



LOSSAN

Coastal Rail Corridor

San Diego Segment

Los Angeles • San Diego • San Luis Obispo



Building Today. Boarding Tomorrow.

SANDAG Presentation on Status of Del Mar Bluffs Stabilization Efforts
Bruce Smith PE, Principal Engineer, SANDAG

NCTD Board Item 18 - February 21, 2019

KeepSanDiegoMoving.com

**Coast Boulevard
to**

**Del Mar Bluffs
Project Area**

Torrey Pines Overhead Bridge



Recent Bluff Retreat South of 10th Street – Late 2018



Recent Bluff Retreat 12th Street on 2/2/2019



Recent Bluff Retreat

14th Street on Friday 2/15/2019



Del Mar Bluffs Projects



Completed Projects

- 2000 DMB Geotech Study (NCTD)
- 2001 Emergency Repairs at 8th Street (NCTD)
- 2001 Drainage Study (NCTD)
- 2003 Drainage Improvements & Landslide Warning System (NCTD)
- 2007 Del Mar Bluffs 2 stabilization with Soldier Piles (SANDAG)
- 2009 Del Mar Bluffs 3 stabilization with Soldier Piles (SANDAG)

Current Project

- 2018-9 Del Mar Bluffs 4 (Currently Permitting Urgent Repairs)

