



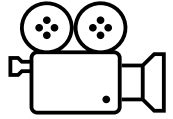
**Public Meeting #2**  
**Listening Session**  
May 30, 2024

*The meeting will begin shortly.*



# Meeting Format

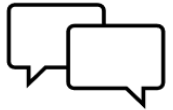
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- This meeting is being audio recorded to accurately capture your input.



- Spanish Interpretation is available at the back counter



- Comments will be received after the presentation during the listening session.
- Both written and verbal comments are welcomed and are equally considered by the team.
  - **Written comments** via comment cards located at the back counter
  - **Verbal comments** via speaker cards. Attendees to line up to provide verbal comments

# Agenda

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- History
- Short and Mid-term Study
- Study Milestones
- Potential Reinforcement Areas
- Feedback Received
- Listening Session
- Next Steps



# OCTA's Role in the LOSSAN Corridor

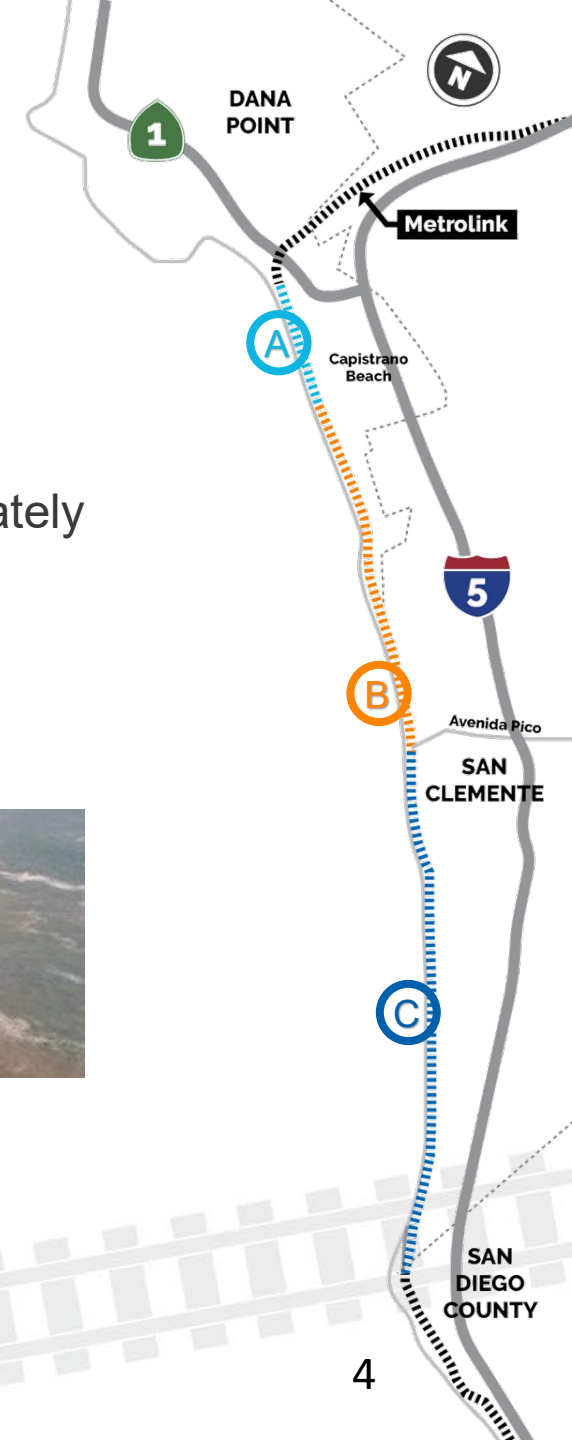
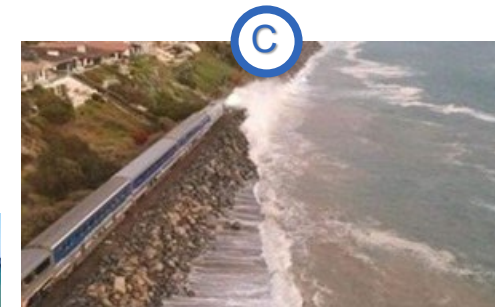
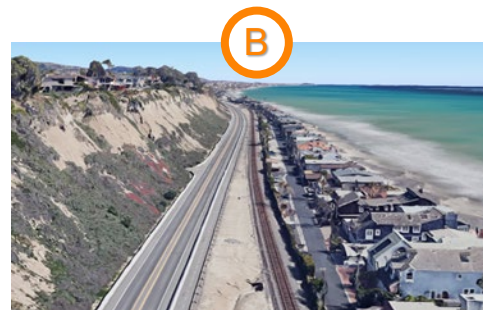
- Owns 40+ miles of the corridor, including seven miles of critical coastal track in south Orange County
- Responsibility to minimize disruptions to rail service
- Serves as the managing agency for the LOSSAN Rail Corridor Agency
- Member of the Southern California Regional Rail Authority (Metrolink) joint powers authority that uses the LOSSAN corridor

