

SOUTHERN CALIFORNIA GOODS MOVEMENT COMMUNITIES OPPORTUNITIES ASSESSMENT REPORT

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OCTOBER 2023



SCAG™

INNOVATING FOR A BETTER TOMORROW



ABOUT SCAG

SCAG is the nation's largest metropolitan planning organization (MPO), representing six counties, 191 cities and more than 19 million residents. SCAG undertakes a variety of planning and policy initiatives to encourage a more sustainable Southern California now and in the future.

VISION

Southern California's Catalyst for a Brighter Future

MISSION

To foster innovative regional solutions that improve the lives of Southern Californians through inclusive collaboration, visionary planning, regional advocacy, information sharing, and promoting best practices.

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INTRODUCTION

PROJECT SCOPE SUMMARY

The Southern California Association of Governments (SCAG) recently conducted the Southern California Goods Movement Communities Opportunities Assessment. This comprehensive study aimed to facilitate connections between communities and provide them with practical and effective steps and resources to engage with agencies and policymakers, ultimately aiding in mitigating freight impacts and accessing opportunities.

The assessment focused on understanding both the positive and negative impacts of goods movement, as well as how these impacts and opportunities are experienced by communities. Key areas of investigation included public health, workforce development and economic opportunities, and communication best practices.

Several key products were produced as a result of this study such as: a best practices [toolkit for impacted communities](#), community-identified potential solutions for impacted communities and the region, and guidelines for future SCAG goods movement outreach.

OVERALL PROJECT OBJECTIVES

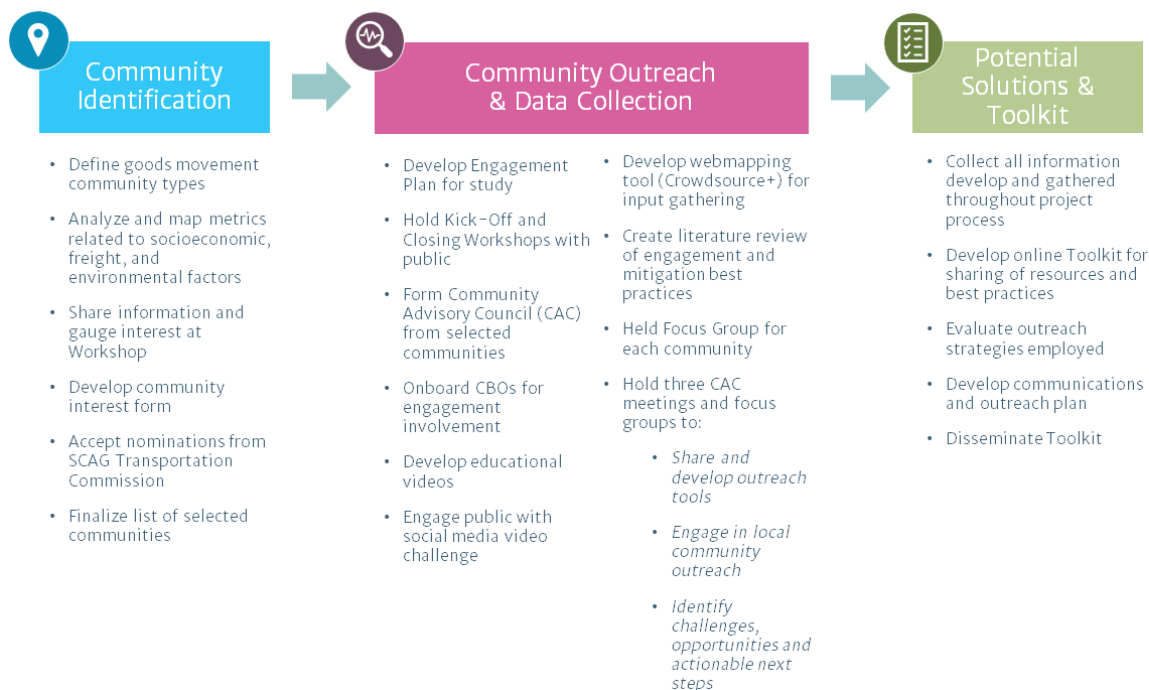
1. Identify disproportionate burdens or potential opportunities on disadvantaged and goods movement impacted communities in the region, particularly those related to air quality, traffic, and employment opportunities resulting from localized goods movement activities.
2. Prepare, execute, and evaluate a communications approach for the study that results in an innovative communication approach SCAG can use to engage communities on goods movement issues.
3. Engage the populations of identified communities to understand their views related to goods movement challenges and opportunities.

4. Develop and execute a communications strategy to share study findings and toolkit with populations of disadvantaged and impacted communities, and to guide SCAG’s future engagement on goods movement with communities in the region.
5. Prepare a toolkit of resources and best practices for stakeholders of impacted communities that can be used to address localized goods movement impacts and identify solutions, strategies, and funding sources for mitigation of these impacts that effectively strengthen their communities.
6. Build relationships with disadvantaged, freight impacted, and frequently underrepresented communities.

The study was driven by community outreach and stakeholder involvement, especially from goods movement impacted or historically underrepresented communities. It is vital to receive inclusive input, while building community trust and understanding community-driven solutions. Initial project expectations and study design anticipated the need for multiple outreach methods, and included strategies to incentivize and compensate community-based organizations who were interested to partner with SCAG in the effort. Building trust and identifying potential solutions across a diverse geography and complex mix of industry, community, and jurisdiction interests takes time and sustained effort. This report includes a summary of findings in the process of identifying communities with similar challenges and opportunities, a summary of existing conditions and findings from the literature and regional policies, description of findings from the outreach process, and a summary of potential solutions going forward.

This report is intended to describe the approach and findings of the Southern California Goods Movement Communities Opportunities Assessment. This can inform other goods movement stakeholders in similar efforts in their local communities. This report may be useful for planners looking to engage goods movement impacted communities, or community leaders looking to learn from the experiences and viewpoints of similarly impacted communities.

FIGURE 1 Project Process



IDENTIFICATION OF COMMUNITIES OF FOCUS

To focus the efforts of the SoCal Goods Movement Communities Opportunities Assessment, 6-8 communities of interest were identified to participate and collaborate with project team. The lessons learned from outreach and dialog in these communities could inform policy making and actions by both planners and leaders from similar communities throughout the region. The community identification and selection approach comprised of a two-part process:

- **Part 1 - Quantitative, Evidence-Based Approach: Define Community Identification Types** – Applied a data-driven approach and spatial analysis using various regionwide datasets, including public health, socioeconomic, and goods movement activity indicators. This resulted in classification of four goods movement community types in the six-county SCAG region.
- **Part 2 – Survey-based Approach: Final Community Selection** - Building on Part I and incorporating nominations from the November 4th, 2021, SCAG Transportation Committee Meeting, feedback from the January 2021 workshop, and information provided by the follow-up survey demonstrating community interest.

This complementary approach resulted in the final selected communities of focus and the criteria and rationale for identifying seven communities included those that are:

1. disproportionately affected by the goods movement supply chain activities,
2. are representative of various geographic areas and issues in Southern California, and
3. need support to implement and improve equity measures of community health and well-being.

The community identification process included both an assessment of the level of interest expressed in participating in the process, and the local capacity to engage with the project team and provide productive feedback to the toolkit and outreach process within the project schedule.

VARIABLES

The first step in identifying the focus communities applied a quantitative, data-driven approach that included a spatial analysis exercise to help define four goods movement community types in the SCAG region. Given the large scale of the SoCal region, this step was undertaken to help categorize the region into smaller community types that can account for the diverse and geographic spread of goods movement issues in the region. By doing so, an interested, yet not selected, community could still identify themselves through one of the community types and benefit from project findings.

The following community type variables were used for building scenarios using multivariate clustering. These variables are a mixture of socioeconomic, freight activity, and environmental/exposure indicators.