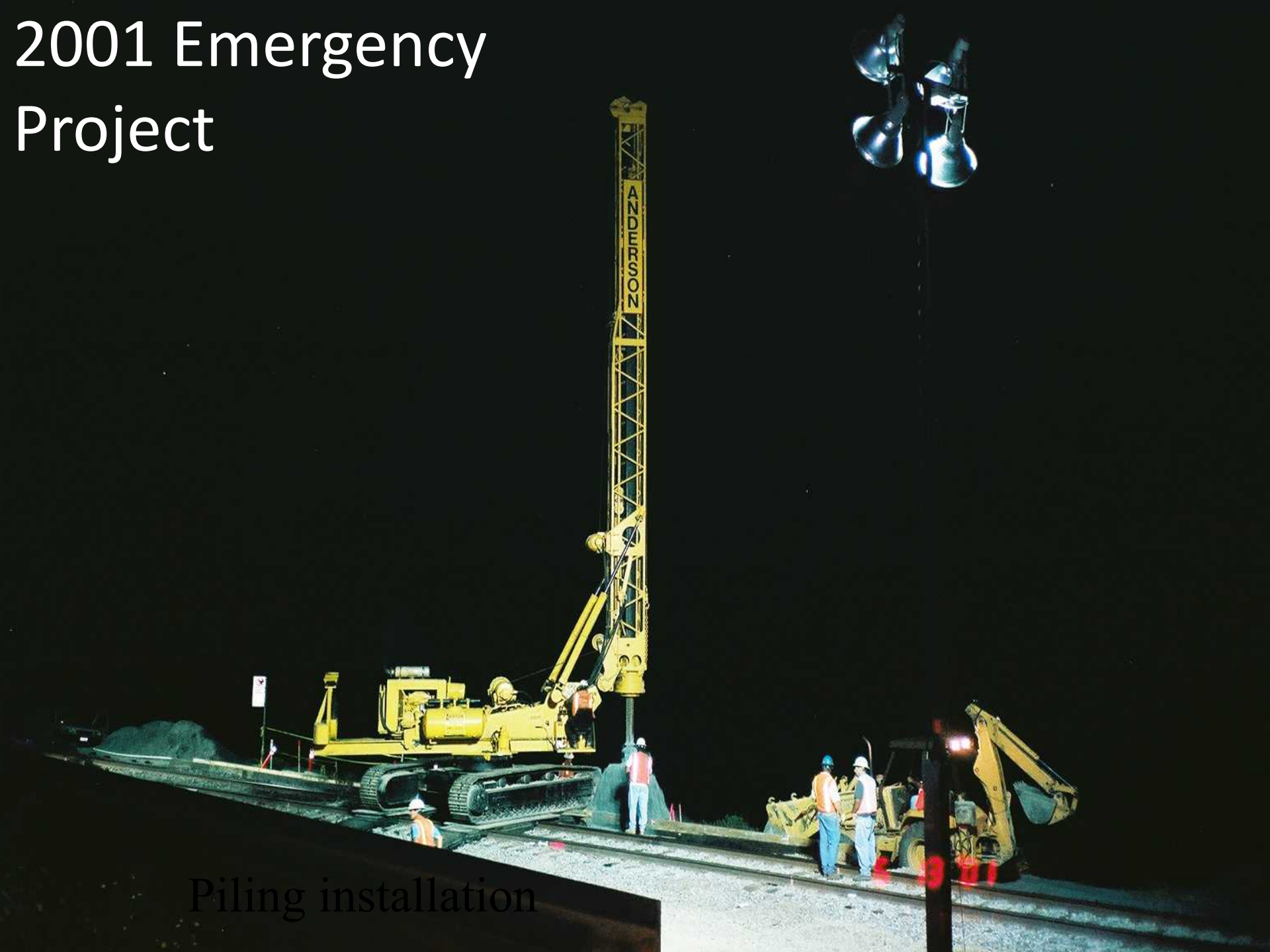
Future Planning

- DMB 5 (Seismic & drainage improvements to extend design life)
- DMB 6 (Bluff toe protection and slope stabilization to slow retreat)