## COASTAL RAIL RESILIENCY STUDY

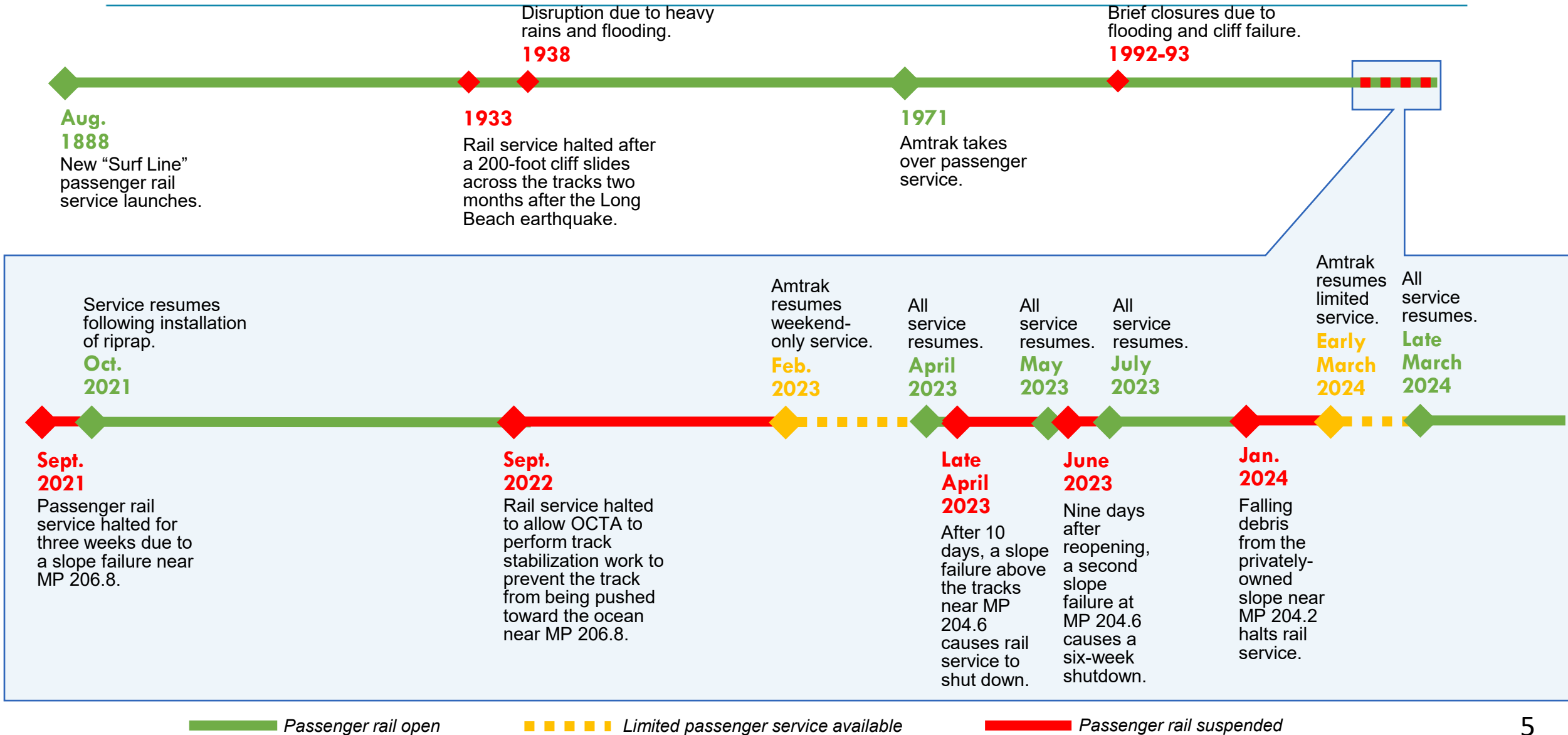
# OCTA's Beachside Rail Line

In south Orange County, tracks run along the beach, sandwiched between bluffs and the ocean.

