



File photo: The San Diego Union-Tribune

**NCTD'S PROPOSED "SAFETY" FENCING ON
DEL MAR'S ERODING BLUFFS INCREASES
CATASTROPHIC RISK
TO
TRAIN PASSENGERS, TRANSIT WORKERS,
BEACHGOERS & LOSSAN CORRIDOR**



Photo: City of Del Mar Dec 2018

FENCING DESTABILIZES ERODING BLUFF

- NCTD proposes two 1.5 mile fences (each side of train tracks) on eroding sandstone bluff in Del Mar
- Drills 1,500+ post holes (3 ft deep every 10 ft) into fragile sandstone
- Fractures sandstone and adds stress of 633,600 lbs from cement footings + 6 ft high chain link fencing
- Creates 1,500+ new avenues for water intrusion
- Destabilizes eroding bluff and rail line near active offshore Rose Canyon Fault
- CA Earthquake Authority expects landslides from forecasted 6.5-6.8 Rose Canyon earthquake
- NCTD's 2-page geotechnical report contains too many holes to support this damaging project



Photo: KUSI Newsroom July 21, 2021

INCREASES CORROSIVE WATER INTRUSION

- Sandstone geologically fragile and crumbles when saturated with water (see fissures in photo)
- SANDAG's \$100M project limits water intrusion
- NCTD's \$3M fence project dramatically increases water intrusion by over 10x
- Creates 1,500+ new channels for water to collect and flow through bluffs from fractures created by 3 ft deep post holes (2 drilled every 10 ft along tracks on the bluff)
- Destabilizes bluff and increases frequency of dangerous bluff slides



Photo: The San Diego Union-Tribune Nov 30, 2019

SHRINKS TRAIN RIGHT OF WAY (ROW)

- Surface runoff and subsurface water penetrate both sides of bluff
- Dirt from erosion on upper east bluff clogs drains, water overflows tracks, undermines track bed, and causes west bluff failure
- NCTD fencing adds 317 tons to bluff edges already weakened by water intrusion, erosion, vibration, and weight from 50+ trains/day
 - Commuter train: 1,500-6,000 tons
 - Freight train: 3,000-18,000 tons
- Fencing < 25 ft from tracks restricts ability to make future track and bluff repairs
- Violates 25 ft minimum clearance for NCTD Roadway Worker Protection Program



Photo: CBS8 Newsroom with Dr. Pat Abbott Nov 30, 2019

GEOLOGY PROFESSOR PAT ABBOT POINTS OUT DAMAGING EFFECTS OF EROSION

- Rainwater and ground water cuts through sandstone
- Erodes support around soldier piles and under retaining walls
- Retaining wall fails; bluff collapses only 2 ft from track
- Train service suspended for 2 days for emergency repairs
- Notes bluff slides increasing in size and frequency
- Climate change brings heavier rains and winds
- Large waves and storms eroding bluff toe
- Sea level rise exacerbating wave erosion



Photo: Fox 5 San Diego Drone Video Feb 28, 2021

MORE BLUFF SLIDES AFTER HEAVY RAINS

- Rainwater and groundwater seeps deep into bluffs
- Wet sandstone is heavier and erosion makes it more prone to failure
- Note slide area's damp, dark, and wet loose sandstone
- 50 ft wide section of the bluff fell on Del Mar beach below
- Fortunately, search and rescue found no one buried under tons of sandstone

2019: 3 killed in 30 ft in Encinitas bluff slide



Photo: CBS8 Newsroom Aug 2, 2019

1941: 3 freight crew killed in Del Mar bluff slide



Photo: Del Mar Historical Society Jan 1, 1941

STOP NCTD'S UNSAFE "SAFETY" FENCE

- Accelerates erosion from drilling 1,500+ 3 ft deep fence post holes into fragile sandstone bluff
- Undermines SANDAG's \$100M+ bluff stabilization project and reduces rail line's useful life
- Endangers train passengers, transit workers, and beachgoers by destabilizing bluffs
- Increases catastrophic risk and liability from train derailment and bluff collapse on beach
- Damages public support for LOSSAN corridor with increasing slide danger and disruption of train service
- Reduces viability of regional mass transit with declining ridership and freight revenue
- Fails SANDAG's 100-year design life guideline
- Eroding ROW too narrow for fencing to meet 25 ft clearance required for track repairs and Worker Protection Program
- LOSSAN rail corridor safety best achieved by moving tracks off eroding bluff to safer inland route

8 DEL MAR BLUFF SLIDES IN 3 YEARS STOKES FEAR, REDUCES TRAIN RELIABILITY & HITS REVENUE

News and video links

- Feb 28, 2021:
 - <https://www.cbs8.com/article/news/local/bluff-collapses-in-san-diego-del-mar/509-b8588908-cdc0-4b97-9660-916fd2ddf9c4>

- Nov 29, 2019:
 - <https://www.cbs8.com/article/travel/train-routes-disrupted-by-bluff-collapse-near-tracks-in-del-mar/509-7251739f-4841-4947-ac7b-131926ecb4ef>
 - <https://www.10news.com/news/local-news/travel-nightmare-for-train-passengers-after-del-mar-bluff-collapse>
 - <https://www.youtube.com/watch?v=Deo8xHxHJMI>
 - <https://www.youtube.com/watch?v=gDBeONgmPTc>

- July 28, 2019:
 - <https://www.delmartimes.net/news/story/2019-07-28/del-mar-is-weak-link-in-san-diegos-coastal-railroad>

- Dec 16, 2018:
 - (AP) California bluff collapse was fourth since August: <https://apnews.com/article/adab4dc370084d8d976f2cf16238b2c6>

- Dec 10, 2018
 - <https://www.latimes.com/local/lanow/la-me-ln-bluff-train-tracks-collapse-del-mar-20181210-story.html>

- Aug 22, 2018:
 - <https://www.10news.com/news/cliff-collapses-in-del-mar-halting-train-traffic>
 - <https://twitter.com/10news/status/1032499362385915905>