Coastal Rail Stabilization Priority Project Update

Background

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 mid-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

LOSSAN: Los Angeles – San Diego – San Luis Obispo Rail Corridor Agency

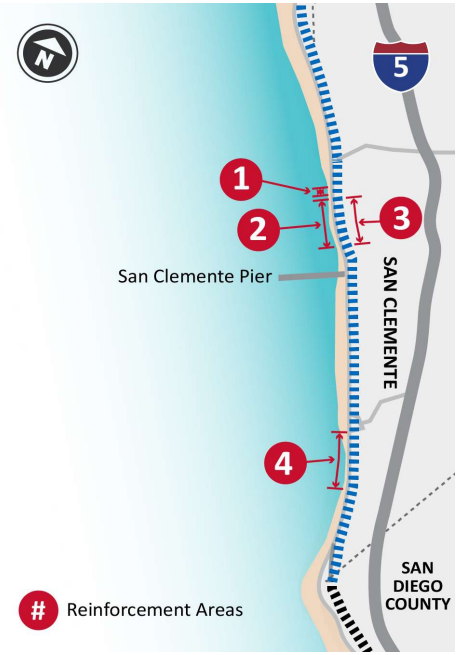
Coastal Rail Stabilization Priority Project

- Four reinforcement areas were identified in January 2024
- Potential solutions evaluated at a conceptual level considering different materials, performance, costs, methods, and schedule

Area	Location (MP)	Challenge	Potential Solutions*
1	203.80 – 203.90	Ongoing deterioration of existing riprap protection	Armoring and sand nourishment
2	204.00 – 204.40	Erosion - no beach at high tide and direct wave attack damaging existing riprap protection	Armoring and sand nourishment
3	204.00 – 204.50	Steep bluffs with high potential for failure that could impact rail infrastructure	Catchment structure
4	206.00 - 206.67	Near San Clemente State Beach - erosion exposing areas of limited to no riprap protection	Armoring and sand nourishment

*Range of solutions to be evaluated with Alternative Analysis (AA).

MP – Mile Post



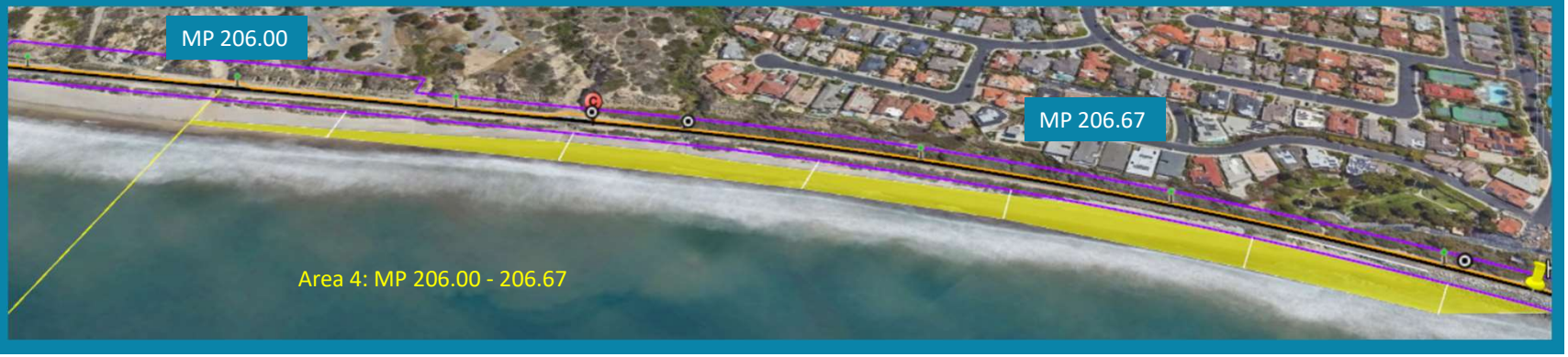
Preliminary concepts; assumptions are subject to change as more information becomes available.