Most of this beachside rail line is approximately 200 feet or less from the coastline.



# Passenger Rail Closures



# Changing Conditions



Milepost 206.8



- Beach erosion
- Recent coastal studies
- Prior studies by state/federal agencies
- Milepost 206.8 incident
- Need to develop phased solutions to address infrastructure impacts

# Local Resiliency Activities

| PROJECT  | ACTIVITY  | COST  | TIMEFRAME                  |
|--|---|---|----------------------------|
| Cyprus Shore Initial Track Stabilization Project (MP 206.8)                                | Emergency placement of riprap   | \$8 million   | September 2021             |
| Cyprus Shore Track Stabilization Project (MP 206.8)  | Installation of ground anchors in response to adjacent landslide  | \$13.7 million+   | October 2022 – August 2023 |
| San Clemente Track Protection Project (MP 204.6)   | Installation of temporary barrier wall in response to adjacent landslide  | \$6 million   | May – July 2023            |
| San Clemente Track Protection Project (MP 204.2)   | Removal of debris and other remedial action in response to adjacent landslide   | \$TBD   | Jan – TBD                  |
| San Clemente Shoreline Project (Sand Replenishment) (MP ~204.5 – 205.2)                    | Project would add 251,000 cubic yards of sand to the beach. Repeated at every 5-6 years interval up to 2 million cubic yards. | \$14.3 million<br>(65% federal / 35% city cost sharing) | Fall 2023/ Winter 2024     |
| San Clemente Nature-Based Coastal Resiliency Project Feasibility Study (community meeting) | This Study builds on the Shoreline Monitoring Program to promote long-term coastal resiliency in San Clemente.                | \$570,000<br>(CCC LCP Grant Round 7)                    | Ongoing – Summer 2025      |

MP – Mile Post

# Coastal Rail Resiliency: A Two-Phase Approach

## Coastal Rail Resiliency Study

### Short- to medium-term solutions

- Study underway
- Initial Assessment to address the most vulnerable areas through
- Develop options to protect 7 miles of coastal rail infrastructure at various sea levels
- Gain an understanding of climate effects on coastal rail infrastructure
- Identify potential solutions, including sand replenishment and retention
- Engage key stakeholders and agencies

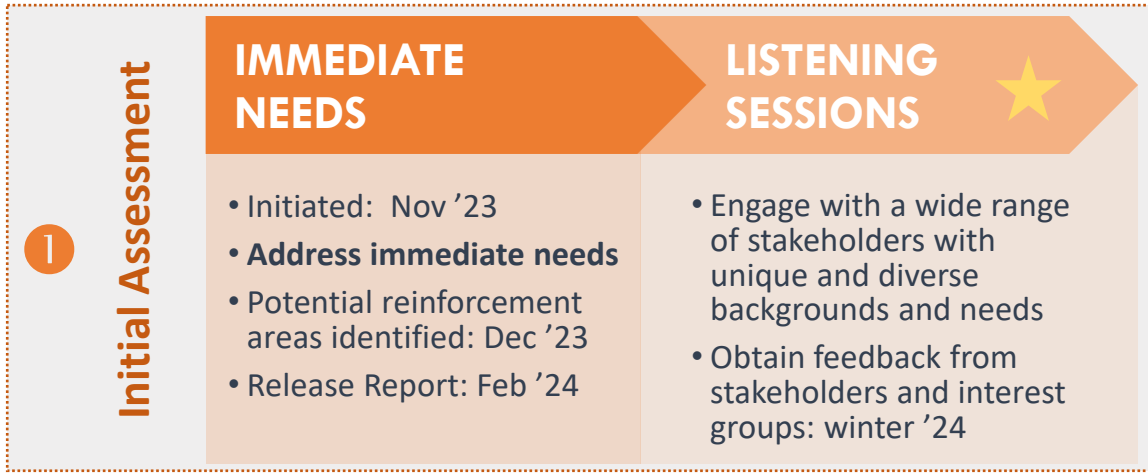
## Coastal Rail Long-Term Solutions Study