2001 Wall Slid Down Bluff at 8th St.

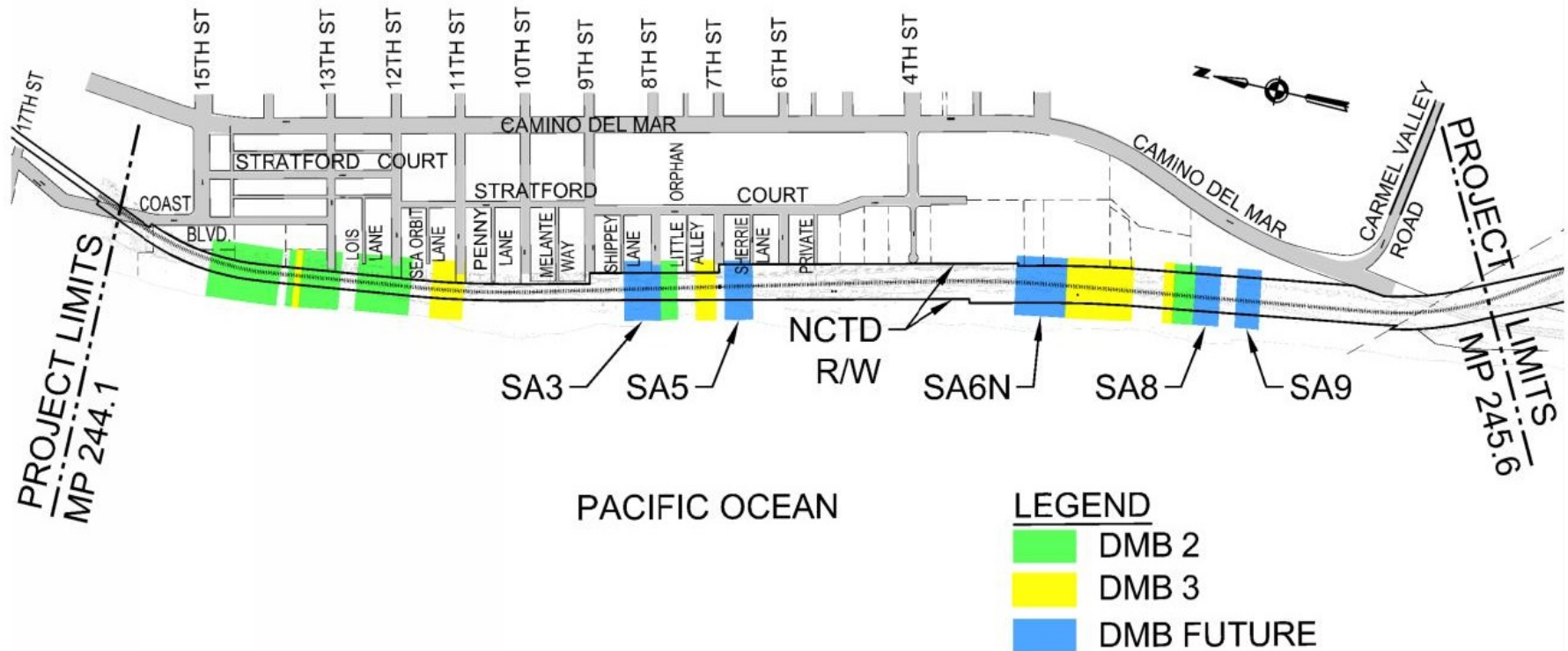


2001 Emergency Project



Piling installation

Del Mar Bluffs Stabilization Areas



In DMB 2 & 3 we installed 200 piles in areas as shown above



1. **Short Term:** Del Mar Bluffs 4 update
2. **Mid Term:** Prioritization of future bluff stabilization until 2050
3. **Long Term:** Tunnel options

Short Term

Del Mar Bluffs Stabilization 4



Improvements:

- Repair existing drainage structures
- Use piles to stabilize slopes

Project Budget:

- \$3 million

Status:

- Preliminary engineering completed
- Environmental Clearance in April 2018
- Permits Spring 2019; Coastal Commission February 8, 2019
 - RWQCB & USACOE
- Final Engineering in progress
- Construction in Fall 2019

Short Term Stabilize Headwall MP 244.3



Rockscape headwall with soil nail tiebacks

Short – Medium Term New Piling at Sea Walls



New supports for existing bluff toe walls below 13th & 8th Street:

Short – Medium Term Storm Chute below 12th St.



Outfall needs repair and/or replacement

Medium Term Plan

Del Mar Bluffs Stabilization to 2050



With continued bluff retreat & sea level rise, additional stabilization measures will be needed including:

- Replace old drainage structures
- Repair of old sea wall structures
- Added bluff toe protection
- Additional piles and tie backs
- Lagging between piles
- Need funds for 2050 Stabilization Plan

Rough Order of Magnitude
Estimate

\$70 to \$90 in 2018 dollars

Schedule depends on Funding



Scope:

- Prepare 2050 Stabilization Plan
- Priority - Seismic Stability & Drainage Improvements

Funding (#1 Rail Corridor Priority):

- December 2018. Worked with NCTD on a FRA BUILD grant but were not successful
- Design & Environmental Clearance estimated at \$3.4m
- March 2019. Submit a State of Good Repair grant to FRA

