LOSSAN Rail Corridor Coastal Resiliency Update

LOSSAN Board of Directors | March 17, 2025

Coastal Resiliency Program

Stakeholder Engagement

A corridor the length of LOSSAN requires extensive engagement to coordinate the plans and implement the solutions presented to address coastal resiliency

LOSSAN Agency Staff regularly engage with:

- Member Agency Governmental Relation Staff
- State and National Elected Officials
- Board Members
- Host Railroad and Right-of-Way Owner Technical Staff

Coastal Resiliency Program

Statewide and Regional Engagement

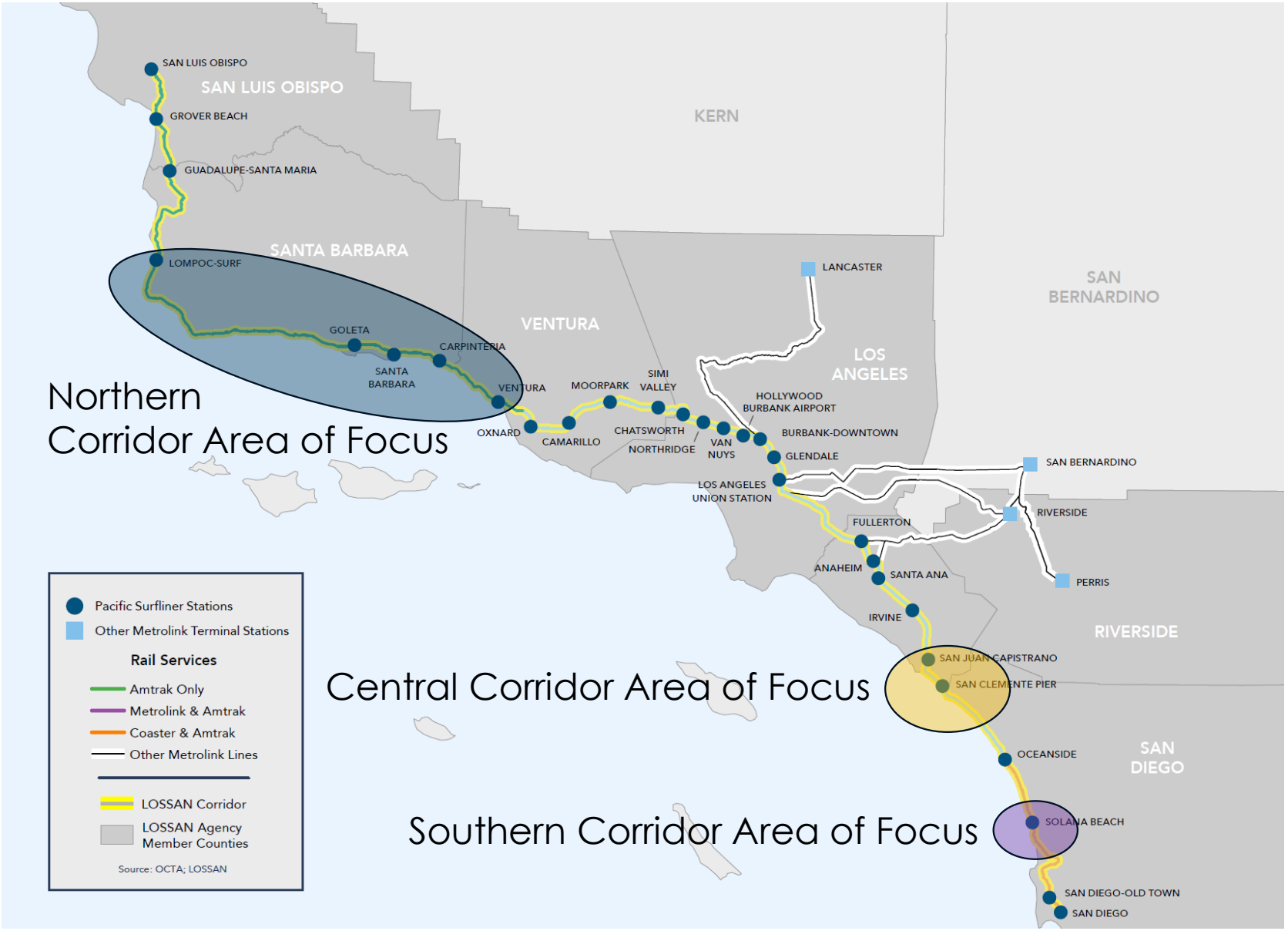
Coastal Resiliency strategies and solutions are coordinated through a variety of working groups and activities:

