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### Authors

O'Brien, Thomas  
Warren, Elizabeth  
Vu, Kieu-Anh

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# Caltrans Sustainable Freight Academy

July 2022

A Report from the National Center for Sustainable Transportation

Thomas O'Brien, California State University, Long Beach

Elizabeth Warren, California State University, Long Beach

Kieu-Anh Vu, California State University, Long Beach



National Center  
for Sustainable  
Transportation

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<b>16. Abstract</b> The Caltrans Sustainable Freight Academy was conducted on March 29; April 5, 12, and 26; and May 3, 2022. The academy consisted of presentations from goods movement professionals and subject matter experts, from the U.S. State DOTs and public- and private organizations as well as those from international planning agencies. The final group presentation allows participants to respond to a capstone project using a web-based geospatial presentation platform. There were 70 participants that were divided into ten groups, and each group developed a presentation that calls for proposals for trade corridor funding.			
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# Caltrans Sustainable Freight Academy

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A National Center for Sustainable Transportation Report

July 2022

**Tom O'Brien, Elizabeth Warren, and Kieu-Anh Vu**

Center for International Trade and Transportation, California State University, Long Beach

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# Caltrans Sustainable Freight Academy

## Course Objectives and Proposals

California State University's Center for International Trade and Transportation (CITT) has worked with Caltrans on the development of Freight Academies since 2005. Initially called Goods Movement Workshops, these professional development trainings have been targeted at both planners and engineers at Headquarters and in District offices in order to build capacity for freight planning through better understanding of freight operations. What started as "Freight 101" courses have become opportunities to more deeply explore freight-related issues of interest to Caltrans from a geographic and topical perspective. Past courses have been held in Long Beach, Oakland, San Diego, Ontario and Sacramento. Focus areas have included the relationship between freight and system wide planning, border issues, and warehousing and distribution.

The State of California is at the forefront of the development of environmental standards for the freight sector. Apart from the 2016 CSFPA, efforts include Governor Gavin Newsom's 2020 Executive Order which accelerated the timeline for the State's transition to zero emissions heavy duty trucks.

The 2022 Caltrans Freight Academy addressed the role of a state DOT, Caltrans in particular, along with its partners in contributing to a sustainable freight future. It also addressed how the State's environmental goals impact Caltrans' principal role and responsibility in developing the California Freight Mobility Plan (CFMP). The Academy furthered participants' understanding of:

- The role played by freight planning within system planning and system resiliency;
- The relationship between the CFMP, CSFAP and California Transportation Commission goals, and the role played by Caltrans in implementing the state's sustainable freight goals;
- The use of advanced technologies used in sustainable freight and energy systems and innovative, transformative and visionary approaches to project delivery;
- The opportunity to incorporate sustainable freight as part of corridor-wide planning in a way that addresses questions of the environment, the economy and equity;
- The Identification and assessment of freight-related projects based upon sustainability metrics including CSFAP freight targets;
- Freight-related data sources; and
- Project management principles as applied to freight planning.

Because it is impossible to fully replicate a training designed for the classroom in an online environment, the training schedule assumed a maximum of four hours of training per day, three of which were synchronous. One additional hour was self-directed and asynchronous, and asked students to review materials as part of an exercise connected to the day's topic. These exercises were designed to help participants prepare for the capstone presentation.



**Table 1. Principal Tasks and Deliverables**

<b>Task 1: Training Academy Design</b>	
Deliverable 1A: Design and implementation of pre- training session needs assessment with participants	An online survey to determine pre- training needs assessments for participants developed and coordinated with Caltrans prior to the training. A summary of the survey results delivered with final Presentation Materials (Deliverable 2E).
Deliverable 1B: Development of learning objectives for each session	Learning objectives for each developed in coordination with Caltrans and included with the Presentation Materials (Deliverable 2E)
Deliverable 1C: Coordination with subject matter experts on curriculum design	Curriculum design coordinated with subject matter experts in conjunction with Caltrans input and feedback. The final product to be included with the Presentation Materials (Deliverable 2E).
Deliverable 1D: Development of evaluation tools	Evaluation tools for the purpose of assessing training outcomes and effectiveness developed in conjunction with Caltrans prior to the training academies. The final product will be included with the Presentation Materials (Deliverable 2E).
<b>Task 2: Training Academy Delivery</b>	
Deliverable 2A: Implementation of a five- day training academy with each class session hosted via Remo	The Academy will be held using the Remo videoconferencing platform. Each class session is recorded and included in Presentation Materials (Deliverable 2E)
Deliverable 2B: Implementation of the academy’ classroom interface and groups on Microsoft Teams	Microsoft Teams is used as a class virtual binder for the academy. The presentations, students’ homework, and learning materials are included and updated after each class on Teams.
Deliverable 2C: Training materials for each participant in electronic versions stored on Teams Microsoft	Training materials (electronic version) will be provided to each student participating in the training academies. This includes a resource guide available for self-paced learning and for other Caltrans training purposes.
Deliverable 2D: Summary of Student Evaluations	Student evaluations distributed to each training academy participant, and a summary of the responses provided to Caltrans.
Deliverable 2E: Presentation Materials	All final presentation materials provided to Caltrans, at the conclusion of the project.