### Long-term solutions

- Develop options for potential long-term solutions for the coastal section of rail line
- Create an action plan for key elements
- Partner with LOSSAN, state and federal agencies
- Engage key stakeholders and agencies



# Short- and Mid-Term Study Milestones

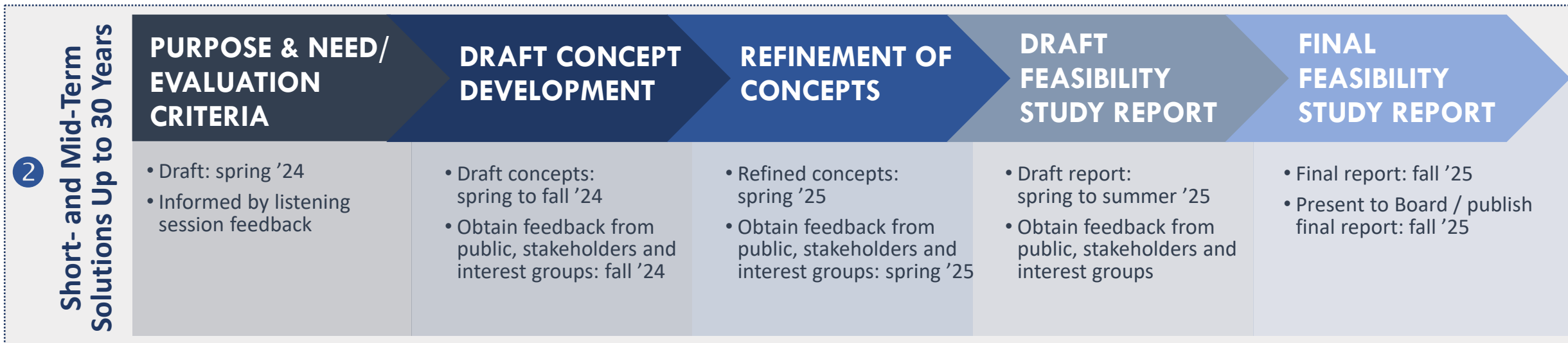


**1** Coastal Rail Resiliency Study is to address the most vulnerable areas through the initial assessment.

**2** The study then looks at protecting the rail line in place for up to 30 years.

**These activities are occurring simultaneously.**

1 - Step 1    2 - Step 2    ★ - Current Phase    Board - Board of Directors

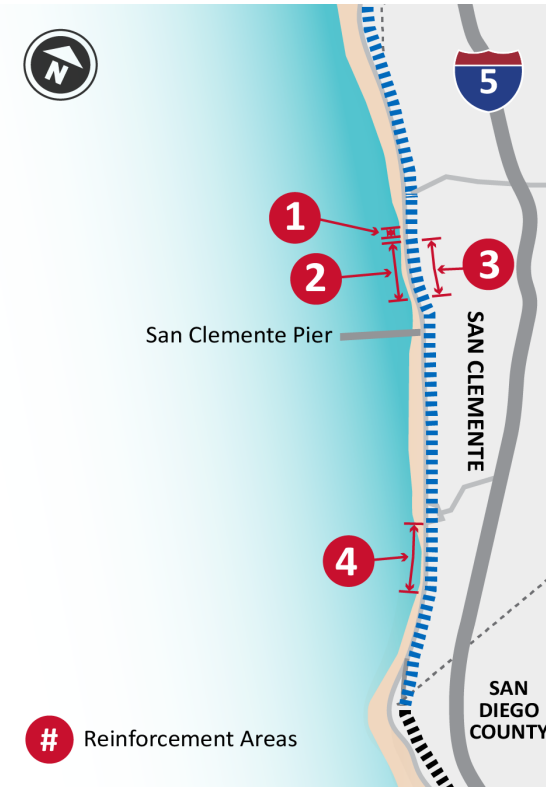


# Initial Assessment Purpose and Need

- Four reinforcement areas were identified in December 2023
- Potential solutions need to be in place or substantially underway by fall 2024 ahead of next storm season
- Potential solutions evaluated at a conceptual level considering different materials, performance, costs, methods, and schedule

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

\*The inland slope experienced a failure in late January 2024 within a portion of Area 3, resulting in a passenger rail shutdown for approximately two months