- CA Senate Subcommittee on LOSSAN Corridor Resiliency Hearings
- LOSSAN Regional Rail Working Group
- LOSSAN Corridor Executive Leadership Working Group
- LOSSAN Regional Rail Technical Working Group
- San Diego LOSSAN Rail Realignment Project Development Team
- OCTA Coastal Rail Resiliency Study Project Development Team
- Bi-Weekly Coordination Meetings with Union Pacific

Coastal Resiliency

There are Coastal Resiliency challenges along the entire LOSSAN Corridor, broken into 3 key areas of focus.

- **Northern Corridor Area of Focus:** LOSSAN is working with Union Pacific Railroad on a long-term strategy to stabilize the railroad.
- **Central Corridor Area of Focus:** San Clemente – OCTA is continuing study on long term solutions; started prelim design on short-term repairs.
- **Southern Corridor Area of Focus:** SANDAG is continuing short term repairs through Del Mar and refining alignments on a long-term solution to the bluffs.



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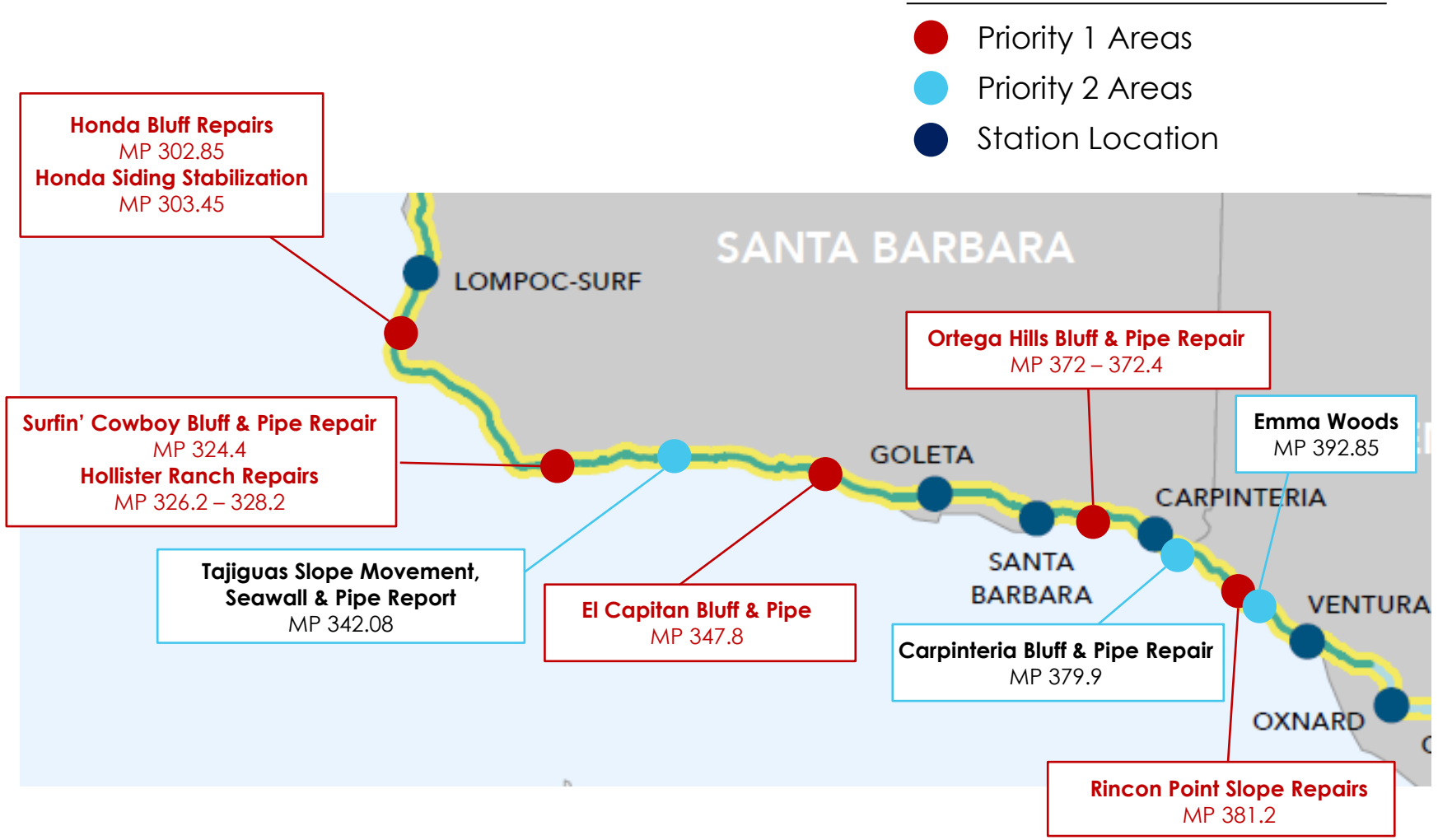
Coastal Resiliency

