

Policy Summit
"One California, One Coast"

Applying Benefit/Cost Analysis to California's Coast

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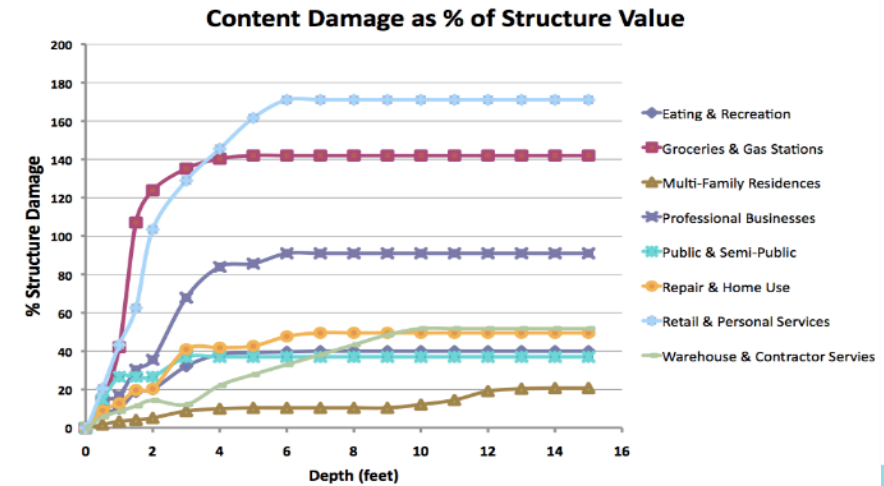
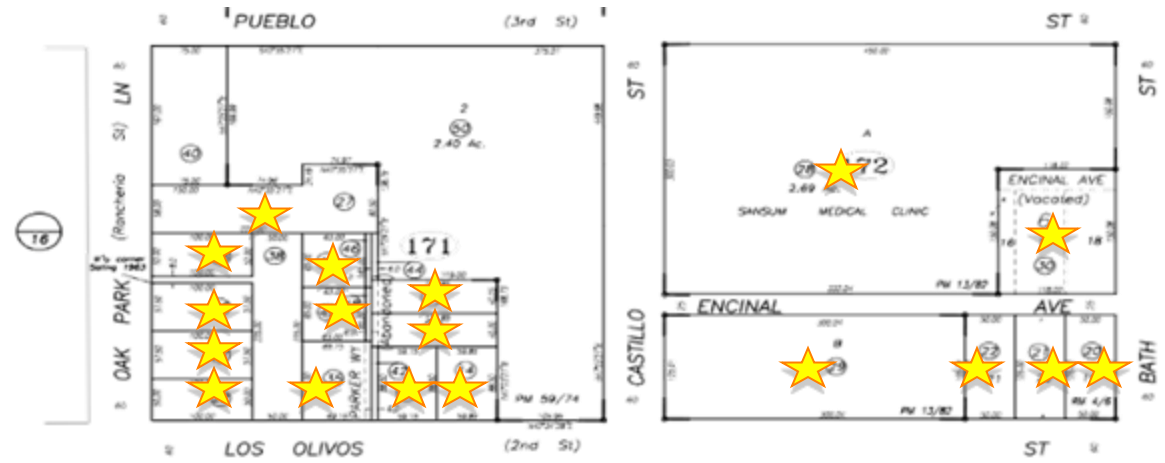
Why do a Benefit Cost Study?

- To evaluate Tradeoffs:
 - Value of Coastal Property & Infrastructure
 - Recreational Value (e.g., Beaches)
 - Other Ecological Functions Goods and Services (EFGS)
- To Compare Alternatives
- To think LONG-TERM
 - Short-term solutions may differ