The curriculum did incorporate updates on the impacts of COVID 19 on the supply chain and changes in the nature of relationships between stakeholders. The pandemic has also underscored the importance of other kinds of relationships: those between economic activity, supply chains, and the health of communities. The coronavirus has also reminded us of the

complex nature of physical and virtual networks, including those that interact with the systems managed by Caltrans.

## Course Agenda

Classes were delivered via a series of online Remo sessions taking place on March 29, April 5, April 12, and April 26, 2022, with a final day of participant-led presentations on a mini-capstone project concluding the Academy on May 3. Day 1 of the Academy on “Defining Sustainability” and Day 2 on “Measuring Sustainability” featured subject matter experts who instructed on the identification and measurement of sustainability metrics. Day 3 (Best Practices in Freight Planning: Balancing Sustainability and Resiliency) included a peer exchange involving other State DOT planners along with representatives from agencies and organizations in other countries who have also attempted to incorporate sustainability into planning and operations. Day 4 introduced a case study involving the development of an inter-agency proposal for an alternative fuel corridor. The capstone on May 3 involved the development of a project outline prepared in response to a call for proposals for trade corridor funding.

The Academy included 70 participants from Caltrans as well as from partner agencies including MPOs. Among partners represented were the Alameda County Transportation Commission, LA METRO, Lake Area Planning Council, Contra Costa Transportation Authority, CARB, Nevada DOT, SANDAG, Ventura County Transportation Commission, and the California Energy Commission (CEC). Participants were assigned to ten groups of seven students from different Caltrans divisions and partner agencies. Groups worked together throughout the five weeks of the Academy.

The Academy featured subject matter experts who spoke on the topics of each session and participated in two roundtable discussions and Q&A with the participants. All curricular materials were shared via a CSULB Microsoft Teams channel for the use of all the participants and for broader dissemination. Each group was also given access to a private channel where individuals and the teams were encouraged to collaborate, share, and store their work. Guest speakers were also given access to the Teams channel. Caltrans currently uses this platform, and CSULB requires multi-factor authentication which enhances security and control of information.

**Table 2. Course Outline**

<b>2022 Virtual Caltrans Freight Academy: The Caltrans Role in Sustainable Freight Systems</b>		
<b>Day One (March 29): Defining Sustainability</b>		
<p>Day One of the course is dedicated to the varying approaches taken by the State in Defining Sustainability. Participants will understand how state level and metropolitan planning agencies incorporate sustainability into freight planning exercises for the communities they serve. Speakers representing freight operators will address how and why sustainability factors into their own operations and the impact of freight-related planning on their operations.</p> <p>Day One will also include a discussion of how sustainability fits into the role of planner or engineer and the tools that are needed to better connect system planning with sustainability</p>		
8:00-8:15	Welcome to Training and Objectives	Yatman Kwan, Caltrans Tom O’Brien, CSULB
8:15-9:15	State and Regional Priorities for Freight Sustainability: A Roundtable Discussion	Jamaica Gentry, Caltrans; Andre Freeman, CARB; Marc Perry, California Energy Commission; Keri Robinson/Phil Trom, SANDAG
9:15-9:30	Break	
9:30-11:00	How freight operators define sustainability and resiliency	Industry Roundtable: Moderator, Heather Tomley, Port of Long Beach; Elizabeth Fretheim, Nikola; Maquiling Parkerson, Union Pacific; Tony Williamson, TTS-I
11:00-12:00	Preparing for the capstone: Supporting my office’s and organization’s sustainability goals	Small group exercise
<b>Day Two (April 5): Measuring Sustainability</b>		
<p>Day Two is dedicated to Measuring Sustainability. Participants will understand the kinds of sustainability metrics used by both the public and private sector, and how the communities through which freight passes measure the impacts of trade related activity. Particular consideration is given to how sustainability impacts system wide planning as well as planning at the last mile.</p>		
8:00-8:15	Day One Recap	Tom O’Brien, CSULB
8:15-9:15	State of Supply Sustainability: The System-wide Perspective  State of Supply Chain Sustainability: Impacts at the Last-mile	Kellen Betts, MIT and CSCMP State of Supply Chain Sustainability Report; <a href="https://sscs.mit.edu/">https://sscs.mit.edu/</a>