Northern Corridor

- Corridor was field reviewed with UPRR
- Problem areas were identified and prioritized
- Top 2 areas of priority shown in red and blue.
- UPRR performing preliminary design and developing cost estimates
- Funding allocation is dependent on these cost estimates



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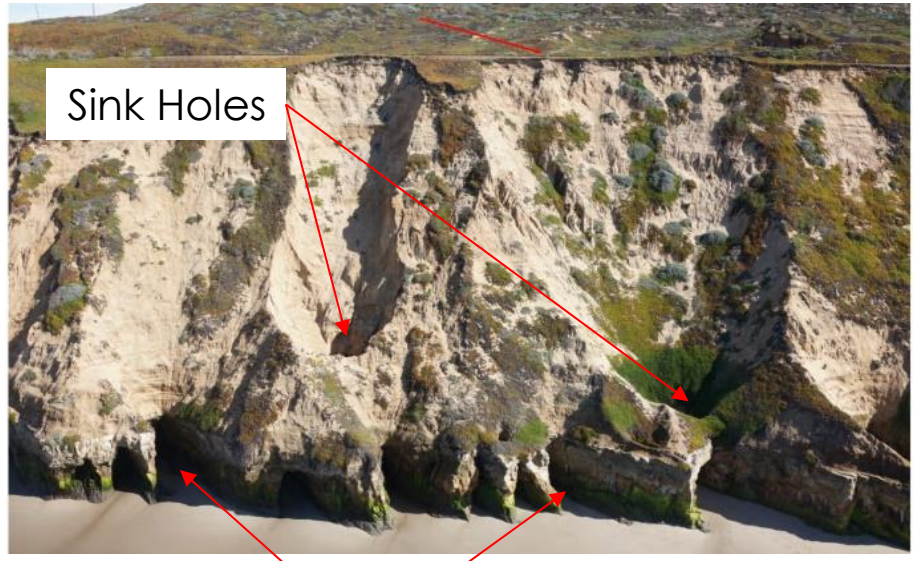
Honda Bluff Repairs and Potential Track Relocation (Milepost 302.85-303.45)

Priority 1 Area:
Honda Bluffs

Existing Conditions	• Shoreline erosion in sandstone formation creating cavities in lower portion of bluffs • Failure of steep sandy slopes
Near Term Solution/On going Work	• Install slope failure monitors. • Daily monitoring
Longer Term Solution	• Relocate tracks inland • Protect shoreline ~1500ft of shoreline • Fill voids in sea caves • May need VSFB, USACE, CCC, and State Lands permits



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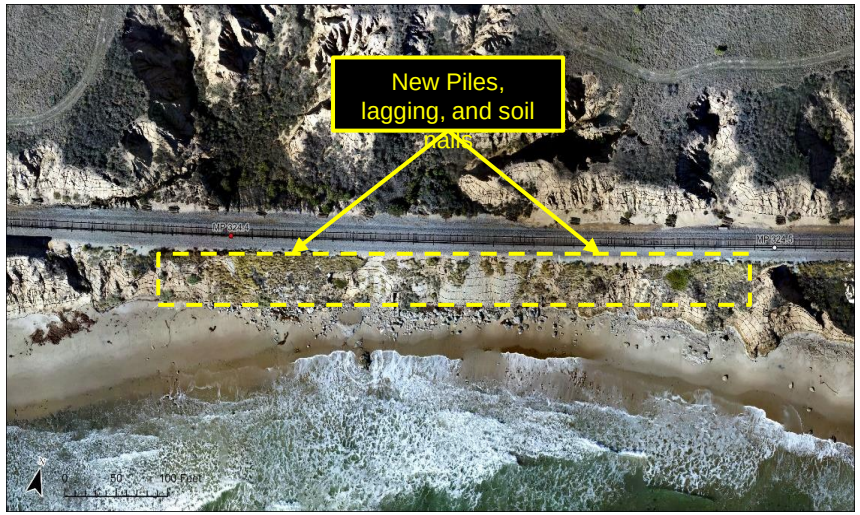
Surfin' Cowboy (Milepost 324.4) & Hollister Ranch Repairs (Milepost 326.2-328.2)