Methods

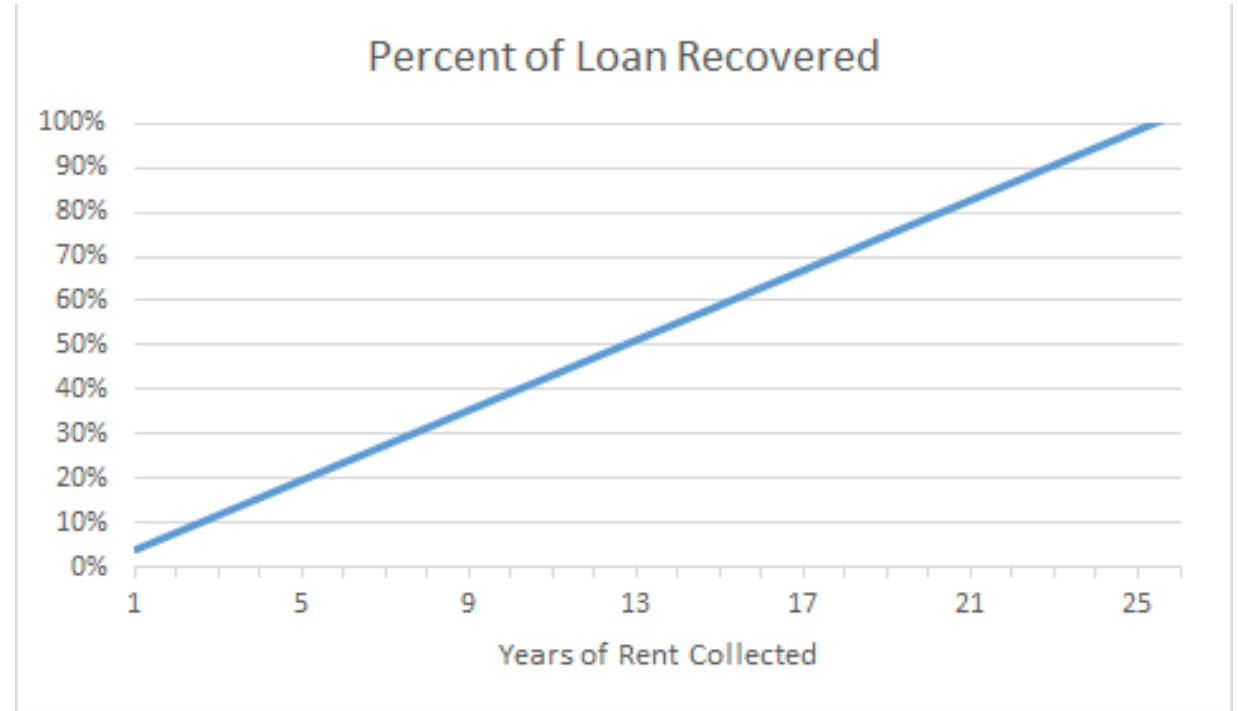
- Examine Parcel Data
 - Update Land and Structure Values
- Non-Market Value
 - Recreational Value (e.g., Beaches)
 - Other Ecological Functions Goods and Services (EFGS)
- Examine geophysical changes over time
- Costs of Adaptation weighed against benefits



Imperial Beach, CA

- Hybrid Solutions Won Out:
 - Nourishment
 - Cobble
 - Eventually some Retreat
- Leaseback Can be Effective
 - Models indicated we had 30 years
 - STRs may have quicker payback