- Population
 - Working Population (ages 15 – 64)
 - Census Block Groups with more than 10 people were selected
- Employment – Source: Data Axle USA 2019 – formally InfoUSA
 - Total Jobs

- Freight Intensive Jobs
 - Agriculture, Forestry, Fishing, and Hunting
 - Mining, Quarrying, and Oil and Gas Extraction
 - Utilities
 - Construction
 - Manufacturing
 - Wholesale Trade
 - Transportation and Warehousing
- CalEnviroScreen 4.0 (Source: CARB), which incorporates:
 - Exposure indicators such as traffic, air quality, and diesel particulate matter
 - Sensitive population indicators such as asthma
 - Environmental effects such as hazardous waste and cleanup sites
 - Socioeconomic factors such as poverty, unemployment, and education level
 - SB535 Disadvantaged Communities (DAC) are census tracts that have been identified by the California Environmental Protection Agency (Cal/ EPA) as Disadvantaged Communities based on the requirements set forth in SB 535, which seek to identify communities that are disproportionately burdened by and vulnerable to multiple sources of pollution. They are represented in CalEnviroScreen as those areas with a percentile of 75% or greater
- Pollution Burden
 - Truck Vehicle Hours Traveled (VHT) – Source: SCAG Heavy Duty Truck Model RTP 2020
 - Pollution Tonnage – Source: CalEnviroScreen4.0
- Income and Access – Source: American Community Survey (ACS) 2019
 - Median Household Income
 - Total Population using Public Transportation to travel to/from work
- Truck-Involved Collisions (2016-2020) – Source: Transportation Injury Mapping System (TIMS)

TYOLOGY OF FREIGHT-RELATED COMMUNITIES

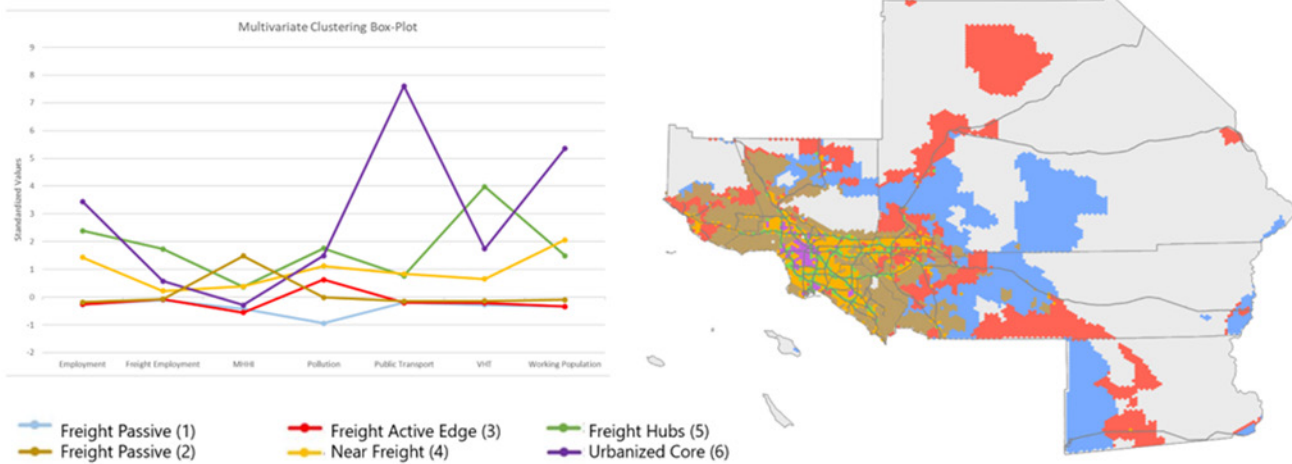
The community identification and selection approach for the Southern California Goods Movement Communities Opportunities Assessment involved a two-part process. The first part utilized a clustering analysis, which employed a statistical method to identify and group communities based on their similarities. The objective of this analysis was to find a solution that maximized the similarity of features within each cluster while maximizing the differences between the clusters themselves.

Following the mapping of the variables mentioned earlier, a quantitative analysis was conducted to statistically identify the unique characteristics and shared attributes of different communities. This analysis aimed to capture diverse geographies, causes, and intensities associated with goods movement impacts. To achieve this, a clustering analysis utilizing Geographical Information Systems (GIS) was employed.

By applying GIS-based clustering analysis, the study yielded six distinct types of goods movement communities across the SCAG region. These community types were determined based on the specific patterns and characteristics observed in relation to goods movement. The clustering analysis helped to identify commonalities and differences among communities, providing valuable insights into the varying impacts experienced across the region.

The analysis specified six unique clusters and applied a statistical method to areas with a working population of more than 10 people. The types are defined based on their respective standardized value, as shown in the box plots below in **Figure 2**. Each community type differs with respect to the mapped variables described above. For example, the freight hubs type (in green) has the highest truck vehicle-hours traveled (VHT) standardized value when compared to the other community types – as well as freight employment.

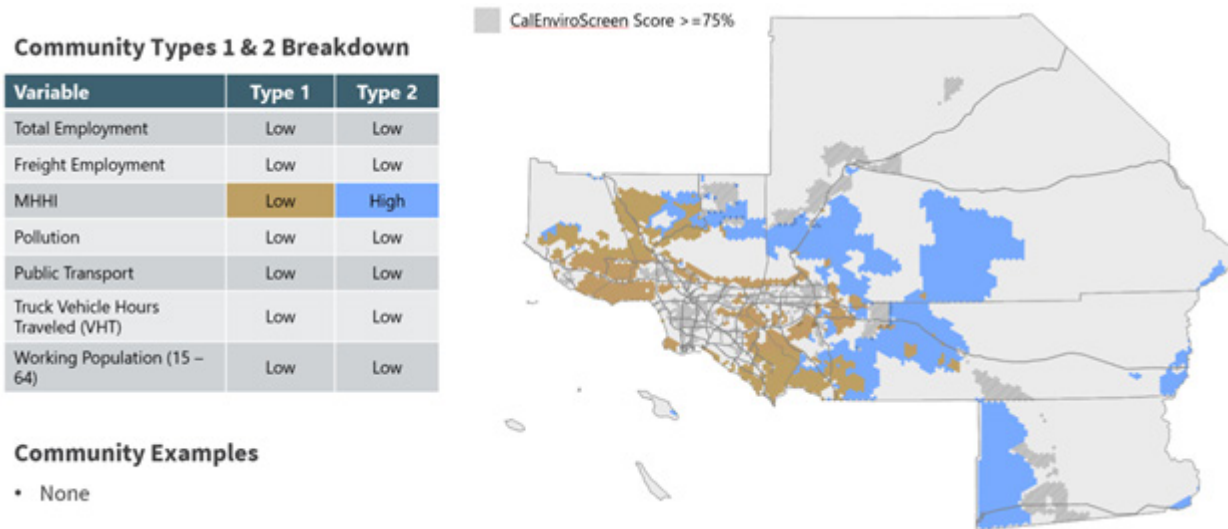
FIGURE 2 Goods Movement Community Types



The Freight Passive Types 1 & 2, illustrated in **Figure 3**, represent communities located outside the urban core and situated at the periphery of major freight activity hubs. These community types experience relatively low impacts from freight activities. It is noteworthy that Type 2 exhibits the highest median household income (MHHI) among all six Goods Movement Community Types.

The low impacts on these passive community types can be attributed to their distance from the core freight areas. As a result, they experience fewer direct effects of goods movement activities. Additionally, the relatively higher MHHI of Freight Passive Type 2 indicates a stronger economic status within these communities compared to other Goods Movement Community Types.

FIGURE 3 Freight Passive Type



The subsequent community type identified in the assessment is known as Freight Active Edge. These communities are in closer proximity to major population centers and freight hubs compared to the Freight Passive Types. As a result, they directly experience a higher level of pollution resulting from goods movement activities. The increased pollution levels in these communities can also be attributed to the specific typology of the air basin in their respective areas.

Notable examples of communities belonging to the Freight Active Edge Goods Movement Community Type, as depicted in **Figure 4**, include Calexico/El Centro, the North Salton Sea, and Victorville. These communities serve as illustrations of the challenges faced in terms of pollution impacts due to their closer proximity to major freight hubs and the associated goods movement activities.