9:15-9:30	Break	
9:30-11:00	Sustainability and Resiliency from the community planning perspective	Phil Trom, SANDAG; Magali Sanchez-Hall, Harbor Community Benefit Foundation
11:00-12:00	Preparing for the capstone: Defining and measuring sustainability goals	Small group exercise
<b>Day Three (April 12): Best Practices in Freight Planning: Balancing Sustainability and Resiliency</b>		
<p>Day Three focuses on building awareness of Best Practices in Freight Planning. Participants will learn from the experiences of peers in other State DOTs as well as from the experience of planners and operators outside of the US. Lessons learned include working across agencies, working with freight partners and the community, and use of data and technology. One other goal of the session is to facilitate post-course information sharing with peers outside of California.</p>		
8:00-8:15	Day Two Recap	Tom O’Brien, CSULB
8:15-9:15	Outside Perspective on Sustainability and Resiliency (Part 1)	Colorado DOT: Craig Hurst; Tennessee DOT: Dan Pallme; Texas DOT: Loretta Brown and Caroline Mays; Caroline KIELTYKA, AASHTO;  European and Canadian Roundtable: Greg Kolesniak, Translink Canada; John Lindner, Metro Vancouver; Laetitia DABLANC, University Gustave Eiffel/IFSTTAR (French Institute of Science and Technology for Transport); Peter Hall Simon, Fraser University
9:15-9:30	Break	
9:30-11:00	Outside Perspective on Sustainability and Resiliency (Part 2)	Small group peer exchange
11:00-12:00	Preparing for the Capstone: Applying Best Practices to the California context	Small group exercise

<b>Day Four (April 26): Responding to a Funding Opportunity: Incorporating Sustainability into the Planning Process</b>		
The focus of Day Four shifts to the Capstone Project. Participants will be introduced to a funding opportunity issued through a call for proposals, one that encourages submissions from multi-agency teams. The focus of the request for proposals is sustainable trade corridors. A presentation outlining the case study will be followed by one on Best Practices in responding to RFPs. Teams will then work on the development of an outline for the proposal.		
8:00-8:15	Day Three Recap	Tom O’Brien, CSULB
8:15-9:15	Overview of the TCEP and Introduction to the RFP	Hannah Walter, California Transportation Commission
9:15-9:30	Break	
9:30-10:15	Best Practices in Responding to RFPs	
10:15-12:00	Preparing for the capstone: Outlining the proposal	Small group exercise Mentor response
<b>Day Five (May 3): Final Presentations</b>		
The students will present their final exercises to a group of instructors and Caltrans mentors. Participants will receive a Certificate of Completion from the Center for International Trade and Transportation – College of Professional and Continuing Education (CPaCE) at California State University, Long Beach.  More important, participants will leave the seminar with a broad overview of the relationship between sustainability and resiliency and how this knowledge can be applied on the job.		

