



Fiscal Year (FY) 2024-25 Research Initial Scope of Work (ISOW)

Task ID: 4479

Task Title: Climate Resilience in the North LOSSAN Corridor

1. What is the need? *The LOSSAN rail corridor is a critical transportation facility in Southern California. It is part of the US Department of Defense's Strategic Rail Corridor Network (STRACNET); the corridor provides rail service to more than 14 million SoCal residents; it supports \$1 billion in freight service annually; it's the second busiest Amtrak service in the US behind the Northeast Corridor. Despite its importance, last year alone the corridor experienced several bluff failures and corresponding service disruptions. The disruptions caused significant traveler delays, impacts to local economies, and resulted in millions of dollars of emergency repairs. As the consequences of global warming become increasingly evident, California must prioritize building climate resilience into multimodal transportation. Proactive climate resilience efforts are crucial with millions of residents and critical infrastructure at risk. In addition, increasingly frequent, intense storm events are causing erosion of the coast, which weakens nearby transportation infrastructure. Last year, a State Senate Subcommittee on LOSSAN Rail Corridor Resiliency was formed to prioritize policy and funding decisions to shore up the LOSSAN rail corridor. In October 2023, Governor Newsom signed SB677 which updates the LOSSAN Rail Corridor Agency annual planning requirements to identify climate change impacts and projects to increase resiliency. This research seeks to explore effective long-term strategies that improve rail transportation system resiliency and reduce vulnerability from the weather events produced from a changing climate. Caltrans and its partner rail agencies are working to develop plans and projects that will preserve the structural integrity of rail assets and build projects to relocate rail lines in some locations. To do so successfully and economically, further clarification is needed: What can Caltrans do to preserve the rail passage from San Luis Obispo to Burbank to mitigate the issues that San Diego and Orange Counties are facing? What are the most economical options – moving the line, reconstruction, or reinforcement at locations? How can rail line reconstruction, movement, or reinforcement be done in the most sustainable and equitable manner? Are there operational funding opportunities for bus bridge services during rail delays and shutdowns due to weather events?*

2. What is the product? *The product of this research is a highly detailed report on the areas of rail infrastructure with the most risk presented by climate change and the most appropriate strategies to prevent service and infrastructure impacts of coastal erosion. To the extent possible, the paper will include scientific projections of coastal erosion in areas determined to be of highest priority, and a detailed analysis of next steps for further project specific study. It will include recommendations for project types based on what Caltrans and other agencies have done to preserve rail systems, with regard to which strategies are most cost-effective and economical. The research will identify priority areas and potential mitigations based on what assets are most immediately and seriously vulnerable to coastal erosion and other climate impacts. The study will include a survey of practices in other coastal states at different jurisdictional levels, including the rail industry, including literature review, surveys, and interviews. This will include best practices in monitoring climate change stressors that affect coastal rail infrastructure. Researchers will use available data to map rail facilities in areas potentially susceptible to coastal erosion based on defined criteria for vulnerability. Assessment of risk factors will be based on data, including geological maps, aerial photography, documented coastal erosion, and additional geological surveys if needed. By producing a paper documenting areas for further, more technical study, the research will provide Caltrans with a basis for future action on this corridor, and practices and methods that can be applied statewide in high-risk areas.*
3. What is the plan to implement the product following a successful research project? *If funded, this research could provide needed assistance as part of the business plan required by AB 677. Upon completion, data and resources will be shared with LOSSAN and other rail agencies to facilitate more informed policies and decisions on this and other corridors. This will coincide with actions of the recently-updated California State Rail Plan and ongoing policy discussions around climate resilience and corresponding projects to mitigate expected impacts based on a standardized approach.*
4. Related Research: *If any.*