



ORANGE COUNTY COASTAL RAIL RESILIENCY STUDY



Frequently Asked Questions (FAQ)

STUDY BACKGROUND

What is the Coastal Rail Resiliency Study (CRRS)?

OCTA is studying challenges in south Orange County to assess existing and future environmental risks to passenger rail operations and maintenance along the Los Angeles – San Diego – San Luis Obispo (LOSSAN) Rail Corridor. The Study will develop and evaluate strategies to address these challenges.

What is the purpose of the Study?

Near heavily populated and built-out residential and commercial areas, rail service operates along a 7-mile stretch of beach in South Orange County. This portion of the LOSSAN Railroad Corridor is affected by changing environmental conditions and coastal erosion and has rendered passenger rail service inoperable for extended periods. Service has been suspended multiple times over the last several years, underscoring the importance of the Study and assessment of areas for reinforcement along the railroad.

What are the Study objectives?

The Study will evaluate strategies to protect the railroad in place for up to 30 years to help minimize interrupted rail operations and passenger rail disruptions. The Study will include a detailed analysis of seven miles of vulnerable coastal track stretching between Dana Point and San Clemente to the San Diego County Line.

Key milestones include conducting an initial assessment to identify and evaluate areas at immediate risk; establishing evaluation criteria to vet potential alternative concepts to protect the rail line; developing these concepts; and ultimately presenting draft and final feasibility study reports. Feedback from the public and other stakeholders will be solicited at multiple milestones during the Study and integrated in the course of its development.

Who is leading this Study and what is the coordination with other agencies?

OCTA is leading the Study to protect the existing railroad in place. OCTA is working collaboratively with stakeholders to develop a comprehensive coastal capital program. Because not all of the issues are within OCTA-owned rail right of way, OCTA will work with the appropriate parties to determine the proper roles and responsibilities.

Who uses this corridor and why is this rail corridor important?

As part of the 351-mile LOSSAN Railroad Corridor, this is a popular commuter and traveler route, its location makes it essential to United States national defense, and it is a vital BNSF freight line. The South County portion of the LOSSAN rail corridor also has a diverse range of interests and stakeholders, including multiple federal, state, and local agency jurisdictions, residential and business property owners. The area has significant coastal habitat and serves millions of recreational users and tourists each year.

The LOSSAN Rail Corridor is the second busiest passenger rail corridor in the nation and annually carries more than \$1 billion in freight throughout Southern California. Between Los Angeles and San Diego, the line is also designated as a Strategic Rail Corridor for national defense.

INITIAL ASSESSMENT AND REINFORCEMENT AREAS

What is the initial assessment?

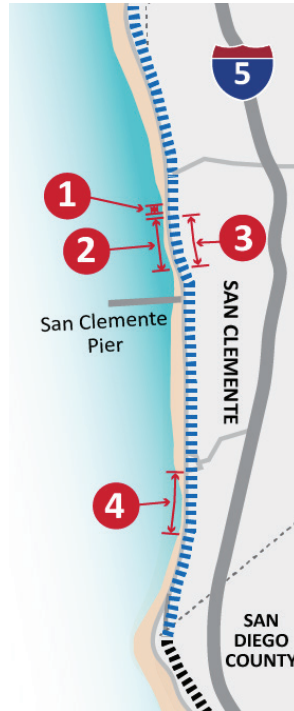
As part of the Study, OCTA is conducting an initial assessment of the 7-mile stretch of track to identify areas of immediate need where rail service is most at risk of being disrupted and where reinforcement is critical. The initial assessment will identify potential projects that – pending approval – can be immediately implemented to help protect the rail line which includes engineering solutions such as riprap revetment and beach sand nourishment.

ORANGE COUNTY COASTAL RAIL RESILIENCY STUDY

What potential reinforcement areas have been identified as needing immediate attention in the initial assessment, and where are they?

Four potential reinforcement areas have been identified along the coastal corridor, including:

- 1. Mile Post 203.80 – 203.90**
Just south of the San Clemente Metrolink Station at North Beach. The beach erosion is progressing north from this point.
- 2. Mile Post 204.00 – 204.40**
At San Clemente City Beach where there is significant beach erosion and no beach at high tide.
- 3. Mile Post 204.00 – 204.50**
Just south of San Clemente City Beach, this area has poor track-side drainage and the potential for liquefaction and inland slope failure.
- 4. Mile Post 206.00 – 206.67**
Near San Clemente State Beach; coastal erosion exposing areas of limited to no riprap protection.



FUNDING AND SCHEDULE

How is the Study funded?

The Study is funded by the federal Surface Transportation Block Grant Program and through OCTA's local half-cent sales tax for transportation improvements – Measure M2.

What is the Study schedule?

The Study began in fall 2023 and the Final Feasibility Study Report is scheduled for completion in fall 2025. The initial assessment areas that require immediate attention are being advanced on a parallel path and the intent is to expedite concept development and implementation.

ENVIRONMENTAL IMPACTS

What is causing coastal erosion in San Clemente?

Coastal erosion in San Clemente is caused by multiple factors including lack of sand supply and slope failure. The erosion has become an all-too-familiar story in recent years along Southern California's coast, with shrinking beaches and unstable slopes bringing nearby infrastructure – homes, roads, railways, utilities – much closer to the ocean tides. For more information on sea-level rise, please see the City of San Clemente's [Sea Level Rise Vulnerability Assessment](#).

What coastal infrastructure will be impacted by changing environmental conditions and sea-level rise along the coastal rail corridor?

