

Del Mar Bluffs Stabilization

Key Facts

Who operates rail service on LOSSAN Corridor within San Diego?

- **COASTER** Commuter Rail operated by North County Transit District
- **Pacific Surfliner** operated by Amtrak and managed by the LOSSAN Agency
- **Metrolink** Commuter Rail operated by the Southern California Regional Rail Authority (serves only Oceanside Transit Center)
- **BNSF** Freight
- **PACSUN** Freight

What is the annual ridership for COASTER and Amtrak operations?

- COASTER and Amtrak ridership in Calendar Year 2018 (CY 2018) totaled 4.1 million, approximately 13,100 riders per weekday.
- In CY 2018 COASTER provided 1.4 million trips, approximately 4,900 riders per weekday.
- In CY 2018 Amtrak provided 2.7 million trips between San Diego and San Luis Obispo, approximately 8,200 per weekday.

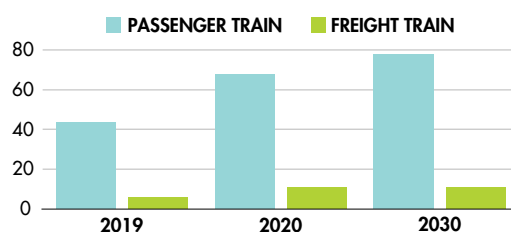
How much freight is moved on the San Diego portion of the LOSSAN rail corridor?

In calendar year 2018, approximately 4.8 million tons of freight were moved along the San Diego Subdivision. Approximately 192,000 large semi-trucks would be added on Interstate 5 to provide commensurate capacity. Bumper-to-bumper, this equates to 2,542 miles in equivalent length on the roadways. (526 large semi-trucks per day)



What are the current and planned service frequencies in the future?

- **2019:** 44 passenger trains and 6 freight trains
- **2020:** 68 passenger trains and 11 freight trains
- **2030:** 78 passenger trains and 11 freight trains



Why do the Del Mar Bluffs require stabilization?

Approximately 1.7 miles of the NCTD-owned railway tracks are on the Del Mar Bluffs (Bluffs). These coastal Bluffs experience natural erosion resulting from earthquakes, rain, ground water flows, breaking waves, wind, and inclement weather, along with erosion resulting from rodents and people traversing on the Bluffs. Trails prevent the growth of natural vegetation and concentrate stormwater flows and accelerate erosion.

The Bluffs will naturally retreat on an average of up to 6" per year according to the Del Mar Bluffs Geotechnical Study prepared for NCTD in 2001. Engineering studies completed by SANDAG and the City of Del Mar's Sea-Level Rise Adaptation Plan highlight the need for action to ensure the safe operations of passenger and freight rail service. Since Summer 2018, eight surface slides on the face of the Bluffs have been reported in the Del Mar Bluffs area. Each time a surface slide occurs, NCTD annuls train traffic until inspections are complete verifying that the Bluffs are safe for regular rail operations.

It is important that we maintain a stable trackbed along the bluffs and that it is protected from seismic failure. In addition, we need to stabilize the toe of the bluff from wave action and sea level rise to reduce the bluff rate of retreat.



How much funding is needed for Bluff stabilization to ensure safe operations over the next 20 to 30 years?

SANDAG and NCTD have requested **\$34.4 million** in funding over a **five-year period** to complete Del Mar Bluffs Phase 5 (DMB5) design and construction and fund the design of Del Mar Bluffs Phase 6 (DMB6). The DMB5 project secures the bluffs for the next 20 to 30 years, improves seismic resistance, and re-analyzes bluff retreat, while the requested funds for DMB6 will be used for project alternative analysis and selection, environmental clearance, the development of construction plans, and to re-analyze the effects of sea level rise. Construction of DMB6 is not funded at this time.

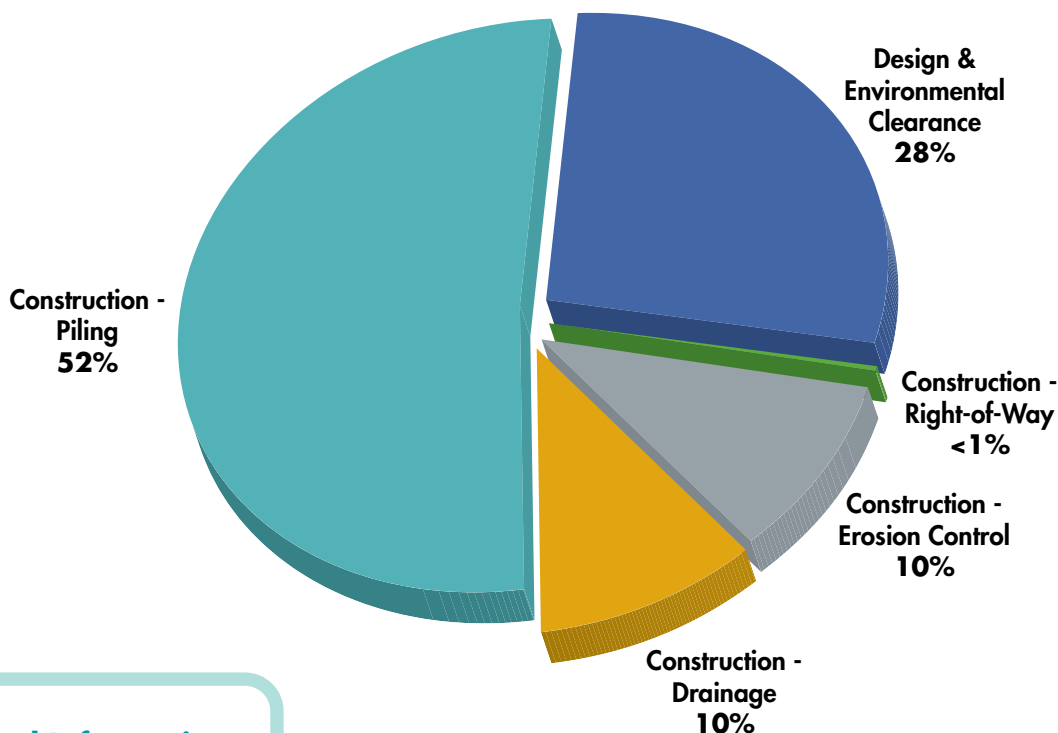
What are the cost drivers for the projects to support stabilization over the next 20 to 30 years?

DMB5 includes the evaluation of seismic and static stabilization needs, the addition of piling and tie backs, replacement of old drainage structures, and localized lagging as bluff retreat accelerates. The primary cost drivers for DMB5 includes piling (52%), design (28%), erosion control (10%), drainage (10%), and right-of-way (<1%).

Piling includes the installation of soldier piles (36-inch diameter concrete and steel piles) to provide lateral stability required for the bluffs and associated track bed to meet the current recommended seismic factors of safety. Additionally, as existing piles become exposed in localized areas, the installation of concrete lagging between the piles will retain the soil and support the trackbed. An updated slope stability analysis will be completed to identify areas that may require the installation of piles not previously identified, as well as identify areas where lagging is needed. Erosion control measures include restoring and regrading drainage channels and protection of storm water inlets during construction.

DMB6 design will support additional stabilization measures, including bluff toe protection, bluff face stabilization, lagging installation, and the consideration of coastal access. DMB6 construction is estimated to cost between \$50 and \$60 million.

Del Mar Bluffs 5 Cost Drivers



Additional Information

For additional information on the Del Mar Bluffs Stabilization, please email media@nctd.org.

Project Cost Estimate (Revised February 12, 2019)

9/30/2020