## Outcomes, Course Evaluations and Recommendations for Future Trainings

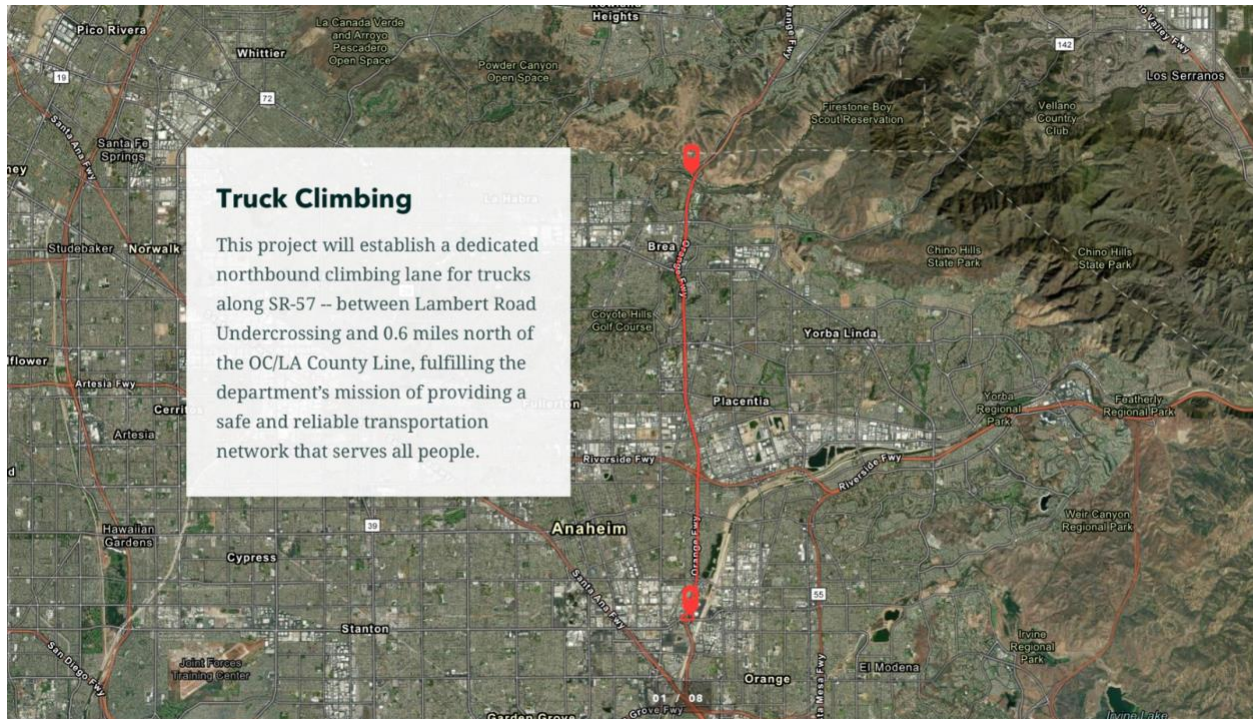
Course participants were asked to participate in an evaluation survey that assesses the effectiveness of the academy’s learning materials and course structure. The survey was deployed on Day 5 of the academy. The evaluation also allowed us to better understand the (dis)advantages of a virtual format for future trainings. Survey responses are included in a [Google Drive](#).

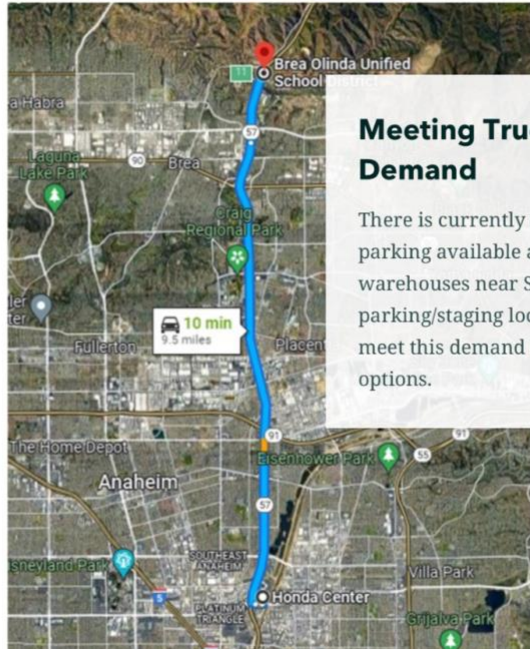
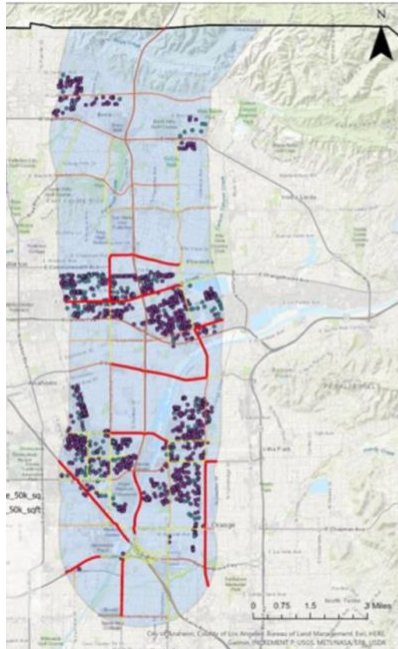
In general, participants recognized the constraints imposed on the training by the pandemic but expressed a desire to return to in-person classes when allowed. The group exercises, while modified for a distance-based format, were made more cumbersome by the number of participants. It was also suggested that the use of GIS story maps, while valuable, could be the subject of its own training. Participants in general most appreciated hearing from the high caliber speakers and having the opportunity to engage with peers as part of the peer exchange which took place on Day 3.

