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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 up 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 conducted 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 identified potential projects that are being implemented to help protect the rail line which includes engineering solutions such as riprap revetment and beach sand nourishment. For more information regarding these projects, please visit www.octa.net/railemergency.

ORANGE COUNTY COASTAL RAIL RESILIENCY STUDY

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 2026.

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).

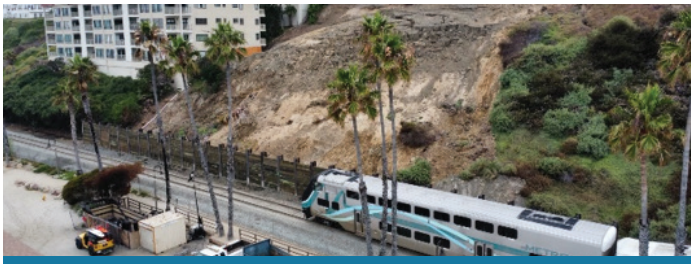

Figure 2: Casa Romantica

- 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).

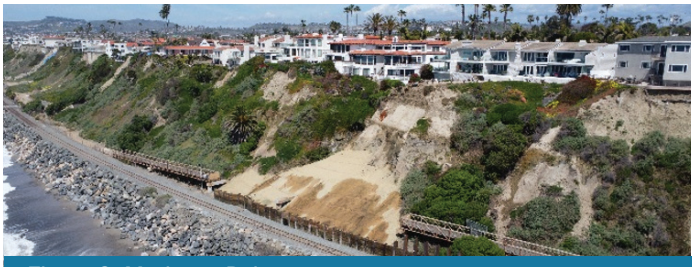

Figure 3: Mariposa Point

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 actionable data to predict landslides because there is no evidence or correlation of train movements causing vibrations significant enough to contribute to activating landslides in this corridor (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.

PERMITTING AND REGULATIONS

How long did it take for other nearby sand nourishment projects to obtain the Coastal Development Permit (CDP)?

There is limited experience with permitting sand nourishment projects in the Orange County region. However, in general, CDPs for projects of this scale require 6-12 months. Recent and ongoing beach nourishment projects in the region include the following:

- The **San Clemente Beach Nourishment Project** is a federally authorized project comprising a 50-foot-wide-beach nourishment project along a central stretch of the San Clemente shoreline. The project was authorized in 2014 for the purpose of coastal storm damage reduction and includes construction of a 50-foot-wide beach fill along a 3,412-foot-long stretch of shoreline, using 251,000 cubic yards of compatible sediment. Nourishment is scheduled every six years on average, over a 50-year period of federal participation, for a total of eight additional nourishments. The first phase was completed in December 2024, with a total placement volume of approximately 200,000 cubic yards. Project completion was delayed as a result of the need to change the sand borrow site. Regarding permitting with the Coastal Commission, a Consistency Determination was required for marine resource policies of the Coastal Act. Hence, **no Coastal Development Permit was required for this Federally sponsored project**.

- The **Orange County Beach Erosion Control Project** is an ongoing Federal (with local cost share) project administered under the authority of the US Army Corps of Engineers. The project has been providing periodic beach nourishment of approximately 1.8 million cubic yards of sand every five years since the 1960s. The project is designed as remediation for beach erosion damage largely incident to Federal flood control, navigation, and defense projects. It restores 17 miles of coastline from the mouth of the San Gabriel River at Surfside to the Newport Harbor entrance in Newport Beach. **Given that this is an ongoing Federal project, it does not provide a good example of permit acquisition for a new beach nourishment project**.
- The **Capistrano Beach Sand Replenishment Project** by Orange County Parks placed approximately 20,000 cubic yards of sand sourced from the Santa Ana River as part of flood control maintenance. The sand was transported via truck to the 550-foot reach of beach at the north end of Capristrano Beach. The project was completed in September 2024. A CDP de minimis waiver was approved within a 30-day period. Such waivers are granted by the California Coastal Commission when a proposed project is considered too minor or insignificant to have a substantial impact on the coastal environment. **Given the significantly larger scale beach nourishment projects contemplated by OCTA, the opportunity for a CDP waiver will not be possible.**
- The **North Beach Sand Replenishment Project** by the City of San Clemente placed 37,000 cubic yards of sand from the same Santa Ana River borrow site. The sand was delivered via truck, and was completed in November 2024. **Permission from the Coastal Commission was granted via amendment to an existing CDP for the City of San Clemente's original Sand Compatibility and Opportunistic Use Program (SCOUP).** The sand was placed above the mean high tide line and high water level, negating the need for USACE permit or California State Lands Lease.
- Perhaps the most illustrative example of CDP permit acquisition for a beach nourishment project of comparable scale is the **Regional Beach Sand Project (RBSP) conducted by the San Diego Association of Governments (SANDAG)**. While the third (RBSP III) project is currently in the planning stage, the RBSP II project placed 1.5 million cubic yards of sand on beaches in Imperial Beach, Oceanside, Encinitas, Cardiff and Carlsbad in 2012. The overall CDP acquisition was around 18 months after initial discussions, and about 8 months after permit application.