Scope: Extend service life until 2050

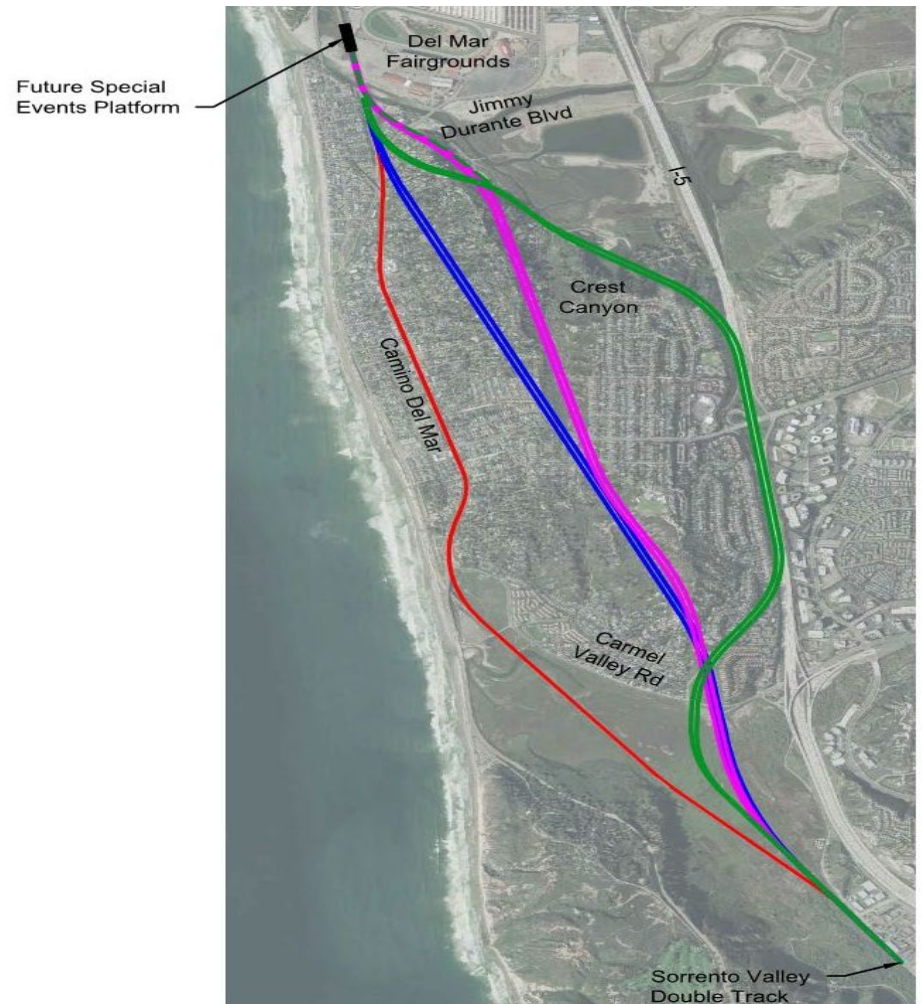
- Bluff toe protection
- Pile lagging and or stabilize bluff face
- Pedestrian access - trails and beach access (planning grant application pending)

Design & Environmental Clearance estimated at \$6.6m

Long Term Planning - Del Mar Tunnel Alignment Alternatives

Studied five alignments from Del Mar Fairgrounds to Sorrento Valley as part of SDDT.

Conceptual Engineering and Environmental Constraints Report in 2017



Summary Comparison: Cost and Description



Issue Area	Alternative Alignment				
	Camino Del Mar	Crest Canyon Higher Speed	Crest Canyon	I-5	I-5 East
Total Cost (\$B)	\$2.5	\$3.0	\$3.1	\$3.5	\$3.3
Total Length (mi)	5.0	4.8	4.9	5.3	5.2
Tunnel Length (ft)	10,200	13,200	12,700	13,400	11,600
Type	Cut/Cover	Twin bored	Twin bored	Twin bored	Twin bored
Depth (ft)	10-70	Up to 270	Up to 250	Up to 120	Up to 120
Emergency Access	Stairs	3 rd Tunnel	3 rd Tunnel	3 rd Tunnel	3 rd Tunnel
Los Penasquitos lagoon	Neutral	Positive	Positive	Positive	Positive
Jimmy Durante Blvd	Raise above rail	Raise above rail	Rail over	Raise above rail	Rail over
Travel Time (minutes)	6	3.2	3.7	5.4	5.3

Next Steps

For bluff stabilization:

- Secure funding for coastal access study
- Permit, bid and construct Project 4
- Prepare the 2050 Stabilization Plan
- Secure funding of \$24m for Project 5
- Secure \$6.6m of design funding for Project 6

LOSSAN Coastal Rail Corridor



QUESTIONS

Project Info: KeepSanDiegoMoving.com/LOSSAN

Linda Culp, Principal Planner SANDAG. Email luc@sandag.org or Ph 619 699 6957

Bruce Smith, Principal Engineer SANDAG. Email bsm@sandag.org or Ph 619 699 1907