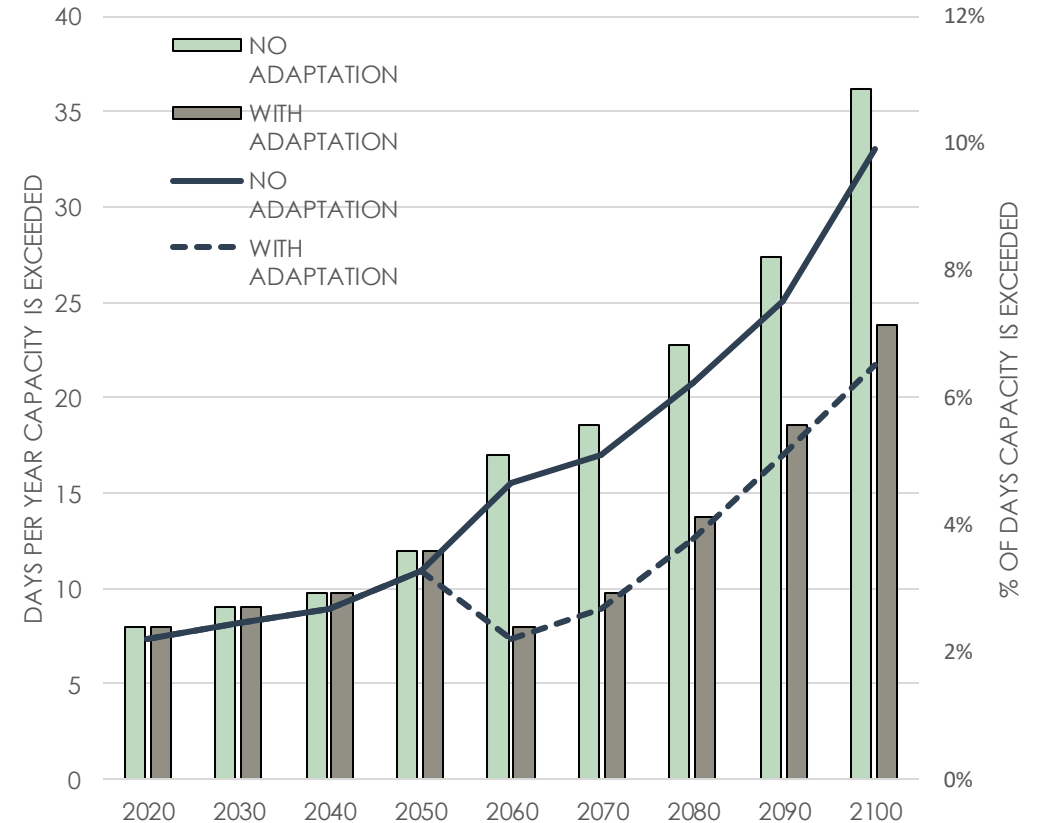
Payback time for Lease-Back



Source: Revell, D., King, P., Giliam, J., Calil, J., Jenkins, S., Helmer, C., ... & Jamieson, M. (2021). A Holistic Framework for Evaluating Adaptation Approaches to Coastal Hazards and Sea Level Rise: A Case Study from Imperial Beach, California. *Water*, 13(9), 1324.

Manhattan and Hermosa Beaches

- Nourishment/Dune Restoration
- Flood Control
- No Retreat
- Hermosa has adequate Beach capacity through 2021
- Manhattan Beach will need some Nourishment mid-century



Source:

<https://www.manhattanbeach.gov/home/showpublisheddocument/47057/637587361918170000>

Pacifica

- Existing Armoring Maintained
- Nourishment at major State Beach
- Flood Control/Pumps
- “Retreat” of low value property in a few planning areas



tides and high surf at Beach Boulevard on November 30, 2017 (J. v

Source: City of Pacifica: https://www.cityofpacifica.org/depts/planning/sea_level_rise.asp

Humboldt

- Study for CALTRANS
- Recommended raising levees/creating hiking trail
 - Significant Flood Control Benefits to Jacobs Avenue (Commercial)
 - People who live near the coast are relatively poor
 - Levee/Rail trail also adds to Recreation Value
 - Reduces flooding to Hwy 101

Source: Humboldt County

Table 7: Project 1 Benefits-- Low Risk Aversion 2020-2100 |

PROJECT 1 BENEFITS, LOW RISK AVERSION	
Commercial Structures	\$ 98,400,000
Public, Utility, and Agricultural Lands	\$ 20,700
Residential Structures	\$ 633,000
Roadway Use and Damage	\$ 897,000
Public Trail Use and Damage	\$ 3,290,000
Dike Reconstruction Damage	\$ 3,920,000
TOTAL	\$ 107,160,700
PROJECT 1 COSTS	\$ 22,600,000
NET BENEFITS:	\$ 84,560,700

Synthesis of Economics of LCPs and Other Analyses

- Hybrid Solutions Work
 - Nourishment
 - Reinforcing some existing armoring
 - "Retreat" in a few spots
- Long Term seas will continue to Rise
 - Ice Shelf Melt should concern all of us



Synthesis of Economics of LCPs and Other Analyses

- Solutions:
 - Transparency in Process
 - Regional Sediment Management (RSM)
 - Better Data
 - Beach Sustainability Assessment (BSA)
 - Better Attendance Data
 - Market Based Solutions
 - Leaseback
 - Mitigation fees
 - Transfer of Development Rights
- Financial Resilience
 - Who will Pay?
 - Property Tax Levies vs Transient Occupancy Taxes