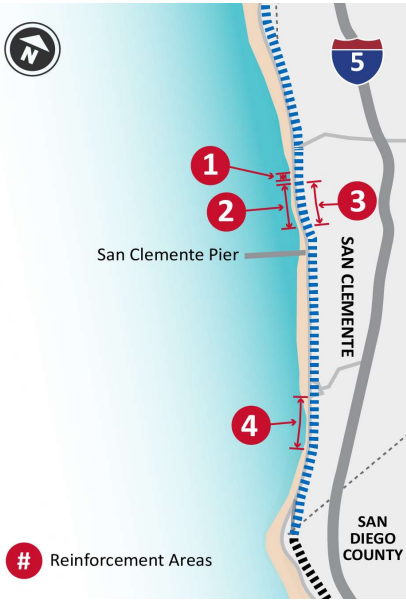
Reinforcement Areas 1 through 4

Areas 1 and 2

Area 3

Area 4





Standard vs. Emergency Process

STANDARD PROCESS

- Complete alternatives selection, design development, and environmental clearance process.
- Secure the necessary permits to begin construction.

EMERGENCY PROCESS

- Begin construction upon emergency notification to permitting agencies.
- Applies only when an existing issue has rendered the rail line non-operational, requiring immediate action to restore service.

CEQA – California Environmental Quality Act

Standard Project Delivery Process

Regulatory agencies determined that the Emergency Process does not apply to the reinforcement areas.

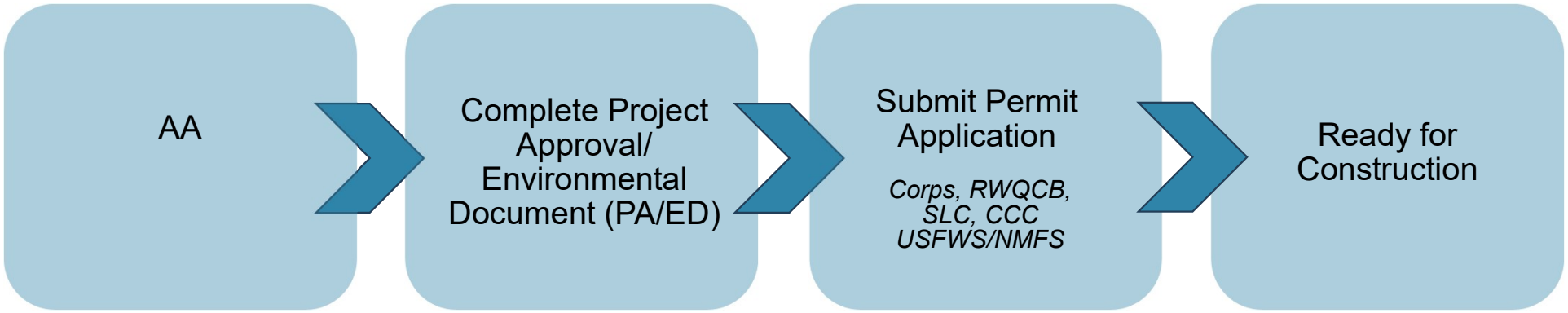
STANDARD PROCESS

- Complete alternatives selection, design development, and environmental clearance process.
- Secure the necessary permits to begin construction.

- Cyprus Shore, Casa Romantica, and Mariposa all were delivered through the Emergency Process.
- Reinforcement Area projects are intended to proactively stop potential emergencies.
- ***Emergency process not applicable, therefore the project will need to advance through the standard process.***
- Extends the time it takes to get to construction significantly.

General Non-Emergency Process

REQUIRED REGULATORY STEPS



- Field surveys and conceptual engineering analysis
- Assess alternatives that meet project objectives
- **12+ month Mid-2025**

- Conduct technical engineering and environmental studies
- Prepare environmental document environmental documents
- **12+ months Early 2027**

- Coordinate with regulatory agencies
- Conduct technical studies
- **12+ months Late 2027**

- Conduct final design
- Procure construction bid package
- **12+ months Early 2028**

Schedule is preliminary and subject to change

United States Army Corps of Engineers (Corps)
Regional Water Quality Control Board (RWQCB)
California State Lands Commission (CSLC)
California Coastal Commission (CCC)
United States Fish and Wildlife Service (USFWS)
National Marine Fisheries Service (NMFS)