MP – Mile Post

# Reinforcement Areas 1 & 2: Potential Solution

## Existing Condition:

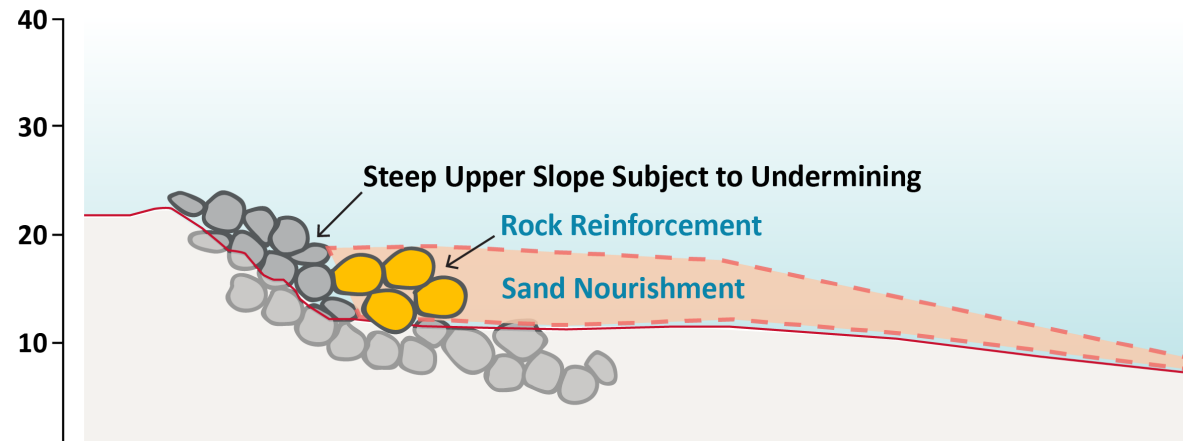


MP 203.80 – 203.90 and 204.00 – 204.40

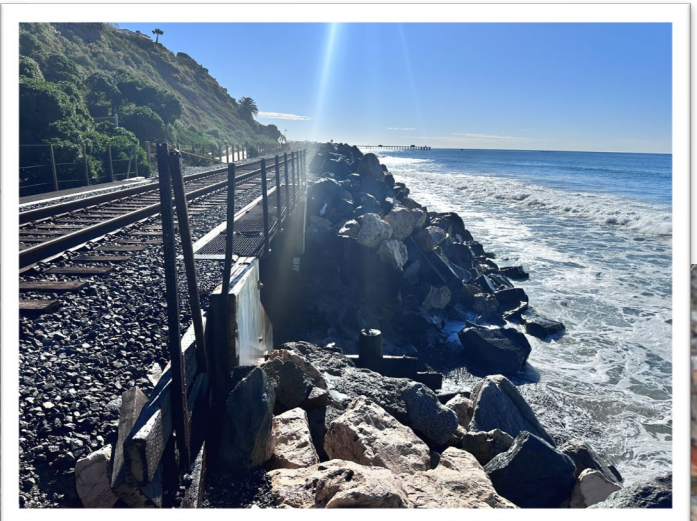
## Potential Solution **UPDATED**:

### Rock (repair existing riprap) and sand nourishment

- Place 2-ton to 6-ton rock gradation
- Minimize rock encroachment on the beach
- Sand nourishment to add approximately 50-ft-wide beach fronting rock
- Prioritize eroded and over-steepened areas
- Locations based on LiDAR survey and on-the-ground evaluation



# Reinforcement Areas 1 & 2: Location **UPDATED**



MP 203.80

MP 204.40

Area 1

Area 2

### ROCK REINFORCEMENT

- Approximately 7,000 tons of 2-ton to 6-ton rocks

### SAND NOURISHMENT

- Sand nourishment to create approximately 50-foot-wide beach between MP 203.80 and 204.40
- Approximately 240,000 cubic yards of sand needed

