



Caltrans Division of Research,
Innovation and System Information

Research



Results

Planning/Policy/
Programming

Strategies to Mitigate Freight-Generated Congestion

A new freight-impact measure helps identify how and where freight causes congestion

WHAT IS THE NEED?

Tons of goods are moved into California every day through its seaports, airports, and borders, some for local consumption and some for shipment to other states and countries. Freight traffic is growing faster than automobile traffic—the U.S. Department of Energy projects that truck vehicle miles of travel will grow by 50% between 2015 and 2040, compared with 26% for light-duty vehicles. As freight and passenger vehicles compete for limited roadway access, growing freight demand is increasing recurring congestion at freight bottlenecks, where freight and passenger services conflict with one another, and on streets with not enough room for pickup and delivery. Trucks disproportionately contribute to traffic congestion, especially close to major freight generators, due to slower acceleration and deceleration rates and more limited maneuverability. In addition, diesel engine pollutants have emerged as a top health concern among vehicular-generated air pollution, especially particulate matter and fine particles. Increased freight activity will affect California’s ability to achieve its objectives for reducing greenhouse gas emissions.

The federal 2016 Fixing America’s Surface Transportation (FAST) Act requires states to consider the freight industry’s effect on congestion and delays and identify mitigation strategies. Previous studies have focused on freight bottlenecks and the impacts of congestion on freight, but there are no studies that examine freight as the causal agent of imposing overall congestion and other delays.

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Project Title:

Strategies to Mitigate Freight-Generated Congestion

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Caltrans provides a safe, sustainable, integrated and efficient transportation system to enhance California’s economy and livability.

WHAT WAS OUR GOAL?

The goal was to generate recommendations on the most effective strategies for reducing freight-related congestion and its impacts for inclusion in the 2019 California Freight Mobility Plan to comply with FAST Act requirements.

WHAT DID WE DO?

Caltrans, in partnership with the National Center for Sustainable Transportation, developed a method for identifying congestion caused by freight and applied it to California's two largest metropolitan areas, Los Angeles and San Francisco, as well as the rest of the state. The method estimates the current and projected impacts by 2040 on passenger vehicles and provides descriptive information on how other modes are affected. After conducting a comprehensive international review of mitigation strategies and assessing their applicability and effectiveness for specific freight problems in California, the researchers developed a set of criteria by which to evaluate potential strategies for different types of problems and locations.

WHAT WAS THE OUTCOME?

The researchers identified the top 15 freight impact areas on the national highway system and arterials in the Los Angeles and San Francisco regions, which are concentrated on freight corridors that connect ports, intermodal terminals, and warehousing clusters in the more congested parts of the region. In the rest of the state, the top 15 areas are located in San Diego, Sacramento, and the I-5 corridor in the Central Valley. Possible mitigation strategies consistent with California Freight Mobility Plan goals were discussed in terms of infrastructure improvements, efficiency enhancements, and policy incentives.

Each strategy was evaluated with respect to cost, effectiveness, co-benefits (safety and reducing pollution), technical difficulty, and implementation feasibility. Examples of higher ranking strategies include truck parking facilities, integrated freight traffic and load information services, cargo-matching services, and smart truck parking.

WHAT IS THE BENEFIT?

Identifying regional freight impact areas and relating these areas to major freight generators, such as airports, seaports, and intermodal terminals, provides a new tool for freight-impact analysis and assists California in complying with the FAST Act freight planning requirements. Transportation professionals and stakeholders can evaluate the strategies with the most potential for reducing freight-related congestion and its impacts to determine which recommendations to include in the California Freight Mobility Plan.

LEARN MORE

Review the complete report.
<https://ncst.ucdavis.edu/project/managing-the-impacts-of-freight-in-california>

IMAGES





Figure O-1. Top 15 freight impact areas on the National Highway System during PM peak hours in the Los Angeles region

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