FIGURE 4 Freight Active Edge Type

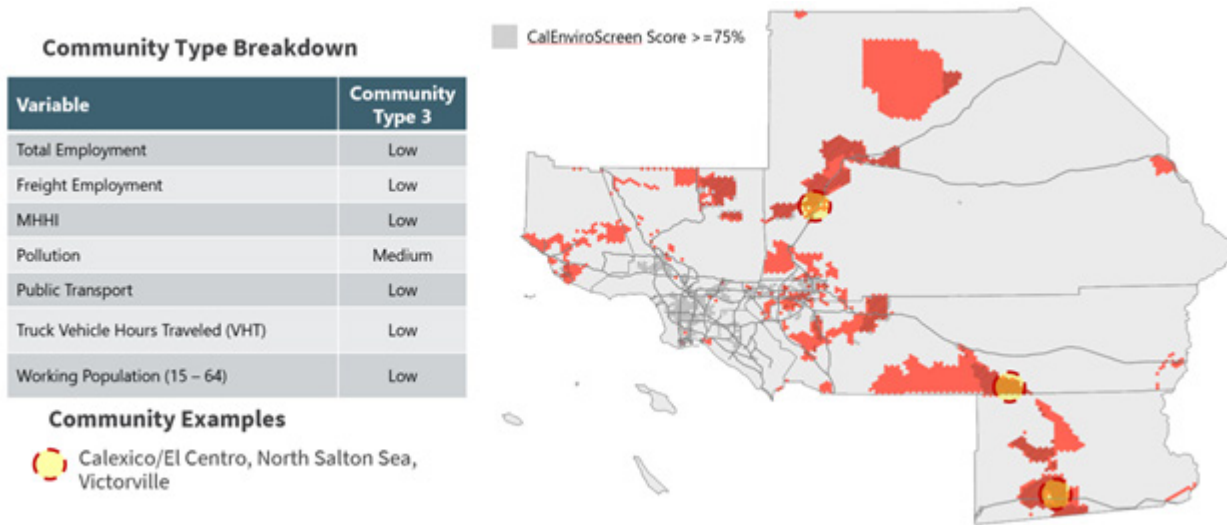
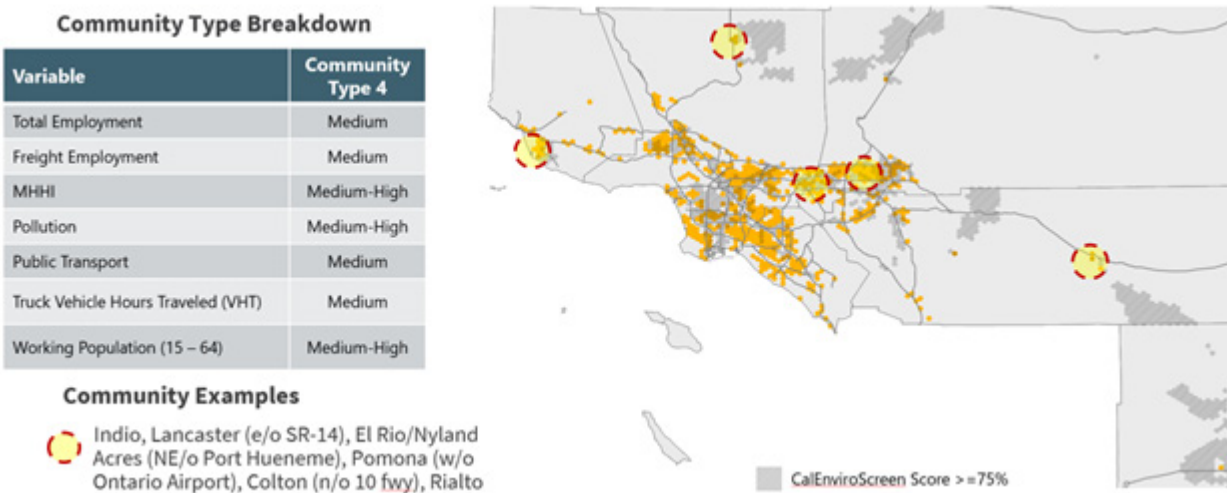


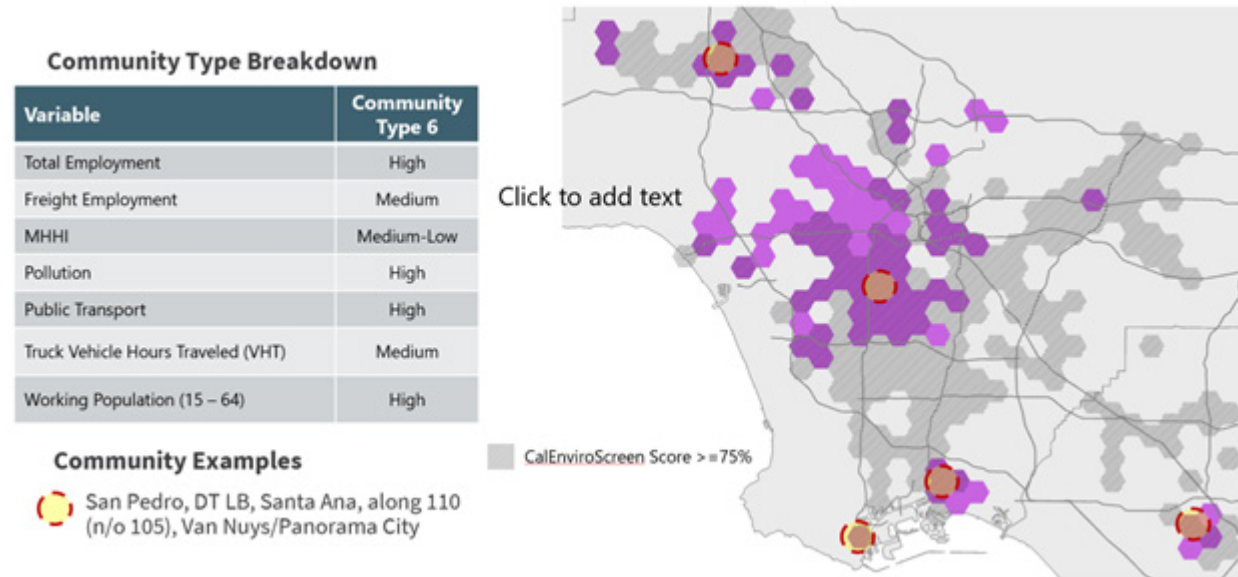
Figure 5 illustrates the presence of a community type called Near Freight. These communities are situated in proximity to major freight hubs and heavy truck corridors, although they are not directly adjacent to them. Therefore, the emission burden difference between this Goods Movement Community Type and the previous (freight active edge) is that these communities are further away from the freeways. Some community examples of this Type include Lancaster, El Rio/Nyland Acres, and Pomona.

FIGURE 5 Near Freight Type



The Dense Urban Centers Type depicted in Figure 6, represents communities characterized by a substantial working population, high-employment numbers (including freight jobs) and a significant reliance on transit. Examples of communities belonging to this type include San Pedro, Downtown Long Beach, and Santa Ana.

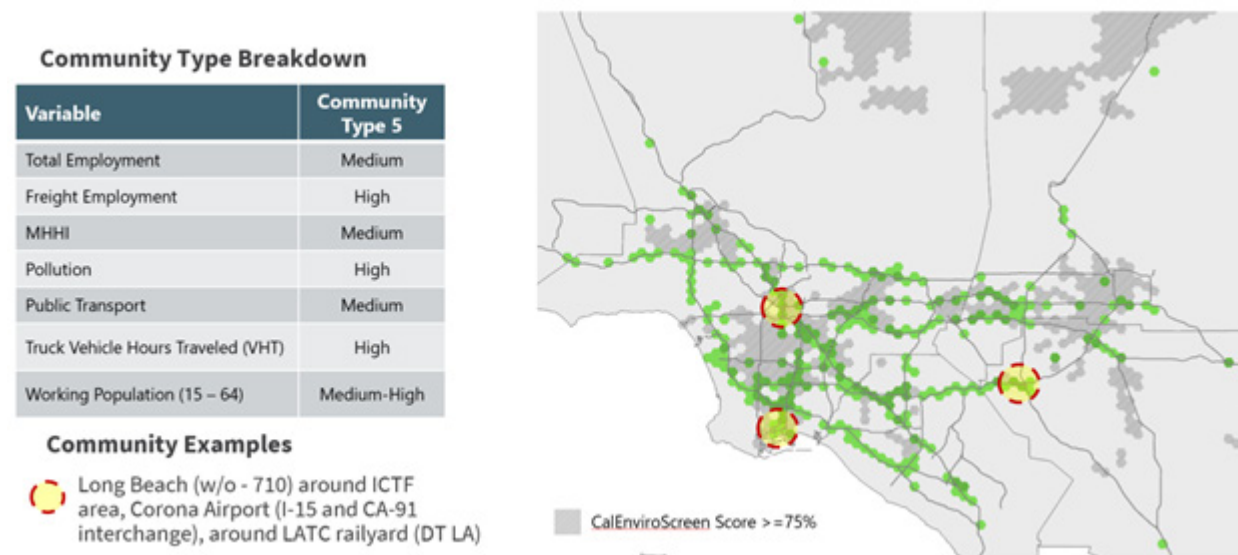
FIGURE 6 Dense Urban Centers Type



The final Goods Movement Community Type, depicted in Figure 7, is referred to as Freight Employment Hubs and Freeway Adjacent. These are high-density, urban core communities situated in close proximity to major freight activity centers such as seaports, intermodal facilities, and heavy truck corridors. As a result of their proximity to these hubs, pollution levels in this community type are relatively higher compared to other types.