Priority 1 Area:
Surfin' Cowboy & Hollister Ranch

Existing Conditions	• Significant Bluff Erosion • Loss of RR ballast • Erosion Moving Laterally • Failure of Seawall
Near Term Solution/On going Work	• Tieback wall high on the bluff face • **Work is 80% complete at Surfin' Cowboy** • Hollister to be completed early next yr
Longer Term Solution	• Replace drainage pipes • Repair seawalls, where damaged • Seawall work will need USACE, RWQCB, and CCC permits



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El Capitan Bluff (Milepost 347.8)

Priority 1 Area:
El Capitan

Existing Conditions	• Scour under wooden soldier pile wall • Pipe broken at seawall • Slope erosion within 6' to 8' from track
Near Term Solution/On going Work	• Fill void with rip-rap
Longer Term Solution	• Replace old pipe and headwall (built in 1916). • Replace wood wall with concrete soldier pile wall with tie-back anchors. Fill scour hole with rock, or gabion mattress • Improve drainage

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Ortega Hill (Milepost 372-372.4)

Priority 1 Area:
Ortega Hill

Existing Conditions	• Bluff erosion below tracks due to failing storm drains • Slope erosion above tracks due to loose soils • Trash and debris clogs opening under bridge
Near Term Solution/ Ongoing Work	• Stabilize upper slope with jute netting • Improve bridge opening to reduce clogging
Longer Term Solution	• Replacement of corrugated metal pipes with proper headwalls and anchors to toe of slope. • Add drilled pier to secure in slope

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Rincon Point (Milepost 381.2)

Priority 1 Area:
Rincon Point

Existing Conditions	• Significant areas of hill erosion above the track • Tracks covered in sand after runoff from hills
Near Term Solution/ Ongoing Work	• Dig drainage trench to better control water flow at base of the slope • Vacuum track bed to remove sand and sediment
Proposed Repair Summary	• Install storm water pipes from the farm field at top to bottom of slope • May need easements to perform work • Placement of rocks, revetment to shore-up bottom of slope

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Projects Summary

- Items to Note:
  - All costs are subject to change
  - Design and Construction being performed by UPRR
  - Schedules subject to change based on resource availability from UPRR

Project	Funded	Near Team Cost	$ Funded	Start Construction	End Construction
Priority 1 Projects					
Honda Bluffs	No	$30 M	--	2028	2029
Surfin' Cowboy Bluffs	**Yes**	$5 M	$5 M	2024	2025
Hollister Ranch Bluffs	**Yes**	$5 M	$5 M	2025	2026
El Capitan	No	$5 M	--	2028	2029
Ortega Hill	No	$9 M	--	2028	2029
Rincon Point	No	$3 M	--	2028	2029
Priority 2 Projects					
Tajiguas Slope Repair	No	Unk.	--	2030	2031
Carpinteria Bluff & Pipe Repair	No	Unk.	--	2030	2031
Emma Woods	No	Unk.	--	2030	2031
Total Expected Cost		**$57 M**			
Total Currently Funded			**$10 M**		

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Update on Orange County Coastal Resiliency Efforts

1 Coastal Rail Stabilization Priority Project

immediate needs

- Address imminent threats to maintain rail operations
- Four reinforcement areas identified as top priority
- Project includes armoring and sand replenishment
- $305 million in state and federal funds secured
- Construction to begin as early as 2026

2 Coastal Rail Resiliency Study

short- to medium-term solutions

- Develop options to protect full seven miles of coastal rail infrastructure
- Assess climate impacts on coastal rail line
- Identify potential solutions
- Engage key stakeholders and agencies
- Study expected early 2026

3 Coastal Rail Long-Term Solutions Study

- State-led study
- Develop options for long-term solutions including potential rail line relocation
- Create an action plan for key elements
- Partner with LOSSAN, state, and federal agencies
- Engage key stakeholders