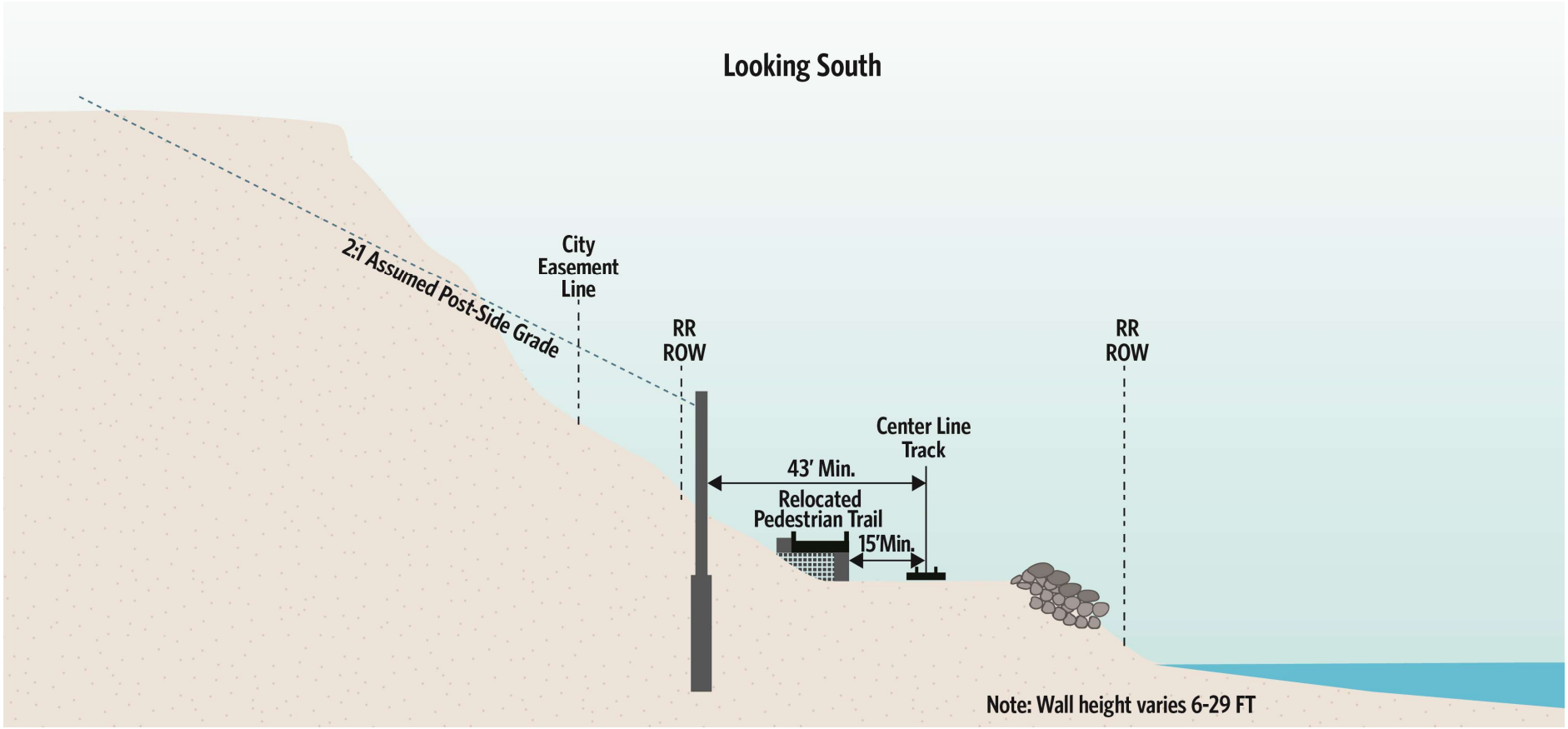
Area 3 Preferred Concept: Soldier Pile Wall

Photo: HDR

High-Level Considerations:

- Established method at Mariposa, Casa Romantica, and many other locations in the area
- Minimal footprint
- May sustain damage in landslide impact scenario
- Heavy steel and timber/concrete lagging add cost
- Deep foundation elements need to avoid utilities
- Opportunity to integrate aesthetic treatments
- Permitting: Advantages as ‘temporary, removable’ and within right-of-way. Would be consistent to aesthetic of the Mariposa Barrier Bridge