Notable examples of communities belonging to this type include areas around the Intermodal Container Transfer Facility (ICTF), in Long Beach and the LATC railyard.

FIGURE 7 Freight Employment Hubs & Freeway Adjacent Type



Considering the relatively low standardized values for the mapped variables in the two Freight Passive Community Types, with the exception of the second type that exhibits the highest median household income (MHHI), it was determined that these two Community Types would not be included as part of the final goods movement community types in Part I. Instead, focus was to be placed on the other Goods Movement Community Types that exhibit more freight activity and encompass burdened populations. As a result, the final four Goods Movement Community Types are as follows and shown in Figure 8:

1. Freight Active Edge
2. Near Freight
3. Dense Urban Centers
4. Freight Employment Hubs & Freeway Adjacent

FIGURE 8 Four Goods Movement Community Types

Freight Active Edge	Near Freight	Dense Urban Centers	Freight Employment Hubs & Freeway Adjacent
<ul style="list-style-type: none"> • Low freight employment/working pop. density • Moderate pollution • Low truck traffic 	<ul style="list-style-type: none"> • Moderate freight employment/working pop. density • Moderate pollution • Moderate truck traffic 	<ul style="list-style-type: none"> • High total employment/working pop. density • High access to transit • Moderate truck traffic 	<ul style="list-style-type: none"> • High freight employment/working pop. density • High pollution • High truck traffic
 	 	 	 

Images are from google photos

METHODOLOGY OF COMMUNITIES OF FOCUS IDENTIFICATION

The final community selection rationale relies on a combination of Parts I and II, as well as the following criteria:

- Ensure community representation from each community type
- Ensure geographic spread across the region
- Ensure that disadvantaged communities are represented
- Expressed level of interest and participation of selected community

After careful review, a total of seven communities were selected for further focus. These communities, listed in Table 1, encompass a diverse representation of Goods Movement Community Types. The table also shows multiple communities that are represented by the Goods Movement Community Types – meaning they can still identify themselves through the selected focus communities in terms of goods movement challenges and/or opportunities. Due to these similarities, communities that were not selected can still gain value from the lessons learned in this study.

The selected focus communities reflect a wide range of goods movement challenges and opportunities across the region. These communities have also demonstrated their interest and capacity to actively participate in the project, ensuring their engagement and contribution. The table below highlights the seven selected focus communities and their corresponding Goods Movement Community Types.

ENGAGEMENT AND OUTREACH

ENGAGEMENT PROCESS AND LESSONS LEARNED

The engagement process for this endeavor was built upon connecting with a variety of groups across several platforms. This approach aimed to gather a broad spectrum of insights and test innovative methods of engagement. A comprehensive stakeholder database was developed, encompassing various entities such as Community-Based Organizations (CBOs), public agencies, the business community, and educational institutions.

WORKSHOPS

This process began with organizing a list of interested parties and developing an outreach list to participate in the first Workshop in January 2022, described in the previous section for the key role it played in the community identification process.

TABLE 1 Final Selected Communities of Focus

Selected Communities by Freight Community Type (and Sub Regions)	Sample Communities Represented By The Identified Community Type
<p>Freight Active Edge</p> <ol style="list-style-type: none"> 1. Unincorporated North LA County communities (Antelope Valley/ Palmdale/ Little Rock/ Pear Blossom, Lake LA, & Sun Village) east of SR-14 2. City of San Bernardino Adjacent to San Bernardino Airport 3. City of Banning 	<ul style="list-style-type: none"> • North Salton Sea • Victorville • Apple Valley • Fontana • Calexico/El Centro
<p>Near Freight</p> <ol style="list-style-type: none"> 4. Cities of Riverside and Banning (Riverside County) 5. City of Lancaster (Los Angeles County) 6. City of San Bernardino along I-215/ CA-210 	<ul style="list-style-type: none"> • Indio • Moreno Valley • Colton n/o I-10 • La Mirada • South Orange County • Compton • Bell Gardens • South Chino (adjacent to DACs) • El Rio/Nyland Acres NE of Port Hueneme • City of Rialto (SANBAG) • City of Pomona w/o Ontario Airport (SGVCOG)
<p>Freight Employment Hubs or Freeway Adjacent</p> <ol style="list-style-type: none"> 7. City of Needles (San Bernardino County) 8. City of Commerce (LA County, Metro and Gateway Cities COG) 	<ul style="list-style-type: none"> • Corona Airport (I-15 & CA-91 interchange) • Long Beach w/o I-710 near ICTF • Buena Park • 710 Communities - AB617 Wilmington • Carson • Vernon • South Gate • LATC Railyard – Downtown LA
<p>Dense Urban Centers (TBD)</p> <ol style="list-style-type: none"> 9. None¹ 	<ul style="list-style-type: none"> • Santa Anna • Downtown Long Beach • Near I-110 (n/o I-105 fwy) • Van Nuys/Panorama City • Cudahy • San Pedro

Two workshops were held for the purpose of engaging with both the selected communities and all interested communities in the region. The first workshop was served as an introduction to the project, providing an opportunity to generate interest and involvement in the community selection process. As a result of this workshop, several communities expressed their interest and actively participated in the subsequent phases. The second workshop was held towards the conclusion of the project and was designed to share the project's progress process and findings. The workshops proved to be successful in terms of attracting a diverse range of attendees and facilitating dialogue among participants.

COMMUNITY ADVISORY COMMITTEE

Following the identification of focus communities using the outlined process, member organizations from each community were invited to join the Community Advisory Committee (CAC). Throughout the assessment period, three (3) CAC Meetings were held, serving as platforms to cover important project-related topics such as overview of the project and introduction of engagement tools. These meetings were open to CAC members and provided a valuable opportunity for feedback. Public employees, and CBO members were among the participants.

The primary role of the CAC was to lead engagement efforts and collaborate with stakeholders within their communities. The committee worked closely with the project team, providing their ideas and feedback on the development of tools. This engagement and feedback collection process took place during the CAC meetings, where various engagement best practices and tools were shared through training sessions. Technical support, office hours, and facilitated discussions further supported this process.

TABLE 2 Workshops Held

Meeting	Date	Attendees
Workshop #1	January 18, 2022	75
Workshop #2	September 15, 2022	90

CAC members played an active role in disseminating the tools to their communities throughout the project’s duration and collected feedback on tools. The CAC meetings, held virtually, allowed for seamless communication and collaboration. Additionally, the CAC members were invited to three office hours, providing dedicated time for further discussions and support. Moreover, they participated in focus groups, contributing to a comprehensive assessment process.

TABLE 3 CAC Members

Selected Community	County/Organization	Representative(s)	Title
Unincorporated North County LA	North LA County	Mark Herwick	Supervising Regional Planner
City of Lancaster	LA County	Candice Vander Hyde	Analyst
	Antelope Valley Partners for Health	Michelle Fluke	Executive Director
	Antelope Valley Economic Development & Growth Enterprise	Drew Mercy	Executive Director
City of Banning	Riverside County	Colleen Wallace Adam Rush	Mayor Pro Tem Community Development Director
City of Commerce	LA County	Jose Jimenez	Director of Economic Development and Planning
City of Needles	San Bernardino County	Patrick Martinez	Assistant City Manager/ Development Director
		Rick Daniels	City Manager
City of Riverside	Riverside County	Philip Nitollama	City Traffic Engineer
City of San Bernardino	San Bernardino County	Amanda Hernandez	Economic Development Division Manager
		Karen Suarez	Director
	Uplift San Bernardino	Noraly Sainz	Program Coordinator

TABLE 4 CAC Meetings Held

Meeting	Date	Attendees
CAC #1	May 19, 2022	13
CAC #2	May 31, 2022	11
CAC #3	August 16, 2022	11

The level of engagement varied among the representatives within the CAC. Factors such as time constraints, vacation schedules and competing demands may have influenced the extent of their involvement. During CAC meetings, some members actively participated in discussions, but appeared to be limited to these specific meetings, as they didn't participate outside of the meetings by engaging their communities or responding to requests to support the mapping tool or social media video challenge. These activities required more effort and time than participating in briefing meetings. To ensure CAC members comprehended the action items and key information, succinct email recaps were distributed after the meetings. Additionally, short surveys were conducted to gauge their level of comfort with the material presented. Office hours were also held to aid and support CAC members.

CBO PARTNERSHIPS

As part of this assessment, CBO Partnerships were established to engage community groups that have a proven track record of local leadership and successful campaigns. This process commenced after the selection of city representative CAC members, as they could assist in connecting the project team with relevant organizations. The identified community groups primarily focused on general community development and initiatives aimed at improving quality of life, particularly in areas related to public health, economic development, and youth empowerment.