San Diego County LOSSAN Resiliency Projects

Maria Rodriguez Molina & Danny Veeh, Mega Projects Division

LOSSAN Board of Directors

March 17, 2025

Projects in Development

60-Mile San Diego Segment

Batiquitos Lagoon Double Track

Current Construction Efforts

San Dieguito Double Track and Special Events Platform

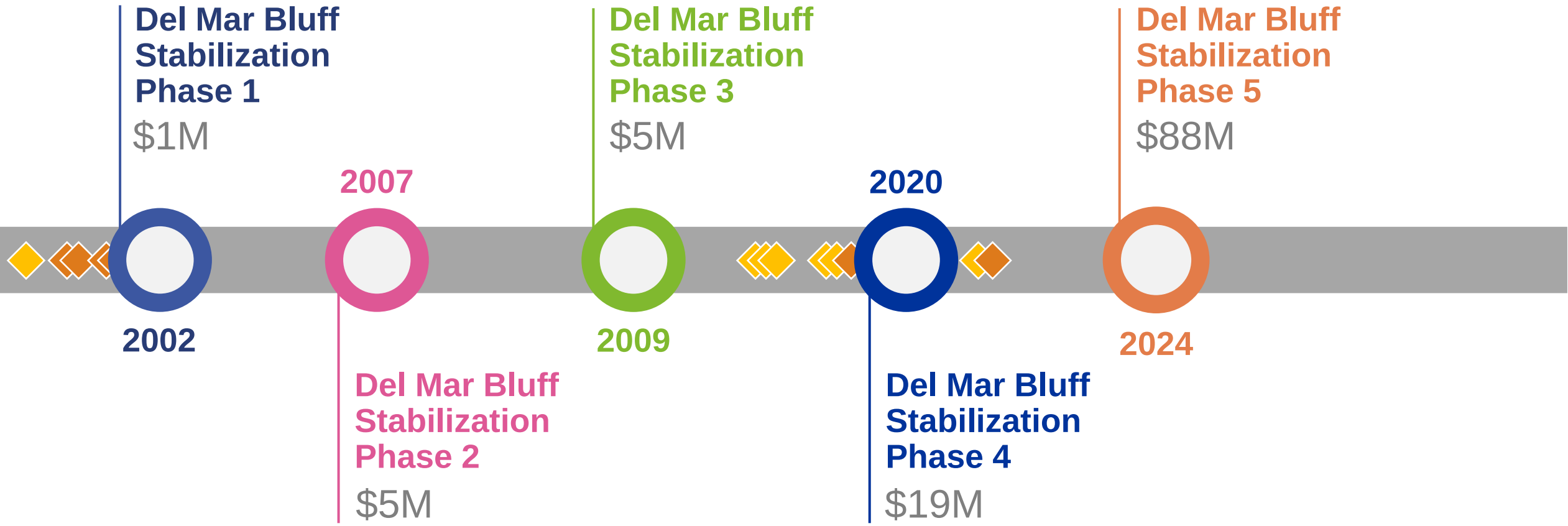
Existing Single Track Timber Bridge

During King Tides

Del Mar Bluffs Stabilization Phase 5

Aerial Photo of Del Mar Bluffs

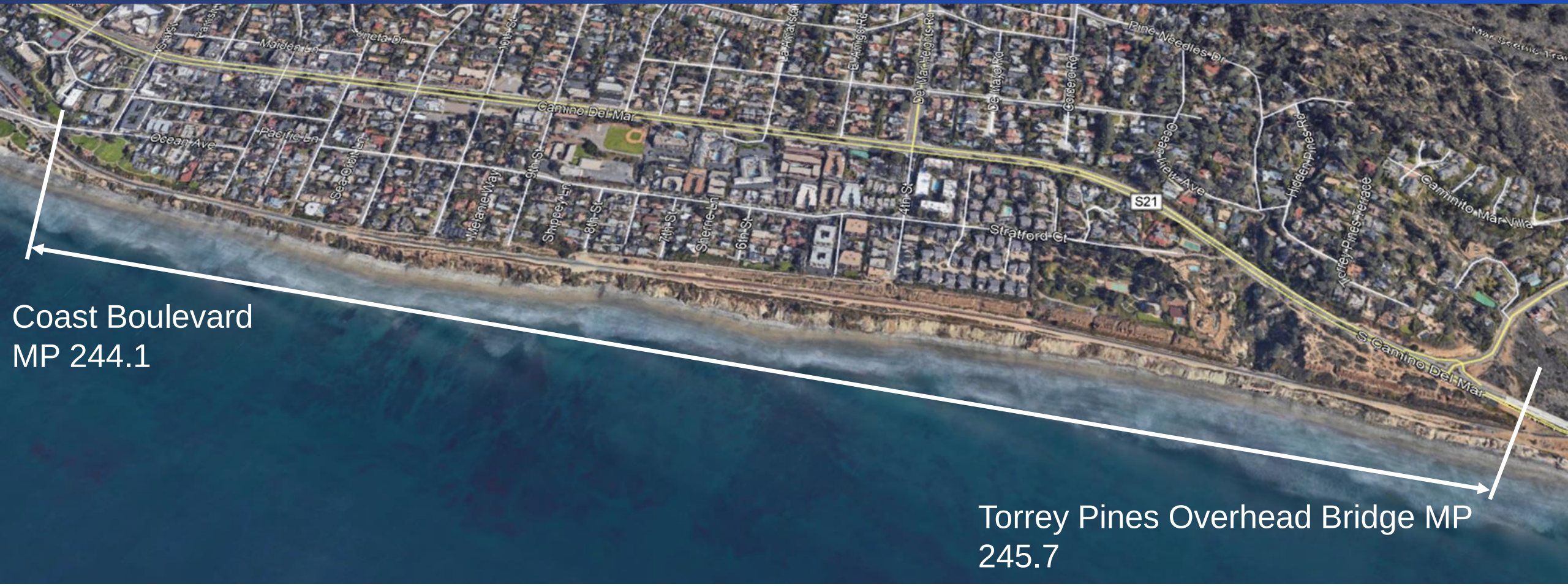
Bluff Stabilization Projects Over Time



Bluff landslide impacting rail service
1996, 2018, 2019, 2021

Emergency Repairs
1998, 2001, 2019, 2021

Del Mar Bluffs Stabilization Phase 5



Current Stabilization Efforts

San Diego LOSSAN Rail Realignment

Past Planning Efforts

- **2007** – LOSSAN Programmatic EIR/EIS (Caltrans and FRA)
- **2014** – North Coast Corridor Public Works Plan (CCC)
- **2017** – Conceptual Engineering and Environmental Study (SANDAG)
- **2018** – State Rail Plan (Caltrans)