What factors influence the permitting process and timing for selecting a suitable source of sand (inland vs. offshore dredging) for this project based on United States Army Corps of Engineers (USACE) guidance?

The selection of suitable source material for sand (inland source versus offshore dredging source) drives the permitting process and timing based on guidance from United States Army Corps of Engineers (USACE). The following USACE permit types were discussed as possible avenues to comply with the federal Clean Water Act:

- Nationwide 13 (NWP 13) permits for bank stabilization cannot be used for offshore dredging nor beach nourishment but can be used for the rock embankment within the thresholds of the permit.
- A Regional General Permit 63 (RGP 63) package for emergency sand is not allowable given the amount of sand OCTA proposes (approximately 500,000 cubic yards) and considering the impacts of the placement of this volume of sand.
- USACE has advised OCTA that a Standard Individual Permit (SIP) application should be completed (for either rock and/or sand activities) and submitted. The SIP application needs to detail the material source and volumes to be discharged into Waters of the U.S. An alternatives analysis must be completed and the impacts for each alternative need to be analyzed.
- USACE has also indicated that a smaller volume of sand placement may be able to utilize either a NWP 13 or RGP 63 permitting process.
- Any inland or offshore borrow sites would also require compliance with Section 7 of the Endangered Species Act, including identification of the effects to federally listed threatened or endangered species and/or their critical habitat.
- There are several environmental laws that OCTA is required to comply with such as USACE Section 10 jurisdiction, Section 106 of the National Historic Preservation Act, and water quality certification with the California Regional Water Quality Board, among others.

What is a Sand Compatibility and Opportunistic Use Program (SCOUP) permit and why can't OCTA tap into the City of San Clemente's SCOUP permit?

The Sand Compatibility and Opportunistic Use Program (SCOUP) was crafted to streamline regulatory approval of small (generally less than 150,000 cubic yards annually) beach nourishment projects using opportunistic materials. The City has completed an analysis in support of a SCOUP permit for specific receiver and borrow locations, and for specific volumes of sand.

The City's SCOUP permit is for a maximum of 300,000 cubic yards total per year over four different receiver sites (North Beach 125,000 cy; Linda Lane 75,000 cy; T-Street North 45,000 cy; and T-Street South 55,000 cy). OCTA is exploring the development of our own SCOUP permit for opportunistic placement within the Coastal Rail Corridor.

Why can't OCTA expand upon the City of San Clemente and their permit to utilize the offshore sand borrow source at Surfside Sunset?

The City of San Clemente, through their project with the USACE for storm damage reduction using sand nourishment, is utilizing Surfside Sunset as a sand borrow site. OCTA was informed by the USACE that we would be required to obtain our own permit, and we would not be able to utilize or expand upon the City's project, which is a Federalized project. Federalized projects are not easily modified after-the-fact to include other local sponsors or other bodies of work due to the nature of the funding requirements and studies, including environmental and economics.

OCTA and the City are collaborating on use of the sand source itself, via the City's State Lands Commission Lease.

Why hasn't OCTA submitted a sand only permit?

OCTA is focused on providing reinforcement to the railroad until short and medium-term solutions can be implemented to increase coastal rail resilience. OCTA's approach has been to provide structural reinforcement for the railroad coupled with sand replenishment as a first line of defense to create a buffer between coastal erosional forces and the railroad. OCTA has submitted a USACE Regional General Permit 63 for sand placement only, but the application is deemed incomplete until a source of suitable sand materials has been identified and the project has been designed so that the impacts can be analyzed from an environmental (CEQA/NEPA) and permitting perspective.

Why does the permitting of sand take so long?