The involvement of these CBOs was intended to leverage their expertise in order to aid in the project team's understanding of how goods movement affects communities, how to broaden the reach to the public, including different demographics. CBOs were nominated by the selected community representatives or contacted by the project team who performed a thorough analysis to identify groups that would be the most suitable for the assessment.

With the project team's support, all selected communities identified at least one (1) CBO. Three (3) CBOs were fully onboarded and engaged in the project, contributing their valuable insights and expertise. (Refer to Table 5 and Table 6 for a breakdown of participating and onboarded CBO partners). While some of the contacted CBOs continued their involvement with the project in an informal capacity, it is worth noting that their engagement varied. Nevertheless, the contributions and input from these CBOs, both formal and informal, played a significant role in enhancing the assessment process and broadening the project's reach within the communities.

CBO ONBOARDING PROCESS

In order to establish partnerships with CBO's, the project team developed an interest form to gather recommendations and gauge interest from relevant organizations. The form was distributed to a master database consisting of 865 stakeholders (as of 6/14/22) and was directly sent to representatives of local agencies in the communities selected to participate in the assessment.

Subsequently, the project team engaged in one-on-one discussions with these selected communities to seek their recommendations for CBO partners. While three communities provided recommendations for CBOs they had existing relationships with, the remaining communities did not have existing connections or knowledge of potential partners. It is important to note that Unincorporated LA County partnered with local Town Councils who were not registered non-profit organizations and thereby not eligible for compensation. These Town Councils still participated without compensation.

The project team conducted outreach to the recommended CBO partners explaining the project and potential areas where their support would be valuable. Additionally, research was conducted to identify CBO partners in the selected communities without existing relationships with such organizations. In total, the project team reached out to 17 community-based organizations, including one tribal government. Some feedback received from these organizations highlighted the local prevalence of goods movement and its impacts on residents' daily lives. However due to limited staff capacity, the Environmental Protection Agency (EPA) and Data Evaluation Record Director for the Fort Mojave Indian Tribe were unable to actively participate in the project.

The project budget included \$1,000 per community for CBO compensation. To ensure clarity and mutual understanding, each CBO signed an informal partnership agreement that outlined the agreed upon tasks and requirements for compensation. The agreement also included a request for CBOs to document all their efforts to verify completion. This documentation was crucial for confirming the fulfillment of tasks and facilitating the compensation process.

It is worth noting that one CBO initially expressed their interest in supporting the development and production of the third educational video. However, due to personal health complications and limited organizational capacity, they had to withdraw their offer to assist. Despite this setback, the project team proceeded with the remaining CBOs and ensured they received the agreed-upon compensation.

TABLE 5 *Contacted CBOs*

Community	Organization or Tribe
City of Lancaster	<ol style="list-style-type: none"> 1. Antelope Valley Partners for Health 2. Antelope Valley Economic Development & Growth Enterprise 3. Advancing Communities Together, Inc. (ACT)
City of Commerce	<ol style="list-style-type: none"> 1. East Yard Communities for Environmental Justice 2. Strong Women Healing Their Community
City of Pomona ²	<ol style="list-style-type: none"> 1. Day One 2. Clean & Green Pomona 3. United Voices of Pomona for Environmental Justice
City of Riverside	<ol style="list-style-type: none"> 1. Inland Empire Economic Partnership (IEEP) 2. Center for Community Action and Environmental Justice (CCA EJ) 3. ExCITE Riverside
City of Banning	<ol style="list-style-type: none"> 1. Huerta del Valle 2. Banning Cultural Alliance
City of San Bernardino	<ol style="list-style-type: none"> 1. Inland Empire Economic Partnership (IEEP) 2. Arrowhead United Way 3. Making Hope Happen Foundation: Uplift San Bernardino
City of Needles	<ol style="list-style-type: none"> 1. Fraternal Order of Eagles 2. Fort Mojave Indian Tribe (CA/AZ)
Unincorporated LA County	<ol style="list-style-type: none"> 1. Pearblossom Rural Town Council 2. Littlerock Rural Town Council 3. Lake Los Angeles Rural Town Council 4. Sun Village California Town Council 5. Sun Village Chamber of Commerce

TABLE 6 *Onboarded CBOs*

Community	Organization and Agreed on Contributions
City of Lancaster	<ul style="list-style-type: none"> • Antelope Valley Economic Development & Growth Enterprise (AV EDGE) <ul style="list-style-type: none"> ▪ Email Outreach ▪ Social Media Outreach • Antelope Valley Partners for Health <ul style="list-style-type: none"> ▪ Social Media Outreach
City of San Bernardino	<ul style="list-style-type: none"> • Making Hope Happen Foundation: Uplift San Bernardino <ul style="list-style-type: none"> ▪ Social Media Outreach ▪ Digital newsletters ▪ Pop-up events to raise project awareness and encourage participation with the mapping tool and video challenge (x11) ▪ In-person workshop/office hours (x2) ▪ Flyers posted at businesses (x10)
Unincorporated LA County	<ul style="list-style-type: none"> • Pearblossom Rural Town Council • Littlerock Rural Town Council • Lake Los Angeles Rural Town Council • Sun Village California Town Council • Sun Village Chamber of Commerce <ul style="list-style-type: none"> ▪ Social Media Outreach ▪ Word of Mouth Outreach • As public entities, these partners were not eligible to receive compensation for their efforts

FOCUS GROUPS

Following the two CAC meetings, focus groups were organized to garner feedback from a wider group. The focus groups were intended to develop potential solutions through discussions on the selected communities' existing conditions, challenges, and opportunity areas, as well as any ideas for improvement. The timing of the focus groups was carefully coordinated with CAC members and their partner organizations. Two sessions were held to accommodate breakout groups for each community, allowing for more focused and in-depth discussions.

To support the engagement efforts of the CAC members, a comprehensive toolkit was provided. The toolkit included various resources such as a social media posting matrix with ready-to-use graphics and suggested captions, templates for newsletters, emails, and website content. Additionally, SCAG extended their support to the focus groups by sending out email notifications. These notifications aimed to reach a wider audience and generate interest in participating in the focus group sessions. For more detailed information on the dates and attendees of the focus group meetings, please refer to Table 7.

TABLE 7 Focus Group Meetings Held

Meeting	Date	Communities	Attendees
Focus Group #1	June 23, 2022	<ul style="list-style-type: none"> City of Commerce City of Riverside City of San Bernardino City of Needles 	88
Focus Group #2	June 29, 2022	<ul style="list-style-type: none"> City of Banning City of Lancaster N LA County 	26

Both focus groups achieved satisfactory attendance levels, though participation could have potentially been higher with enhanced recruitment efforts such as publicizing at community pop-ups, or through engagement with Neighborhood/City Councils. To further enhance stakeholder engagement and ensure their understanding of the value they bring, it is crucial to create a clear outline of the assessment outcomes and provide a recap of how public feedback will be utilized.

OFFICE HOURS

To facilitate open communication and address any queries or concerns, office hours were organized for CAC members from the selected communities. These office hours provided a comfortable space for CAC members to ask questions about the project itself, as well as the tools employed, such as Crowdfunder+ and social media video challenge. Two (2) office hours were held by the team throughout the duration of the project. A total of six (6) stakeholders attended these office hours, and the majority of the questions were related to potential notification efforts. This indicated a particular interest in understanding and implementing effective communications strategies and the project team was also available for additional calls and check-ins on an as needed basis.

In addition to office hours, targeted outreach was conducted to ensure the active participation of CAC members and CBOs in the engagement activities and events. For a detailed breakdown of the attendees during the office hours, please refer to Table 8 and Table 9.

TABLE 8 Office Hour Attendees

Name	Community	Discussion/Question Overview
Session #1 – May 27, 2022		
Mark Herwick	LA County	<ul style="list-style-type: none"> How will the toolkit be used? Can Town Councils be compensated as CBO partners? Discussion of potential outreach strategies
Philip Nitollama	City of Riverside	
Session #2 – June 8, 2022		
Amanda Hernandez	City of San Bernardino	<ul style="list-style-type: none"> Discussion of CBO outreach tasks Request for the video challenge submission form to be translated into Spanish
Isabelle Prittie	Making Hope Happn Foundation	
Karen Suarez	Making Hope Happn Foundation	
Noraly Sainz	Making Hope Happn Foundation	

TABLE 9 Technical Assistance Meetings Held

Community	Organization
City of Riverside	<ul style="list-style-type: none"> City of Riverside
City of Lancaster	<ul style="list-style-type: none"> Antelope Valley Economic Development & Growth Enterprise Antelope Valley Partners for Health
City of San Bernardino	<ul style="list-style-type: none"> Making Hope Happen Foundation: Uplift San Bernardino

Aside from established Office Hours, the project team provided one-on-one assistance to answer questions about the tools, engagement approach, and project goals.

