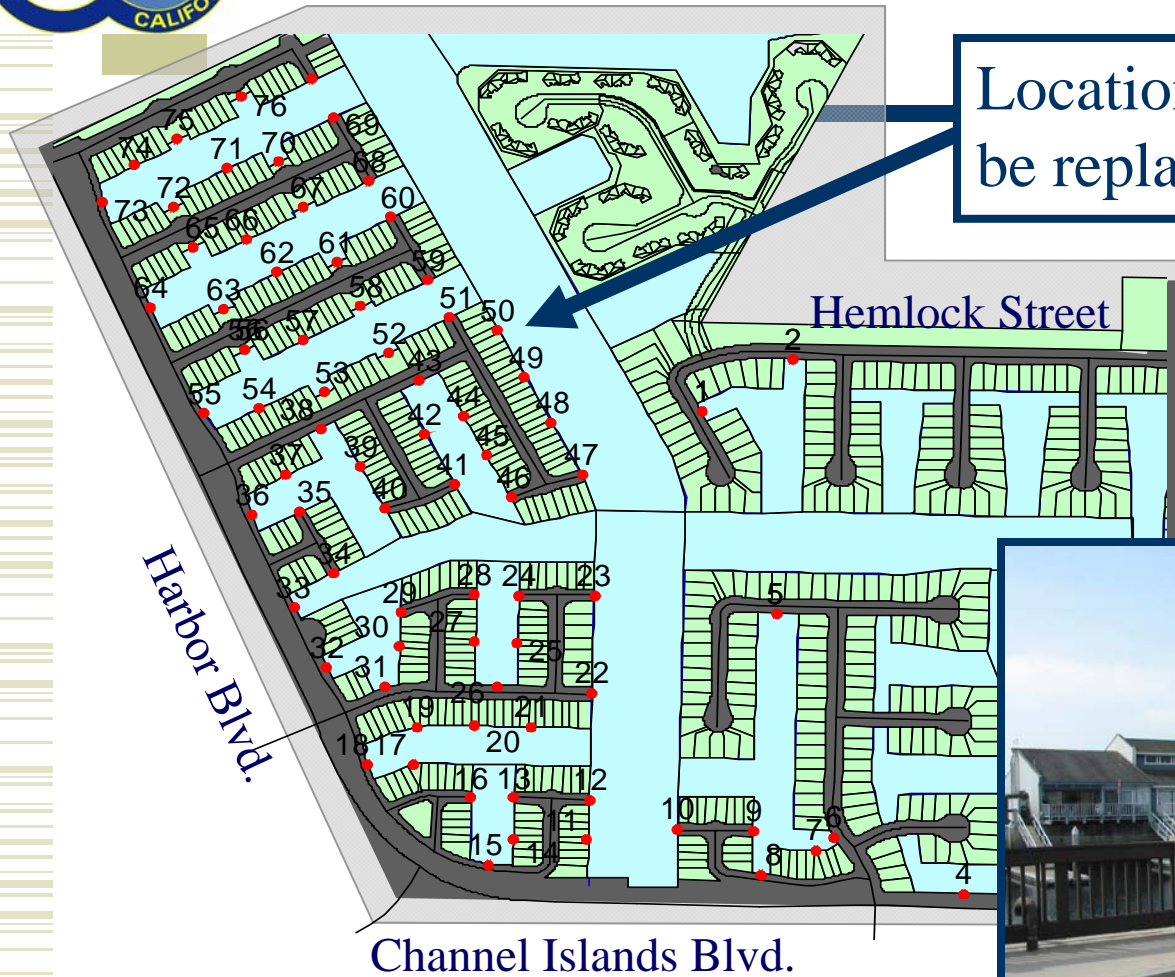
New  
rail

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





# Guardrail Replacement



Location of guardrail to be replaced





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# FY07-08

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## 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
<b>Boise Wall Repair and Maintenance</b>				
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		
<b>Zurn Wall Repair and Maintenance</b>				
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
<b>Grand Total</b>	<b>10,140,000</b>	<b>1,560,000</b>	<b>2,875,000</b>	<b>5,705,000</b>



# Questions