Area 3 Preferred Concept

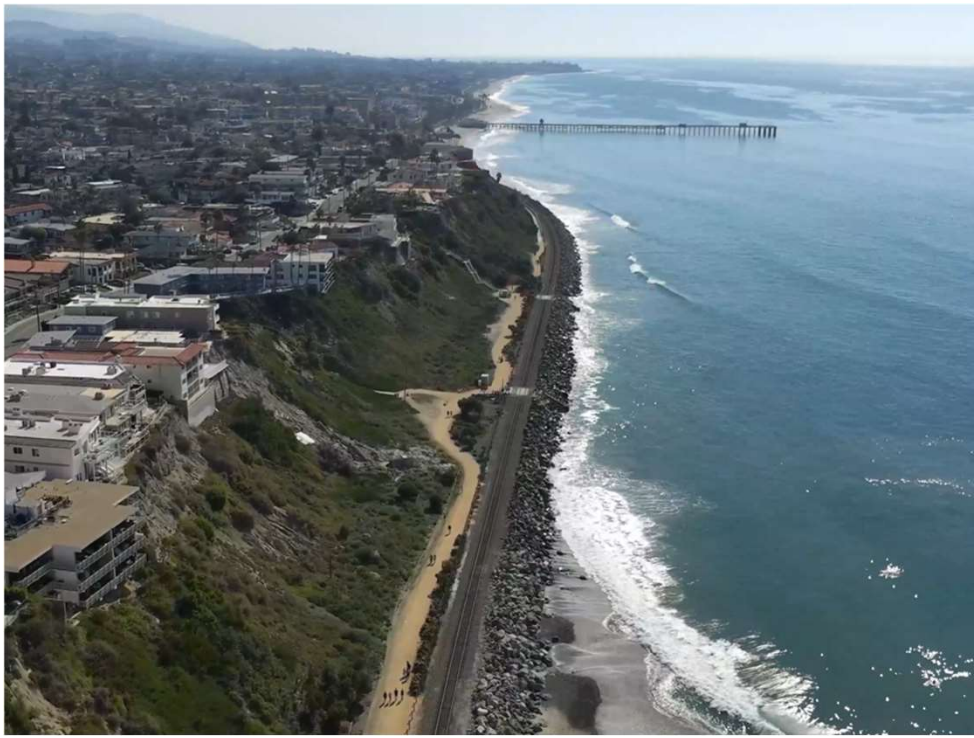


Preliminary concept; assumptions are subject to change as more information becomes available and design is further refined.

Areas 1, 2, and 4 – Top Ranking Concepts

Top concepts to be further evaluated:

- Repair riprap with sand nourishment
- Engineered revetment with sand nourishment
- Seawall with sand nourishment
- Sand nourishment only



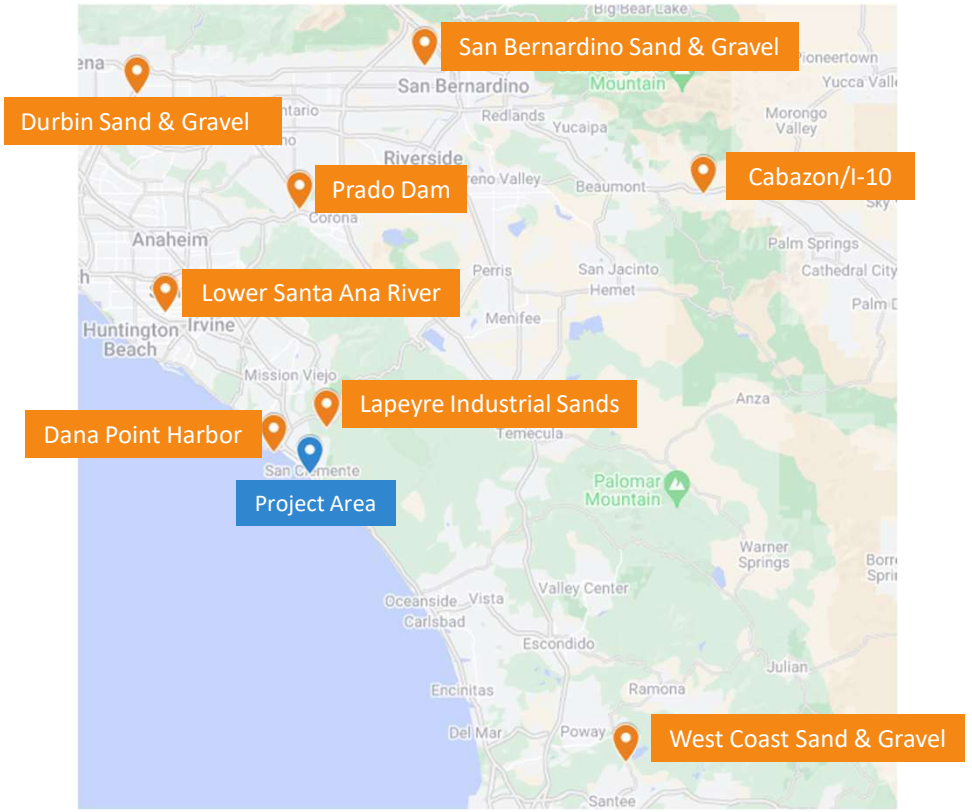
Areas 1, 2, and 4: Sand Sources and Delivery Methods