A benefit to hosting office hours was that CBOs were able to establish closer working relationships with the project team and clarify any technical questions. CBOs who participated in the office hours were better equipped to assist stakeholders who did not have the knowledge or access to the digital tools. During office hours, the project team equipped CBOs with the resources to become experts in the use of the tools so that they were able to support their local communities. In the future, it is recommended that stakeholders be given an opportunity to request office hour sessions that best work with their availability. Participation would likely increase if the frequency of office hours was more widely available.

ENGAGEMENT TOOLS

The following engagement tools were developed and employed in this project process:

SOCIAL MEDIA VIDEO CHALLENGE

The social media video challenge provided an innovative opportunity for community members and other industry experts to share their experiences related to goods movement. To facilitate this, the project team developed a digital submission form where participants could upload their recorded video clips in response to a chosen “prompt” question. Additional optional prompt questions were provided to assist participants in creating their videos.

The website that was used for the video submissions was Typeform, a platform designed to create forms, surveys, or quizzes. This platform was selected because it allowed respondents to share their contact information through short answer questions and enabled multiple file submissions, which was necessary for respondents to submit more than one video if desired.

The submission form received 465 views and 34 “starts” but the completion rate was less than 1%, indicating that people were receiving the challenge but not interested in completing it, or confused about how to submit the video. This is also distinguished from a social media challenge where participants would also post the video on their own feed. One submission was received on the primary form and four submissions were received using the CBO recommended platform described below, for a total of five submissions.

To encourage participation and garner more submissions, a \$100 incentive was included in the second half of the submission window. CAC members were encouraged to lead this effort in each of the selected communities using their mailing lists and social media platforms. None of the

participating members submitted verification that they did this outreach, nor provided feedback related to challenges. It was open for comment May 19, 2022, through August 31, 2022.

The Social Media Video Challenge was shared by email to the following stakeholder distribution lists with a request for participation and support spreading the word:

- CAC Members (x6)
- Master Project Database (x5)
- SCAG Listservs (x2)

Additionally, the following extended outreach partners shared the challenge through their email distribution lists:

- Port of Long Beach Academy of Global Logistics (LBUSC)
- Cal State University of Long Beach
- Harbor Association of Industry and Commerce
- Los Angeles Transportation Club
- Harbor Community Benefit Foundation
- Future Ports
- University of Southern California METRANS Student News

The minimal participation in the social media challenge was disappointing and indicates a need to engage on platforms already in use, rather than something new.

CROWDSOURCE+ DIGITAL MAPPING TOOL

In addition to the Video Challenge, the project team designed and launched a webmapping tool, Crowdsourc+, to receive public feedback on their freight experiences on May 19, 2022. This was launched at the first workshop and was open for comment through August 31, 2022. As CAC member distribution led to minimal response, SCAG publicized the tool on August 3, 2022. The tool was designed to receive comments related to challenges and ideas for improvement on specific locations. Comments could be categorized in one of the six topics which consisted of engagement, equity, environment, operations and safety, economy, or other. The platform also had a feature that allowed participants to view and “like” existing comments, demonstrating agreement with other participants. It was mobile friendly and translatable through viewing on translate.google.com.

The link to the webmapping tool was shared during CAC and focus group meetings to encourage participants to add their comments from the discussions onto the platform. Additionally, the link was shared as part of the post meeting recap emails and emails from SCAG following each CAC meeting. CAC members and CBO partners were encouraged to share the tool with their communities through social media, eblasts, websites, and other notification platforms or by hosting office hours to

provide technical support to participants who may need some help using the tool. See below for a breakdown of the email distributions.

- Project Email (x5)
- SCAG Listservs (x1)

INFORMATIONAL VIDEOS

Three (3) education videos were produced to educate the public on various topics related to goods movement such as the supply chain and economy, workforce development opportunities, and best practices for outreach. Clips from virtual interviews with key stakeholders such as CBOs and transportation professionals were used to develop the videos. These videos are included in the toolkit. It is recommended that communities use these videos to prime a discussion on goods movement in their communities. These videos may be clipped as appropriate and used to frame or enhance a community discussion. The videos are available on the toolkit at the project website, available [here](#).

PROJECT WEBSITE AND FACT SHEET

As part of the project's communication strategy, a dedicated project webpage was hosted on SCAG's website. This webpage served as a centralized hub for sharing project resources, especially during the project's launch and onboarding of Community Advisory Committee (CAC) members. The webpage proved to be valuable for disseminating and storing project information. Moving forward, it will continue to serve as a platform for sharing the final study products, including the toolkit, educational videos, and relevant documents.

To ensure widespread distribution of project information, a factsheet was created and included in all project communications. This included CAC meeting invitations, thank you messages, outreach toolkit materials for the CAC, and invitations to workshops and focus groups. CAC members were encouraged to share the factsheet as part of their own outreach efforts to help community members learn about goods movement and its impacts.

To gauge the effectiveness of the online resources, Google Analytics was employed to track traffic on both the project website and the online factsheet. The project website received a total of 756 page views, with an average time spent on the page of 4 minutes and 21 seconds. On the other hand, the online factsheet garnered 38 sessions, with an average time spent on the page of 10 minutes and 45 seconds.

Most of the website traffic originated from sources such as Google (organic) and the SCAG community (email). For the factsheet, most of the traffic came from Google (organic), while only two users connected through the SCAG community email.

ENGAGEMENT PLAN GUIDE

To provide support to CAC members in leading outreach efforts, the project team prepared an engagement plan guide that included:

- Guidance for cultivating CBO partnerships including recommendations for selecting, onboarding, and compensating partners
- Guidance for engaging through social media outreach including a table with populated content that could be copied and pasted into their platforms to help them manage their content to promote the focus groups

- Recommendations for outreach notification including guidance on distributing eblasts and newsletters, conducting phone outreach, leading pop-up events, and hosting virtual office hours

One CAC member submitted a completed engagement plan and several CAC members utilized the provided content to encourage participation at Focus Groups.

COMMUNICATIONS BEST PRACTICES

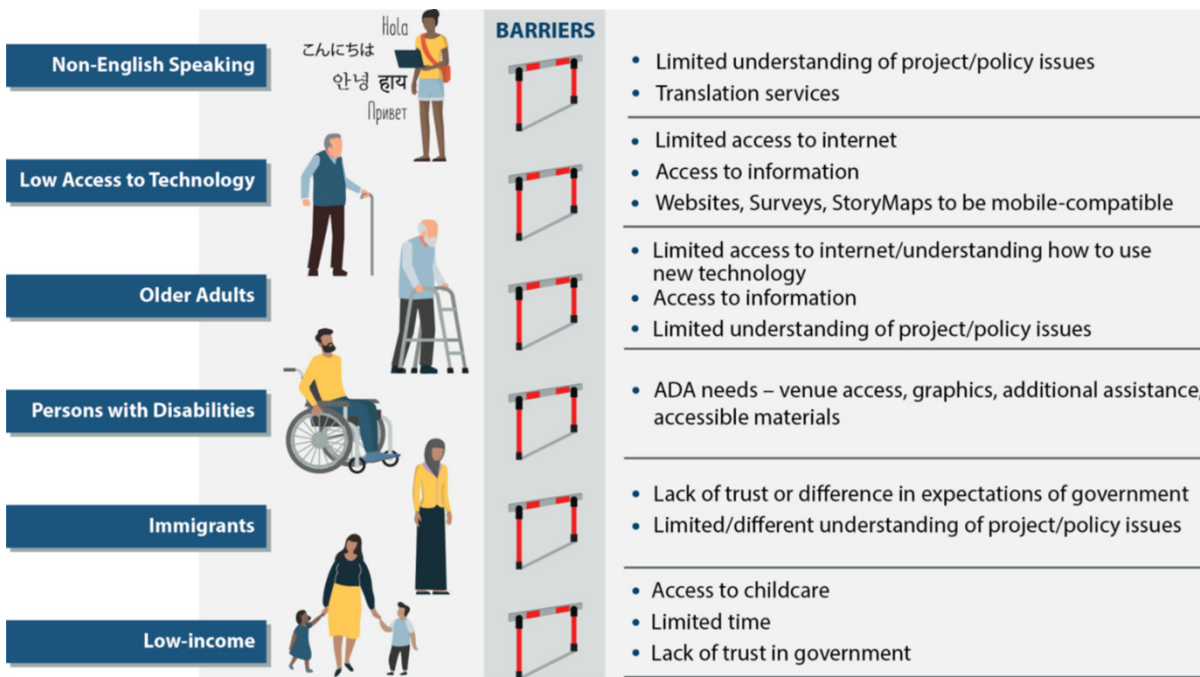
Community outreach and stakeholder involvement, especially from goods movement impacted or historically underrepresented communities, is vital to receiving inclusive input, all while building community trust and delivering community-driven solutions. In general, stakeholders have a distrust for the goods movement industry, because of past harms related to environmental health impacts and freeway development dividing and displacing communities. To repair this distrust, it is essential that stakeholders are included and that their input is applied to project plans and outcomes. Simply bringing stakeholders to the table is not enough if their input is not actually applied. Outreach is necessary to inform the public and create awareness about freight opportunities and challenges, while engagement is vital to receive stakeholder feedback on their experiences and how to best develop strategies to reduce the impacts especially of those disproportionately affected. To bolster community involvement, recommendations include to:

Engage at an appropriate time – In order to obtain and increase community participation throughout the project, the community should be included early in the process to receive early feedback and recommendations that can influence the outcome of the project.³ The public should be notified at least two weeks in advance of any meetings and/or key milestones.