## Final Presentation Examples

The final group exercise allowed class participants to apply course materials including the use of geospatial story maps as part of the development of a presentation on regional freight needs. The presentation was intended as a hypothetical proposal that responds to a funding opportunity as part of the California Trade Corridor Enhancement Program (TCEP). A description of the project as well as instructions for its development can be found in the [Google Drive](#). Examples of team presentations follow.

Figure 1. Examples of Team Presentations





**Meeting Truck Parking Demand**

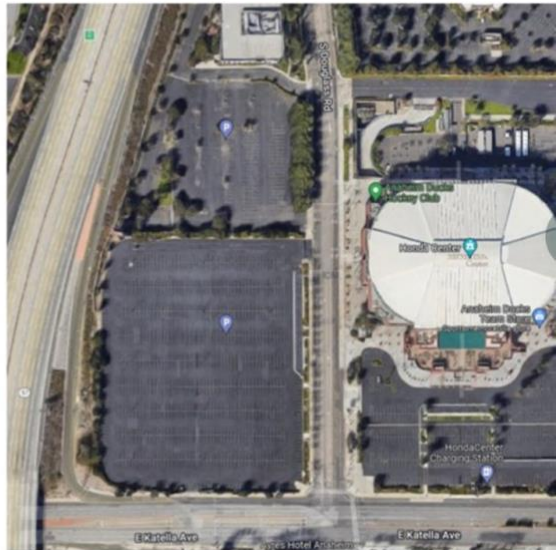
There is currently insufficient parking available around the warehouses near SR-57. These parking/staging locations will help to meet this demand for truck parking options.

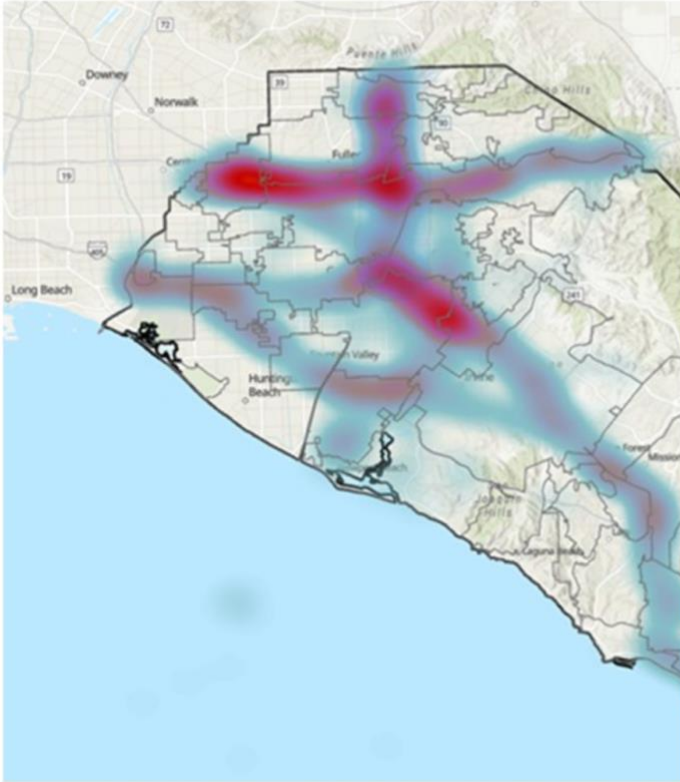
**Parking/Staging Area#1: SR 57/Tonner**

**Parking/Staging Area#2: Honda Center**

**Staging Locations**

The project will include Truck staging/parking areas near Honda Center (Anaheim) and SR-57 near Tonner Canyon Rd (Brea) with shared ZE infrastructure provided using a Truck-as-a-Service (TaaS) model.