Prior to permitting sand replenishment, a project must go through an alternative analysis, development of design, and an environmental review process including assessments for the presence federally listed or endangered species and/or their critical habitat. A suitable source must be identified and approved, which requires rigorous testing for compatibility. Depending on the source, marine or inland, a viable transport plan must be developed, and a contractor must be procured. Once this work is complete, there are multiple regulatory permits that need to be required for OCTA to implement the sand replenishment work at the reinforcement areas. For example, USACE requires a Standard Individual Permit for the quantity of sand (roughly 500,000 cubic yards) that OCTA intends to place and the CCC requires a Coastal Development Permit to place sand.

Why was the county able to get a coastal permit so quickly for Capo Beach?

The Capistrano County Beach sand nourishment project will transport 20,000 cubic yards of sand removed from flood control maintenance in the Santa Ana River and will be trucked in and placed along a 550 linear-foot stretch of beach at the north reach of Capistrano Beach. This project aligns with USACE objectives to keep navigational channels clear and with the California Coastal Commission's goals to allow for lateral beach access for the general public. Since the Capistrano Beach project is using an inland source of sand and the receiver site is outside of USACE jurisdiction (and thus, requires no USACE permits), and represents a relatively low quantity of sand and a smaller effort to transport and install the sand, this work has an easier path for permitting. For perspective, the quantity of sand proposed by OCTA is roughly 500,000 cubic yards (25 times the quantity of Capistrano Beach) which will need to be sourced, permitted, and transported to the reinforcement areas.

What is the threshold of how much sand can be permitted under the Nationwide Permit 13? What are the requirements to qualify for a waiver?

The USACE Nationwide Permit 13 can be used for bank stabilization activities that are necessary for erosion control or prevention, and includes the use of riprap and other stabilization materials provided the following thresholds are not exceeded:

1. The activity is no more than 500 feet in length along the bank, unless the district engineer waives this criterion by making a written determination that the discharge will result in no more than minimal adverse environmental effects.
2. The activity will not exceed an average of one cubic yard per running foot, as measured along the treated bank, below the plane of the ordinary high water mark or the high tide line, unless the district engineer waives this criterion by making a written determination that the discharge will result in no more than minimal adverse environmental effects.

SAND SOURCE, VIABILITY, AND MANAGEMENT

Are inland sand sources being considered?

Multiple inland sand sources are being considered and evaluated for feasibility and transport cost. As an example, Prado Dam is being considered as an inland sand source. OCTA is conducting testing and analysis to determine if it is a viable source of sand for placement in San Clemente. Mobilization and transport options via rail and truck are also being evaluated.

ORANGE COUNTY COASTAL RAIL RESILIENCY STUDY

Why isn't sand only sufficient to provide protection for the railroad?

Sand only is being considered as an alternative solution, however the protection offered by sand diminishes over time. Sand nourishment projects typically require replenishment cycles to replace the sand that erodes and is redistributed along the shore, which requires perpetual cost to monitor and maintain. While OCTA is supportive of a regional solution to bring more sand back to South County beaches, the LOSSAN corridor is a strategic and critical rail network that cannot afford to be disrupted. A sand-only solution may not provide the desired design life to protect the crucial asset under extreme erosion or storm conditions without significant planned maintenance and/or placement of large sand volumes that may not be permittable due to recreational and environmental impacts.

What are the differences between the United States Army Corps of Engineers (USACE) and California Coastal Commission (CCC) agency objectives regarding sand management approaches?

The USACE's objectives are to keep navigational channels clear, provide shoreline protection to avoid and minimize aquatic resource losses, and allow for commerce to travel. The CCC's primary objectives are to preserve public access to the coast, enhance coastal access where possible, conserve natural resources within the Coastal Zone, and plan for long-range coastal development.

Why is riprap preferred to protect the railroad? How does the riprap protect against wave action that can damage the railroad?

Riprap provides key protection and stability to the railroad as the last line of defense. We plan on pairing the riprap with sand nourishment, however the sand is subject to higher erosion and lateral transport, and therefore the armoring is required to protect and stabilize the track embankment.

The railroad trackbed is built of porous ballast, which is naturally draining. The riprap is designed to be interlocking with voids, which allows for good drainage and energy absorption which reduces erosive forces on the railroad. Riprap is durable and cost effective with its ability to withstand harsh environmental conditions, making it suitable for the railroad as it requires minimal maintenance.

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. A series of Listening Sessions were held in 2024 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.

Who do I contact with Study questions?

Please direct public comments and inquiries to OCTA's Senior Public Outreach Department Manager, Chris Boucly, either via email at cboucly@octa.net or by phone at (714) 560-5326.

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