Implement inclusive outreach methods – it is vital that people who are directly affected by goods movement be involved and express the challenges of the freight industry and environmental justice issues. Aside from those directly impacted, a broad range of stakeholders including State, regional, and local agencies, transportation facilities, businesses, elected officials, and community-based organizations (CBOs) should be involved early in the process. Recommended notification methods and techniques include but are not limited to:⁴

- Flyer distribution or distribution of any hard-copy materials (e.g. community posters, banners, etc.)
- Distribute stacks of flyers at key destinations in the community such as community centers, libraries, and schools
- Door-to-door noticing
- Phone banking
- Town halls
- Local radio stations, television, and podcasts
- Digital and printed surveys
- Focus group meetings and public meetings
- Email or eblasts
- Newsletters
- Social media
- Planned interviews with newspaper journalists and radio news media
- Project-specific websites or webpages
- SMS/MMS alerts

FIGURE 9 Barriers to Effective Community Engagement



Source: Image by Arellano Associates

Identify and remove barriers to access - to form effective engagement, barriers and limitations must be identified to form solutions. Barriers that should be mindfully removed to maximize opportunities to engage and maintain inclusiveness involve:

- Limited understanding of technical jargon used in the goods movement industry and how and where they can vocalize their concerns and input
- Lack of translation services
- Limited access to the internet and/or technology such as a laptop or smart phone; limited understanding of how to use technology especially new and emerging platforms such as online engagement tools such as Zoom and StoryMaps
- Limited accessibility and assistance for ADA needs
- Lack of trust in government and the overall intention of the goods movement industry as a result of past harms and exclusion
- Limited access to childcare and transportation services
- Limited availability and inconvenient meeting times
- Hosting meetings at locations that are difficult to access
- Some of the solutions to form participatory approaches, in light of such barriers, include:
 - Developing user-friendly and easy-to-read material with limited technical verbiage
 - Provide translation and interpretation services in appropriate languages; utilize culturally relevant messaging; partner with CBOs who are familiar with the cultural sensitivities of the community
 - Provide tech booths with laptops and internet access for community members to utilize and gather project information. Have trained staff on site to support the public with project or technical issues
 - Provide options to attend public meetings in-person or in a virtual setting

- Ensure venues provide ADA accessibility and ensure that material is ADA friendly (large simple images, less text); provide adequate audio-visual devices
- Provide childcare services or opportunities for youth activities
- Offer free shuttle or public transit services
- Host the same meeting at different times/days; avoid traditional work hours; host meetings on weekends
- Host meetings at community locations that are easy to access with wayfinding signage; the space should be a neutral place that is centrally located.⁵
- Understand how stakeholders obtain valuable information by identifying which community organizations they belong to, what type of media they consume on a daily basis, etc.⁶

Create community partnerships – forming strong and authentic community partnerships can encourage participation from underrepresented and vulnerable communities and gain valuable participation from people who may not directly engage with the agency. The public often becomes aware of projects in their communities through the community organization and/or coalitions that they are a part of and often have already fostered a sense of trust with them. Community partners could serve in a variety of methods to support public agencies and in a range of levels of effort including, but not limited to dissemination of project information, advise on proposed engagement efforts, and directly support with the administration of engagement techniques. Additionally, public agencies should consider compensating partners for their services and expertise and should implement an assessment tool to determine compensation to such partners.⁷ Developing meaningful long-term community partnerships through frequent communication with community leaders and organizations can ultimately contribute to a project’s success and equitable outcomes.⁹

Have a Public Participation Plan and update it on a regular basis – organizations should have a Participation Plan or other

engagement guiding plans to use as standard protocol and ensure consistency in their approaches to help navigate healthy relationships with the communities. Consistency is particularly important when onboarding community organizations and partners to have a standardized process and increase trust.¹⁰

Incorporate community input into the final deliverable – the final deliverable should reflect and be representative of the community feedback being gathered throughout the duration of the project as much as possible. It should be informed to the public how their feedback will be used and how it will influence the overall project.

Seek community feedback on the engagement process – gaining public feedback on the tools and techniques that are utilized throughout the duration of a project is essential in understanding how to best reach the community in the future and demonstrate that their feedback is important. Project staff can use surveys or follow-up discussions as ways to ask stakeholders to provide their input on the overall participation process. This type of feedback throughout the duration of the project can help to improve the final product as well as identify weaknesses in engagement methods for future projects.¹¹ Implementing such strategies in engagement and outreach proposals for projects can bolster the success through an equitable approach, all while forming community-driven outcomes. Utilizing a mix of the participatory strategies noted above can form robust meaningful public participation and inclusive decision making.

OVERALL CHALLENGES AND FUTURE OPPORTUNITIES IN ENGAGEMENT

Many specific challenges and opportunities were identified in relation to the various events and engagement tools used in this effort. Throughout the engagement and outreach process, several big picture conclusions have been drawn that can inform future engagement efforts.

BUILDING CONNECTIONS AND TRUST

During the onboarding process of CBOs and CAC members, the significance of building personal connections and trust was emphasized. This aspect remains an area for future improvement. When there is a strong level of trust established between the lead agency or organizers and the representatives of jurisdictions and CBOs, they are more likely to dedicate time and support to such initiatives. It is crucial to convey that participation and related tasks will be mutually beneficial and deserving of the participants' time.

The individuals who took part in the Focus Groups had varying levels of trust in our team's process, along with skepticism regarding whether their concerns would be effectively addressed. Our CBO partners raised the issue in a CAC meeting, highlighting that engagement tools like the Crowdsourc+ webmapping tool and participation in the video challenge would have been more impactful if there had been a greater level of trust and rapport between community members, students, industry workers, and the CAC or project team.

In future projects like this, it is important to "move at the speed of trust," ensuring that all parties involved feel that their involvement is valued and that they are aware of how their input will be incorporated. This means taking the time to foster trust and being transparent about the inclusion of their perspectives from the outset. By prioritizing trust-building and ensuring meaningful inclusion, future endeavors can effectively address community concerns and create a sense of ownership

and investment among participants.

COMPENSATION AND ONBOARDING

Compensation was provided for CBOs participating at what was thought to be a reasonable level. However, through this process several CBOs declined to formerly participate as the administrative hurdle was not overcome by the amount of compensation offered. CBOs needed increased compensation and scaled amounts based on what is being asked of them. CBOs are extremely valuable partners in connecting and building trust with the communities they serve. In the future, agencies may work with CBOs to identify levels of effort for tasks and allow CBOs to know upfront what being involved on a project will mean. This could also allow for them to build in time and budget to be involved in future projects if they can plan ahead with agencies who anticipate upcoming projects that would benefit from CBO involvement.

LIMITATIONS OF VIRTUAL ENGAGEMENT

Due to the COVID-19 pandemic and its status at the beginning of this project, virtual engagement was necessary. The project team developed innovative online tools with the intention of disseminating them through CAC members and SCAG. However, feedback received indicated that several communities have now transitioned into holding in-person engagement events, and this project would have benefited from such in-person interactions.

Virtual engagement also poses limitations from an access standpoint. Some potential participants face varying degrees of challenges in joining virtual events due to factors such as technical literacy, limited internet or device access, or inadequate bandwidth. In the future, projects like this should leverage existing events and in-person engagement opportunities where direct connections can be made both with the project team and with those who may hold differing viewpoints on the topic at hand. However, there are opportunities for leveraging virtual engagement in alternate ways, such as more interactive social media posts, virtual "spaces" that participants can interact with, and more user-friendly instructions when approaching complex or new ideas.