Coastal erosion is threatening south Orange County's coastline, and the effects have become more severe in recent years. The railroad track, homes along the coast, and recreational facilities on the beaches are facing increased risk. Passenger rail service has been suspended on multiple occasions between Orange and San Diego counties for several months as crews conducted emergency repairs caused by beach erosion in San Clemente.

What has OCTA done to protect the tracks in San Clemente?

OCTA and Metrolink have completed three emergency projects to protect the railroad track in San Clemente as a result of coastal erosion and slides from private and city property above the track making it unsafe to operate passenger rail service.

The projects include:

- Installing ground anchors into a slope adjacent to the private Cyprus Shore community. The sliding slope created destabilizing track movement. The project cost approximately \$21.7 million, and OCTA secured funding from state and federal sources to fund the project (Figure 1).



Figure 1: Cyprus Shore

- Constructing a \$6 million temporary barrier wall below the City of San Clemente-owned Casa Romantica Cultural Center and Gardens where a landslide from the City's property forced debris onto the track making it unsafe to operate passenger rail service. The project was funded with state and local dollars (Figure 2).



Figure 2: Casa Romantica

ORANGE COUNTY COASTAL RAIL RESILIENCY STUDY

- A catchment wall was constructed at Mariposa Point in San Clemente where a private property landslide caused a City of San Clemente-owned bridge to collapse and forced debris onto the track making it unsafe to operate passenger rail service. The approximately \$9.2 million project was funded by the state (Figure 3).



Figure 3: Mariposa Point

Does operation of trains exacerbate the erosion or landslide potential of coastal bluffs?

The railroad has been in operation for over 130 years and there is no evidence to suggest that operating trains causes bluff erosion or landslide activity. Bluff erosion and landslide activity in the area is associated with steep slopes, unfavorable geologic conditions, surface runoff and groundwater saturation.

The protection of the rail line provides a buffer between beach erosion and inland private properties. The challenges on the inland side of the rail line will remain, unless the surface erosion and groundwater-associated issues are addressed.

None of the recent landslides at Cyprus Shores, Casa Romantica, or the Mariposa Pedestrian Trail were associated with vibrations from trains traveling through the area. In addition, rail service has been stopped and restarted at each of these locations without any correlation between movements on any of the landslides. This data has been verified with measurements taken in real-time using both below ground and surface motion sensors, which provide a continuous stream of data. These sensors did in fact indicate correlations between slope movement and rainfall as well as tidal cycles. The sensors did not indicate any landslide movements associated with rail operations. Therefore, the data does not support claims that train vibrations activate or exacerbate landslides.

Why isn't OCTA monitoring vibration and moisture content along the bluffs in San Clemente? Is that something you should understand to predict landslides?

Recognizing that the bluffs are generally outside of OCTA's right-of-way, we are limited in our ability to conduct activities on property outside of our control. It is clear the bluffs contain persistent groundwater flow demonstrated by naturally occurring springs visible along the entire alignment. Because of this, monitoring groundwater would not provide actionable data to predict exact landslide locations that would potentially impact rail service. Monitoring or measuring train vibration would not provide any valid data to predict landslides because there is no evidence that train vibrations cause landslides (see detailed answer above).

NEIGHBORING AND PAST STUDIES

What are examples of studies and work that have been completed so far?

There are many local, regional and state projects that have come before this Study, each providing context and understanding to various aspects and challenges the Study contends with and seeks to address. A few projects and studies that will help inform OCTA and the process ahead are:

- San Diego Association of Governments (SANDAG) Del Mar Rail Realignment (ongoing) – assessing the conditions and options to continue rail service in San Diego County.
- OCTA's San Clemente Track Protection Project (2023) – included installation of a temporary barrier wall in response to an adjacent landslide.
- San Clemente Coastal Resiliency Plan (2021) to assess how sea-level rise and sand erosion will impact the coastal town.
- OCTA's Rail Infrastructure Study Defense Against Climate Change (2020) – an early study to assess the potential effects of climate change on OCTA's rail corridor. City of Dana Point Sea Level Rise Vulnerability Assessment (2019) - to assess City's vulnerability of infrastructure, land uses, and coastal resources in the Dana Point coastal zone.
- City of San Clemente Sea Level Rise Vulnerability Assessment (2019) - to assess City's vulnerability of infrastructure, land uses, and coastal resources in the San Clemente coastal zone.
- OC Sand Compatibility Use Program (2017) – recommended policy and action to promote the availability of upland sand sources for beach nourishment to guide the formulation of Orange County's opportunistic beach nourishment program.
- OC Coastal Regional Sediment Management Plan (2013) – Information to develop policies and/or execute management sub-plans to restore and preserve the future vitality of Orange County beaches and coastal areas.

ORANGE COUNTY COASTAL RAIL RESILIENCY STUDY

PUBLIC PARTICIPATION

How can the public provide input on the Study?

Stakeholders will have a number of opportunities to learn about the evolving alternative concepts and provide input throughout the Study. Initially, a series of Listening Sessions will be held with a variety of interest groups including a series of public meetings to learn from a broad and diverse range of key stakeholders and interested parties. Additional public meeting opportunities will occur throughout the Study in the development of a draft and final study report.

How can I get involved?

Public participation and engagement will be ongoing throughout the Study development. Please sign-up to receive Study updates at [OCTA.net/CRRS](https://www.octa.net/CRRS).

Who do I contact with Study questions?

Please direct public comments and inquiries to OCTA's Public Outreach Department Manager, Christina Byrne, either via email at cbyrne@octa.net or by phone at (714) 560-5717.



Local Tax Dollars at Work

Orange County Transportation Authority
550 S. Main Street
P.O. Box 14184
Orange, CA 92863-1584
(714) 560-OCTA
www.octa.net