## Improving Safety

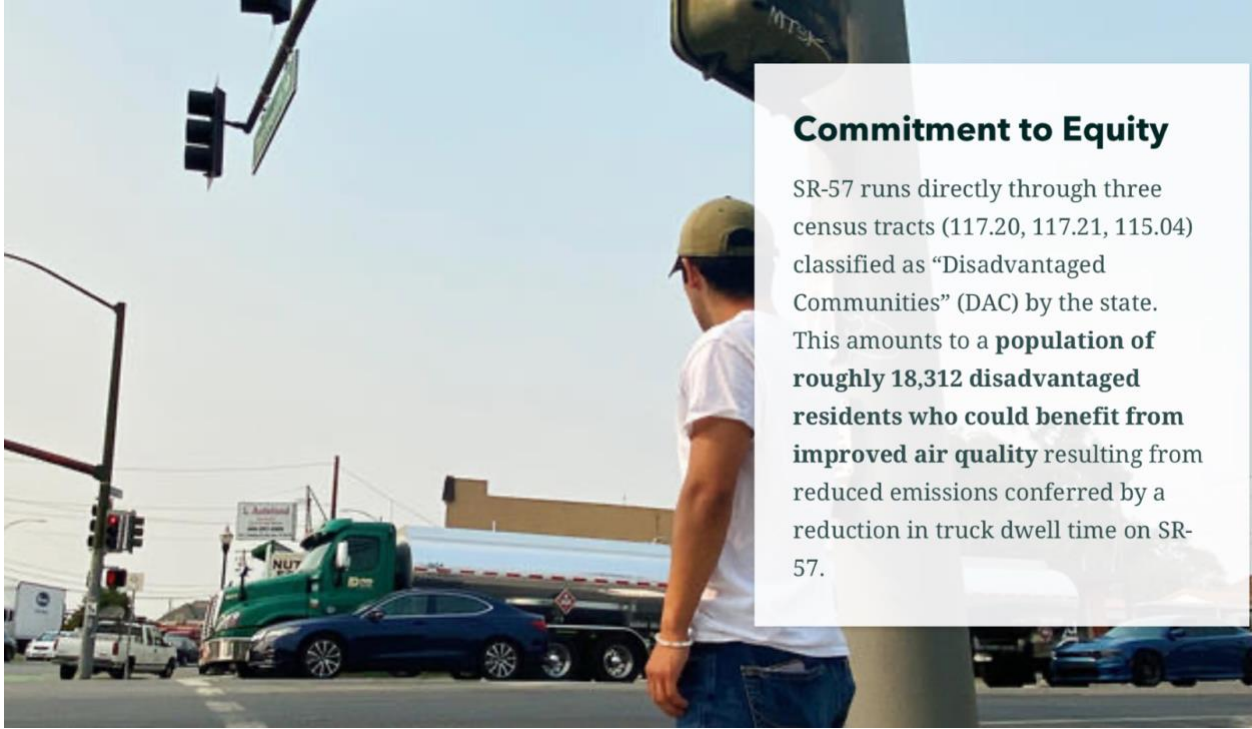
Climbing lanes **insulate slow-moving vehicles from fast-moving traffic by giving them their own lane**, reducing the number of conflicts between vastly different road users with different capabilities and priorities. Reducing these crashes will improve the safety for other drivers, especially secondary crashes stemming from truck-related incidents. Secondary crashes lead to lane closures, detours, and additional sources of delay, burdening all road users, including and especially underserved and vulnerable populations.



## Curbing Emissions Through Reduced Stop-and-go Traffic

Previous studies by OCTA and others have shown that a **northbound climbing lane widening project from Lambert Road extending across the OC border into LA County would achieve a total of 39 percent reduction in delay**. FHWA reports that managed lane projects, such as a truck climbing lane, can curb excessive emissions, which degrade the air quality for the region.





## Commitment to Equity

SR-57 runs directly through three census tracts (117.20, 117.21, 115.04) classified as “Disadvantaged Communities” (DAC) by the state. This amounts to a **population of roughly 18,312 disadvantaged residents who could benefit from improved air quality** resulting from reduced emissions conferred by a reduction in truck dwell time on SR-57.



## Enhancing Economic Prosperity by Boosting System Efficiency

The truck climbing lane would reduce overall corridor delay by 3 percent, **promote freight mobility, leverage unique capabilities along SR-57, and improve reliability of truck operations** along the broader supply chain, strengthening system resiliency in the process.



## Development and Training Materials

The Caltrans Freight Academy 2022 Google Drive includes all materials presented during the academy. This includes all materials organized by the sequence of events that occurred during the academy along with miscellaneous materials. You will find folders organized by Day 1–5, a Final Project folder, a Resource folder, a Geospatial Data Catalog, and the agenda. A link to the Google Drive [can be found here](#).

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