- **2021** – 2021 Regional Plan (SANDAG)
- **2022** – Del Mar Bluffs V Stabilization Project (CCC)
- **2023** – SDLRR Alternatives Analysis (SANDAG)
- **2024** – SDLRR Notice of Preparation (SANDAG)
- **2025** – Value Analysis Study

Value Analysis

- Value Analysis (VA) is a technical study of project alternatives.
- Study held workshops and meetings in September through December 2024.
- Collaborative and technically driven fresh look at alternative concepts and ideas that could address the challenges of climate change and the eroding Del Mar bluffs to provide reliable passenger and freight service.
- The ideas, suggestions, and alternative concepts developed and evaluated by the VA Study participants are presented in the Final Value Analysis Study Report.

VA Portals and Alignments

6 North Portals | 10 Alignments | 5 South Portals

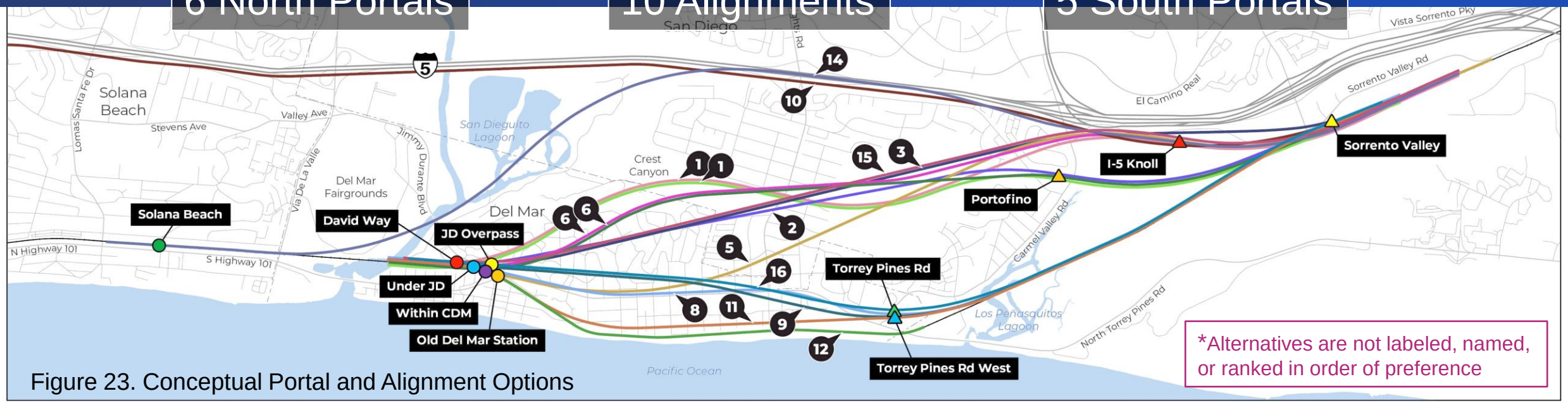


Figure 23. Conceptual Portal and Alignment Options

Conceptual Alignments
(Slightly Offset for Illustration Purposes)