# Reinforcement Area 3: Potential Solution

## Existing Condition:

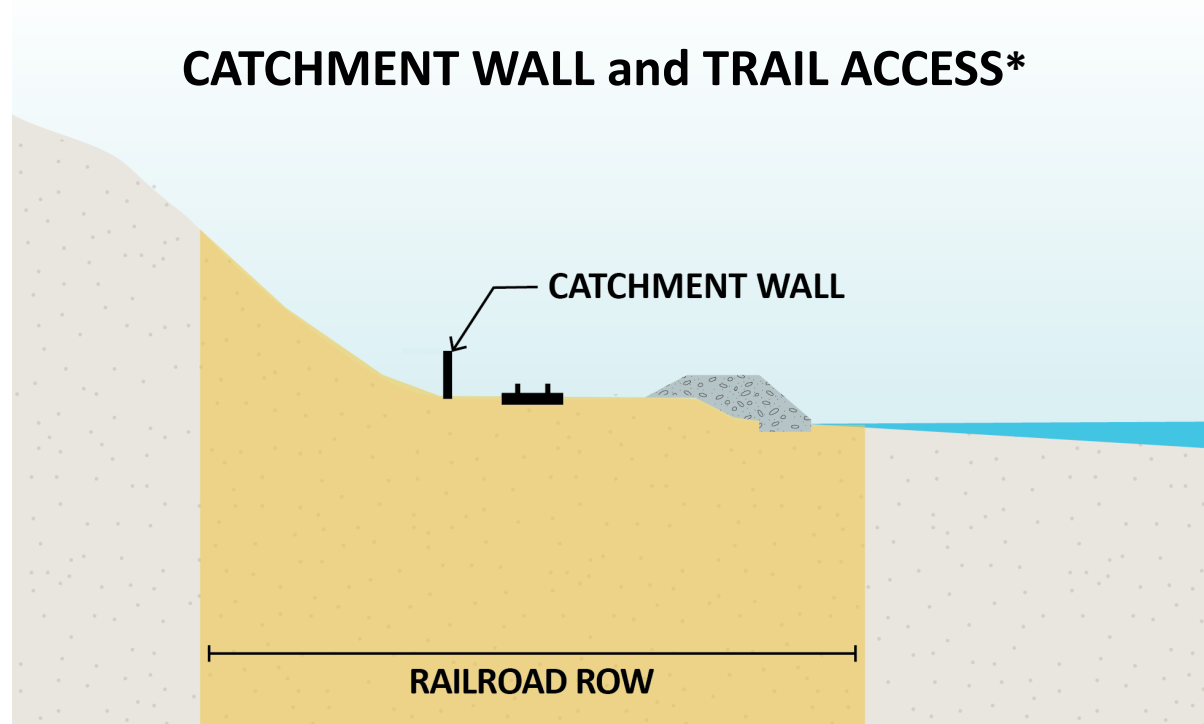


**MP 204.00 – 204.50**

Steep bluffs with a history of failure and high potential for additional movement that could impact the railroad infrastructure.

ROW - Right-of-Way

## Potential Solution - **UPDATED**:



\*Extend existing catchment wall. OCTA will work with the City of San Clemente to maintain and restore trail access.

# Reinforcement Area 4: Potential Solution

## Existing Condition:



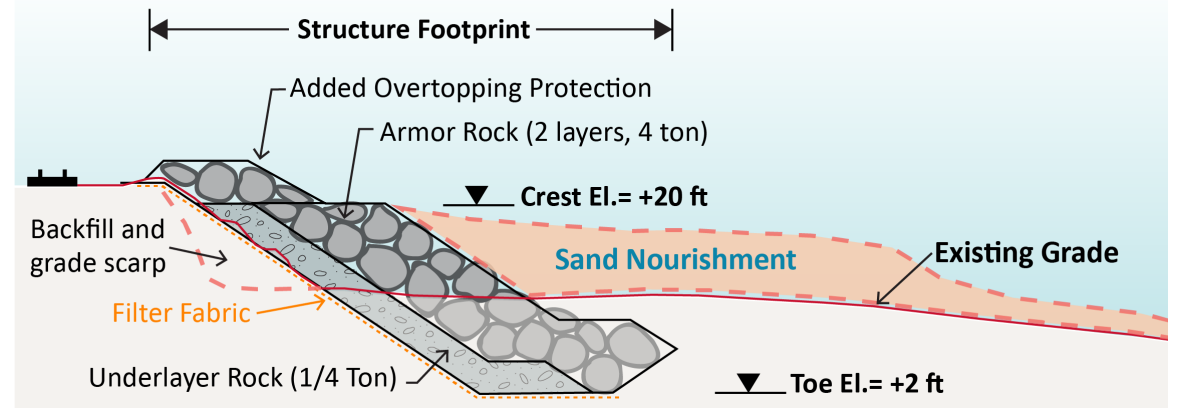
MP 206.00 - 206.67

Near San Clemente State Beach - erosion exposing areas of limited to no riprap protection.

