Twin Lakes Beachfront Improvement Project
Twin Lakes Beachfront Improvement Project

Project History & Community Input
Twin Lakes Beachfront Improvement Project

Twin Lakes State Beach
Twin Lakes Beachfront Improvement Project
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- Over 500,000 visitors annually to Twin Lakes State Beach
- Harbor Beach Events, Businesses, Boating, Access to Monterey Bay
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East Cliff Drive
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East Cliff Drive:
• No Walkways - Conflicts with Cars & Pedestrians
• No Bike Lanes - Conflicts between Cars, Bikes & Pedestrians
• Parking Encroachments onto Beach
• Vehicular Conflicts – Travel Lanes Too Narrow
• No Beach Drop-Off Point
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JANUARY 1983

Winter Beach Scour
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Historic Santa Cruz Trolley
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Winter scour limits access, danger to road & utilities, exposes rip-rap, summer sand level to road.
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Community Design Process
2007-2008
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Improvement Plans

Road, Pedestrian &

Bluff Protection
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Harbor Beach

Twin Lakes State Beach
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- Improves Circle
- Shifts Road North
- Adds Bike Lanes
- Adds Beach Drop Off
- Adds Bluff Protection
- Improves Water & Scenic Quality
- Adds Year Round Accessible Paths
- Provides 21 Improved Parking Spaces
- Provides 21 Improved Parking Spaces
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Bluff Protection

• Provide Terraced Access

• Respond to Changing Sand Elevations with Ramp and Stairs

• Provide Year Round Access Regardless of Sand Elevation

• Provide Beach Universal Pathway
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SIMULATED PURISIMA BLUFF PROTECTION STRUCTURE WITH ROCK VENEER

1' THICK REINFORCED CONCRETE SLAB

NATIVE SOIL

LAYERS OF SAND WRAPPED IN GEOFABRIC

BEDROCK

BEACH
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- Protect Road
- Protect Utilities
- Improve Scenic Quality
- Improve Water Quality
- Mimic Look of Existing Geologic Formations
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Storm Water Treatment and Infiltration

NOTE:
SEE SPECIFICATIONS AND PLANS FOR ADDITIONAL INFORMATION

PRESSURE AT TIRE BASE = 80 PSI

PRESSURE IS DISTRIBUTED OVER LARGER AREA THROUGH ROAD BASE THEREFORE PRESSURE AT DEPTH OF 24" = 7.44 PSI

NOTES:
1. PER CODE, ENGINEERS INCREASE PRESSURE BY 20% TO ACCOUNT FOR MOVING TIRE LOAD; THEREFORE, THE TOTAL PRESSURE, INCLUDING WEIGHT OF THE ROAD BASE IS INCREASED FROM 7.44 PSI TO 9.25 PSI

2. IN DOCUMENTED LABORATORY COMPRESSION TESTING, ECOGRAN TANKS WITH 4 SMALL PLATES YIELDED 39 PSI, USING THE ABOVE SCENARIO WITH H25 LOADING AND A 24" ROAD BASE, THE FACTOR OF SAFETY IS: 

\[
\frac{39\text{ psi}}{9.25\text{ psi}} = 4.22 \text{ FACTOR OF SAFETY}
\]

CONCEPT H-25 LOAD CAPACITY DIAGRAM
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Bird’s Eye View Looking West Down East Cliff Dr.

Provides Coastal Access During Low Winter Sand Conditions
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Bird’s Eye View Looking West Down East Cliff Dr.

Mimics Existing Access During High Summer Sand Conditions
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Approvals, Permits & Funding Partners
Twin Lakes Beachfront Improvement Project

Approvals and Permits:

- County of Santa Cruz – *Master Plan and permits*
- California Coastal Commission - *permits*
- Santa Cruz Port District – *easements*
- California State Parks - *easements*
- State Lands Commission - *evaluate need for lease*
- Monterey Bay National Marine Sanctuary
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Partners

- State Parks Division of Boating & Waterways – *grant funds*
- California Coastal Conservancy – *grant funds*
- Santa Cruz County Regional Transportation Commission – *grant funds*
  - Monterey Bay Air Resources District – *grant funds*
  - County of Santa Cruz Sanitation District – *funds*
  - County of Santa Cruz Public Works TDA - *funds*
- Santa Cruz County Redevelopment Successor Agency – *bond funds*
  - Santa Cruz Port District – *easement*
  - California State Parks – *easement*
Twin Lakes Beachfront Improvement Project

Construction Schedule, Traffic & Pedestrian Access
# Project Schedule Highlights

**Contractor:** Graniterock Company, Drill Tech

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Duration</td>
<td>10 months</td>
</tr>
<tr>
<td>Start of Construction</td>
<td>September 2016</td>
</tr>
<tr>
<td>Project Completion</td>
<td>July 2017</td>
</tr>
<tr>
<td>Work Hours:</td>
<td>M-F 8:00 am to 5:00 pm, excluding holidays</td>
</tr>
<tr>
<td></td>
<td>Heavy Equipment &amp; Traffic Control 8:30 am – 4:30 pm</td>
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- **Traffic**
  - Signage and flagging to be provided for continuous two-way traffic
  - No long-term lane closures, maximum 20 minute.
  - No closures before 8:30 am or after 4:30 pm.

- **Access**
  - Safe vehicle, pedestrian, bicycle access with beach access
  - All work zones secured for traffic and pedestrian safety

- **Parking**
  - Contractor to submit Traffic & Access Plan
  - None to limited parking along East Cliff Drive during construction

- **Harbor**
  - Area signage “Harbor Businesses Open During Construction”
  - Limited Harbor entrance closures
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Traffic & Access Plan

- Off-Site Staging, Equipment, Supplies
- Contractor Trailer
- On-Site Storage of Sand
- 2 Travel Lanes with Traffic Control As Necessary
- Beach Access
- Safety Fencing
- Pedestrians
- Safety Fencing

HARBOR

NEIGHBORHOOD

BEACH
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Traffic Control & Signs

PROJECT AREA

Harbor
Eaton
Brommer
Seabright
East Cliff Drive
47th Avenue
7th Avenue
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• Environmental Mitigations
  o Erosion Control
  o Air Quality
  o Storm Water Monitoring
  o Bird Nesting
  o Tree Protection

• Agency Coordination
  o Port District Coordination
  o Harbor Dredging Operations
  o State Parks Coordination
  o Coastal Commission Consultation
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Project Website & Contact Information
Twin Lakes Beachfront Improvement Project

County of Santa Cruz Department of Public Works Website
http://www.dpw.co.santa-cruz.ca.us/
Twin Lakes Beachfront Improvement Project

Department of Public Works Project Contact Information:
Cristina Crocker, Construction Engineer 477-3956
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