North & South Conceptual Portal Locations

Existing LOSSAN Corridor Track Alignment

Municipal Boundary

MILES 0 0.25 0.5

1. Crest Canyon 90
2. Crest Canyon 110
3. Crest Canyon 110
4. Realign Jimmy Durante/Camino Del Mar (Not Mapped)
5. Crest Canyon 110
6. Crest Canyon Improved 90
7. Optimize Bridges and Berms (Not Mapped)
8. Camino Del Mar 90
9. Camino Del Mar 110
10. I-5 Oceanside to Sorrento Valley
11. Stratford Court 80
12. Double Track Bluffs
13. Freight to I-15 (Not Mapped)
14. I-5 110
15. Crest Canyon 110
16. Camino Del Mar 110

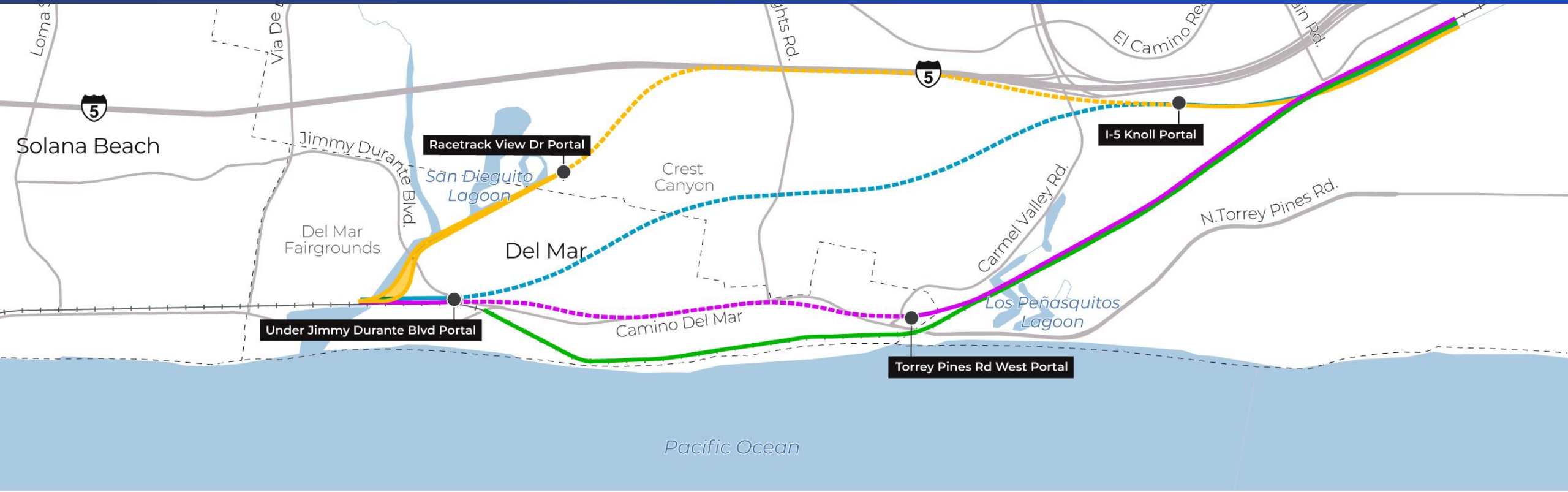
Reflects preliminary concepts as determined by VA Study participants

What Did We Learn?