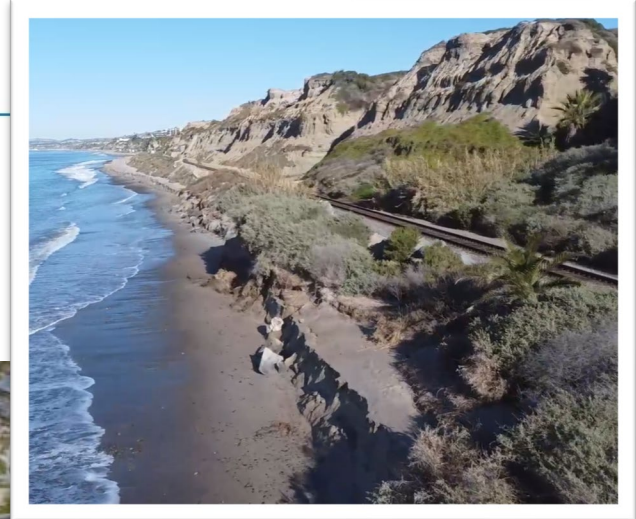
## Potential Solution **UPDATED**:

### Engineered rock revetment and sand nourishment

- Place geotextile filter fabric
- Place approximately 1/4-ton rock gradation for underlayer
- Place approximately 4-ton rock gradation
- Create approximately 80 to 100-foot-wide beach through sand nourishment fronting engineered rock revetment
- Locations based on LiDAR survey and on-the-ground evaluation



# Reinforcement Area 4: Location **UPDATED**



Area 4: MP 206.00 - 206.67

## ROCK REINFORCEMENT

- Approximately 60,000 to 77,000 tons of rock

## SAND NOURISHMENT

- Sand nourishment to create approximately 80 to 100-foot-wide beach between MP 206.00 and 206.67
- Approximately 240,000 to 300,000 cubic yards of sand

# Listening Session – Goals

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- Gather collaborative input from key stakeholders in various public and private sectors
- Listening sessions seek to:
  - Identify key stakeholders
  - Share expectation to maintain in-place the existing coastal rail line and minimize passenger and freight service disruptions for up to 30-years
  - Assess vulnerabilities and issues of concerns
  - Identify potential opportunities to further enhance collaboration
  - Document feedback





# Listening Sessions Schedule

| Date     | Listening Session  | Description  |
|----------|--|--|
| 01/18/24 | Project Development Team (PDT)                               |  |
| 02/14/24 | Stakeholder Working Group (SWG)                              | Federal, state, regional & local interest groups                   |
| 02/15/24 | Major Employers, Key Destinations & Other Business Interests | Business associations & entertainment                              |
| 03/06/24 | Freight & Goods Movement                                     | Business & transportation interest groups                          |
| 03/12/24 | Emergency Responders   | Police departments, fire departments, coast guards & harbor patrol |
| 03/20/24 | Coastal & Marine Habitat Community-Based Organizations       | Environmental groups   |
| 04/03/24 | Residential Groups   | Homeowner associations (HOAs)                                      |
| 04/11/24 | General Public   | Virtual meeting  |
| 05/22/24 | Bluff Residents  | Virtual meeting  |
| 05/30/24 | General Public   | In-person meeting  |

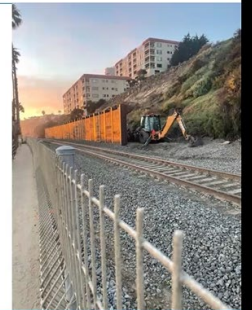
# Coastal Rail Resiliency Study / Initial Assessment Feedback To Date

- Consider other natural solutions (sand, living shoreline, etc.)
- Seek partnering opportunities (city, county, state, etc.)
- Integrate the previous work of others into the Study, as appropriate
- The need to follow the prescribed environmental processes
- Consider the impacts of armoring and its effects on coastal erosion
- Support for early, comprehensive, preventive action
- Obligation for OCTA to keep the railroad operational
- Continue coordinated streamlined communication of service disruption
- Concern regarding impacts to employee commute patterns and regional tourism
- Continue seeking expert input to address sand nourishment
- Ensure commitments from other agency owners to the sand solution