- Three delivery methods: trucking, rail, and off-shore dredging
- Major considerations:
  - Quantity available annually per site
  - Quality of sand suitable for beach use
  - Travel distance/route
  - Number of trips
  - Transportation cost
- Material cost
- Accessibility to deliver site
- Available staging areas
- Construction work windows

Areas 1, 2, and 4: Inland Sand Replenishment Sources

Estimated total sand needed: 540,000 CY

Source	Sand Available (CY)	Miles (roundtrip)
Prado Dam	*125,000*	*114*
Lapeyre Industrial Sands	*200,000+*	*26*
Lower Santa Ana River	*55,000*	*67*
Cabazon/I-10	*200,000+*	*190*
Durbin Sand and Gravel	*100,000+*	*121*
West Coast Sand and Gravel (San Diego)	*100,000+*	*140*
San Bernardino Sand and Gravel	*200,000+*	*148*
Dana Point Harbor	*Not Available*	



CY – cubic yards

Areas 1, 2, and 4: Inland Sand Source Considerations

- Additional infrastructure and right-of-way required (source and delivery sites)
- Sand cannot be side dumped onto beach
- Estimated to require over 100 train trips to transport volume of sand needed
- Train delivery would be every 7-10 days

Transfers – 30,000+ Truck Trips

Super 10 - 44,000+ Truck Trips

Belly Dump - 33,000+ Truck Trips

Estimated total sand needed: 540,000 CY

Areas 1, 2, and 4: Offshore Sand Sources Considered

- Surfside Sunset
  - Currently being utilized by City of San Clemente (City) and the Corps
- Oceanside
  - Sand quality not suitable
- Other
  - City is conducting study (2025) for additional offshore sources

Photo: OC Register

Sand nourishment projects will require the standard process for environmental clearance, regulatory permitting, and consultation for both borrow and placement sites

Progress to-date for Reinforcement Areas

- Completing environmental field surveys
- Performing baseline assessment for sand migration
- Completing alternative screening and evaluation
- Performing conceptual engineering analysis to support alternatives selection
- Completing AA process
- Continued collaboration with key stakeholders
- Early consultation with resource agencies to facilitate permitting

Funding Sources

Coastal Rail Stabilization Priority Project		
Coastal Rail Infrastructure Resiliency Project (Four Hot Spots)		
Project Approval / Environmental Document		**Amount**
Local Transportation Climate Adaptation Program	$	3,820,000
Measure M2/OC Go	$	960,000
Subtotal	**$**	**4,780,000**
Final Design and Construction		**Amount**
SB 125 Transit Program*	$	3,885,000
Consolidated Rail Infrastructure and Safety Improvements Program	$	100,000,000
SB 1 Trade Corridor Enhancement Program Advanced Programming	$	80,000,000
2024 Transit and Intercity Rail Capital Program	$	125,000,000
Subtotal	**$**	**308,885,000**
Project Total	**$**	**313,665,000**

*Additional $44,383,000 in SB 125 Available for Future Needs

Key Project Risks and Challenges

RISK: Potential additional bluff failures and coastal erosion during the project development process requiring emergency measures and rescoping of plans being developed

CHALLENGES:

- Selection of preferred project alternatives, taking into consideration multiple key stakeholders, and permitting resource agencies input
- Obtaining environmental approvals and permits required for selected alternatives
- Identification of a sand source with sufficient volume of sand available
- Obtaining a timely sand transport and viable delivery method
- Securing construction work windows to minimize impacts to active railroad operations

Next Steps

- Direct staff to complete PA/ED phase of project.
- Continue to explore expedited permitting in coordination with state and federal regulatory agencies.
- Continue to explore opportunistic sand to partner on existing sand nourishment efforts.