Key themes and input that were incorporated into the draft revised objectives and alternative concepts developed as part of the VA Study include:

- Minimize effects to private properties, including subsurface easements
- Minimize disruptions to economic generators, such as the Del Mar Fairgrounds
- Demonstrate public stewardship by minimizing conflicts with prior and ongoing investments

Preliminary Staff Proposed Alternatives



Preliminary Staff Proposed Alternatives
February 2025

- San Dieguito Bridge to I-5 Knoll
- Under Crest Canyon
- Under Camino Del Mar
- Del Mar Bluffs Double Track Reinforced
- Tunnel Section
- Portal Location
- Existing LOSSAN Corridor Track Alignment
- Municipal Boundary

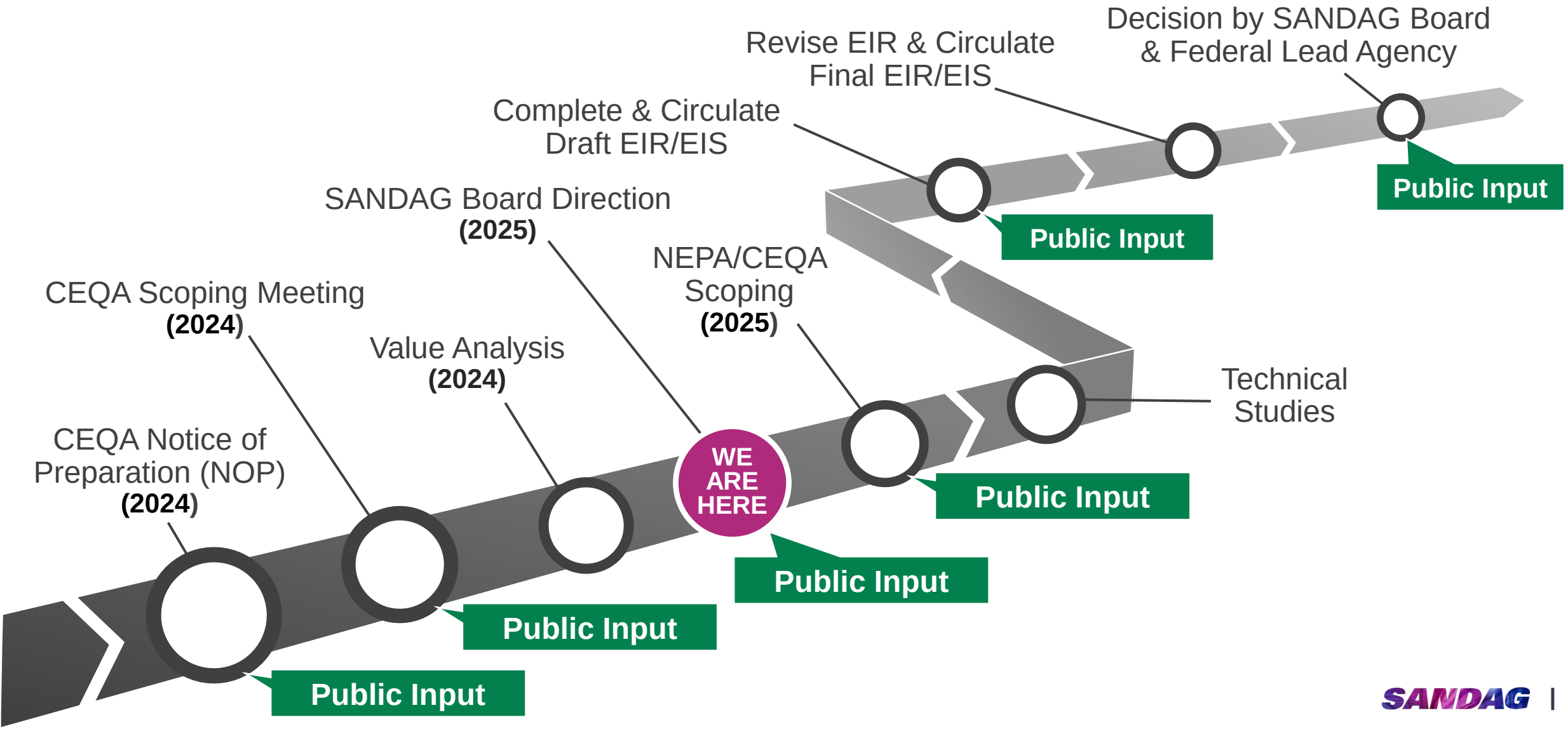
0 2,000 FEET

Preliminary Staff Proposed Alternatives ROM Costs

Color	Title	Estimated Cost ($B)
	San Dieguito Bridge to I-5 Knoll	$3.8 – $5.1
	Under Crest Canyon	$3.7 – $5.0
	Under Camino Del Mar	$3.3 – $4.4
	Del Mar Bluffs Double Track Reinforced	$1.9 – $2.5

*Preliminary rough order of magnitude (ROM) cost estimates

Environmental Process
(CEQA/NEPA)



QUESTIONS?