## Initial Assessment

- Address Owner/Operators concerns regarding imminent issues affecting the railroad
- Focused on protecting rail operations, track infrastructure, and maintaining railroad service
- Identified Areas of Concern
  - Monitoring Areas
  - Potential Reinforcement Areas
- Identify Next Steps

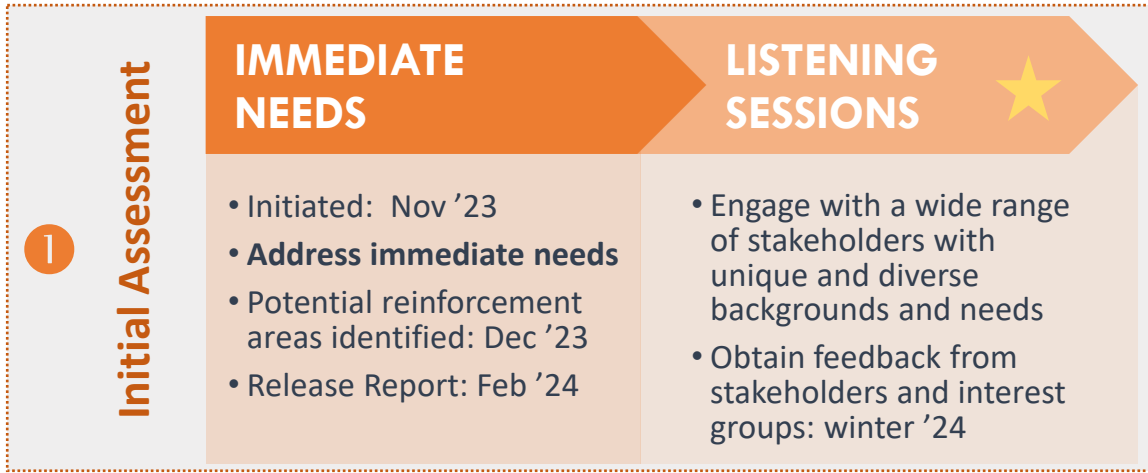




# Listening Session

**COASTAL RAIL** RESILIENCY STUDY

# Short- and Mid-Term Study Milestones

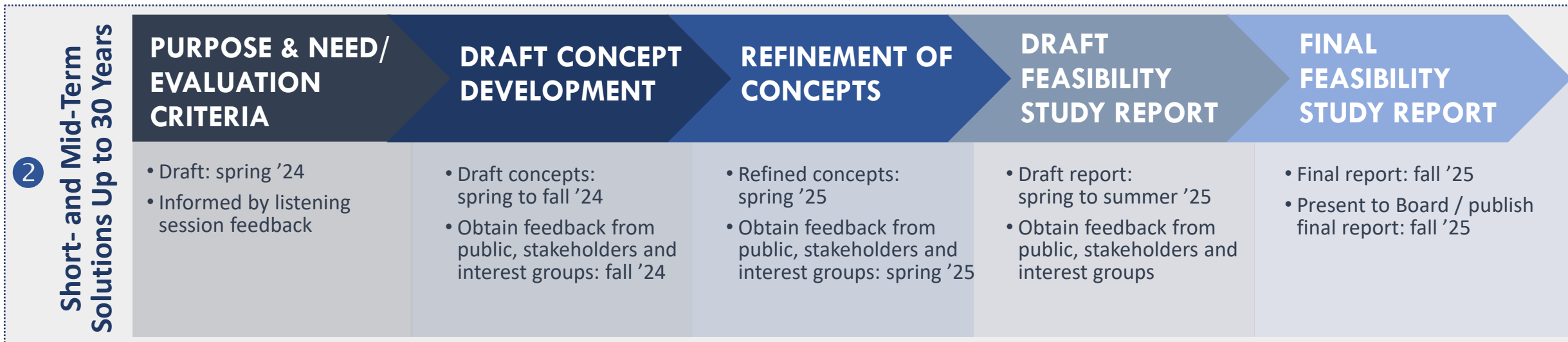


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# Stay Connected

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**THANK YOU!**