DIVERSIFICATION OF CONNECTION METHODS

Throughout the project process, various methods of connection were utilized, including email to social media, virtual meetings, and electronic resources. While these tools offered diversity, they required technical literacy and access, as previously mentioned, which presented significant challenges. To enhance engagement and input, it is crucial to diversify outreach methods and seek input from representatives on what works best for their communities. This could involve holding meetings at different times of day, including weekends, and utilizing alternative communication channels such as physical mailers, direct phone calls, or presentations at existing community, agency, school, or industry gatherings. In addition to the importance of in-person interactions highlighted earlier, meeting people where they already are can be immensely valuable. The project encountered difficulties in connecting with community organizations that could have provided insights on the most effective methods for each community. Leveraging this local knowledge represents an opportunity for future projects to improve engagement strategies.

COMMUNITY PERSPECTIVES ON FREIGHT; CHALLENGES AND OPPORTUNITIES

Throughout the engagement process for this project, a wide variety of comments were received. These comments encompassed both specific, localized concerns as well as broader interventions and challenges related to regional processes and systems. The primary objective of the engagement effort was to actively listen to communities, providing them with a platform to brainstorm ideas and share their perspectives.

This section of the report aims to showcase the ideas and feedback received directly from the community level. It's important to note that this serves as a compilation of community voices and suggestions and does not reflect an evaluation or endorsement of specific solutions. Community-proposed solutions and ideas have not been evaluated for feasibility, cost, or potential conflicts with other programs and plans. The intention is to provide a comprehensive overview of the ideas and feedback received from the community, facilitating further exploration and consideration of potential actions and strategies. These insights are supplemented with contextual information derived from background research and best practices.

Towards the end of this report, potential next steps are discussed, taking into consideration the community ideas expressed earlier, as well as a review of other regional plans and best practices documented in the literature. By incorporating community input and examining existing frameworks, the report aims to lay the foundation for future actions and initiatives that address the concerns raised by the community while aligning with regional goals.

DATA AND INFORMATION

DATA AND INFORMATION IN CONTEXT

In an increasingly data-based decision-making environment, access to big data and proper processes to analyze and understand it are important to local governments, community organizations, and the SCAG region at-large. With increased possible inputs to important policy and infrastructure decisions, there are major challenges faced regarding where data is sourced from, who is given access to it, and how conclusions from it are drawn. Many organizations are relying heavily on professionals in data science, but it is a growing field, and the needs currently outweigh the experienced staff available.

COMMUNITY IDENTIFIED CHALLENGES

Community members noted that the data related to roadway conditions, safety, enforcement, workforce development, education, and other factors are not consistently collected, accurate, or well-maintained across different jurisdictions. This lack of standardization and reliability poses challenges for community members and decision-makers alike. Furthermore, there is a lack of clarity regarding how the collected data is utilized by various entities, leaving community members uncertain about its purpose and impact.

Community members have raised concerns that nationally collected census data often fails to accurately represent many

localities, particularly those with small sample sizes or located in unincorporated areas. While collecting local data and conducting surveys is possible, it heavily relies on the financial and staff support available to local agencies.

They expressed that this would result in a disparity in access to quantifiable information between decision-makers and community organizations. It hinders their ability to apply for grant funding effectively or make informed decisions. This data disparity further underscores the need for improved data collection practices and mechanisms for community involvement. Efforts should be made to ensure that data is collected consistently and accurately across jurisdictions, enabling a more comprehensive understanding of local conditions. Additionally, there should be transparency and clear communication about how the data will be utilized by various stakeholders, fostering trust and empowering community members to actively engage in decision-making processes.

COMMUNITY IDEAS

Community members express a strong desire for improved access to existing or new data that can support decision-making processes and bolster their case when applying for grant funding. This data may come from agencies and/or well-resourced community groups develop tools to help communities identify solutions and measure results. This could be through better utilization of existing and accessible data, or collecting and sharing of new data that could be useful for making important decisions. Data-based approaches allow for more ground-truthing of ideas and can be a strong base in applying for grant funding of projects and programs.

ECONOMIC AND WORKFORCE DEVELOPMENT

ECONOMIC AND WORKFORCE DEVELOPMENT IN CONTEXT

Southern California continues to be a major population and employment growth region, fueling demand for freight transportation services. Goods movement supports approximately 576,000 jobs (or 1 in 20) in the Southern California region, including nearly \$374 billion in direct & indirect business sales yearly.¹² Port of Los Angeles and Port of Long Beach are the major goods movement gateways to the millions in the SCAG region, Midwest, and rest of the country. For example, Walmart aims to hire 20,000 permanent supply chain employees as companies cope with fierce competition for workers and a strained global supply chain.¹³

COMMUNITY IDENTIFIED CHALLENGES

Community members have highlighted a perception that government agencies tend to prioritize economic development over addressing other expressed needs. They have expressed concerns that solutions for economic development may not directly benefit or visibly address the day-to-day challenges faced by community members. This disconnect raises questions about the equitable distribution of resources and the alignment of economic development initiatives with the concerns raised by the community. Within the goods movement industry, challenges related to labor rights and the need for unions were brought up by community members. These concerns underscore the importance of ensuring fair and just working conditions for those employed in this sector. Furthermore, in communities grappling with traffic congestion and economic

issues resulting from a lack of local, well-paying jobs with upward mobility, there are concerns about the potential impact of the goods movement industry.

The cost of goods and services and ancillary amenities were also discussed, and the community noted that amenities should serve locals and well as truckers passing through, and similar concerns were voiced about the right mix of retail and services available.

COMMUNITY IDEAS

Constituents in certain communities are advocating for increased job opportunities specifically within the existing goods movement sector. One suggestion is to implement programs or incentives that encourage the hiring of residents for goods movement jobs, including those that can be done remotely. To attract workers to these local positions, it is important to provide job training resources, educational opportunities, and upskilling programs.

Additionally, community members have pointed out that certain aspects of working in the goods movement industry currently have high turnover rates. To create more sustainable employment, there should be a focus on promoting clean tech jobs and providing training in areas such as electronics and automation.

Community members have expressed a perception that they do not see the economic benefits of an increased goods movement sector, even when it is evident that there is significant growth. In response, cities and relevant authorities should consider better highlighting the specific benefits of new improvement projects, as well as other programs and services that have been made possible through the inclusion of goods movement in or adjacent to their communities. This can help foster a clearer understanding of the positive impacts and potential opportunities associated with the sector.

Furthermore, community members have suggested that the goods movement sector should be subject to taxes that help offset some of the negative impacts. For instance, directing a portion of these taxes to benefit the local healthcare industry could help mitigate any adverse effects and provide support to the community.

ENGAGEMENT

ENGAGEMENT IN CONTEXT

Community engagement and participation continues to be a major challenge in goods movement impacted communities. See Figure 9 for some of the common public engagement challenges, including specific barriers.

COMMUNITY IDENTIFIED CHALLENGES

Residents, workers in the goods movement industry, and youth share a common sentiment that they lack a voice or meaningful participation in shaping goods movement activities in their communities. There is a perceived disconnect between the community and the decision-making processes regarding goods movement. Furthermore, solutions for engagement and education on this issue are often not regionally coordinated, making them difficult to identify and address from an agency perspective.

One significant concern raised by constituents is the lack of awareness about the status of nearby infrastructure projects that could potentially address various community challenges. The information regarding these projects is often scattered and

presented through channels that community members do not typically follow. As a result, it becomes challenging for them to stay informed about regional and statewide decisions that directly impact their community. Engagement: Community Ideas

Community members expressed their desire to see an effective engagement process and improved strategies for community outreach and involvement at both the local and regional levels concerning goods movement-related decisions. They emphasized the need for mechanisms that allow organized community groups to seek funding opportunities. Additionally, community members would like to see community coalitions comprising of concerned and interested groups on specific topics, more opportunities for public private partnerships, and greater awareness of regional collaboration on infrastructure, policy and information sharing. Local and regional agencies can play a crucial role in facilitating these coalitions and providing platforms for engagement.

Cities and agencies are suggested to coordinate more on planning, truck routing, warehousing, safety, and truck parking between each other, as current efforts felt disjointed or too jurisdictional when the challenges brought up have been very regional in nature. Community members noted they would like more information on who decision-makers are for different topics and acknowledged that they could reach out to them more going forward. Solutions were suggested around supporting relevant state-wide bills and planning mechanisms that increase local communities' engagement during statewide efforts. (i.e., general or strategic plans) as well.

GOVERNMENT

GOVERNMENT IN CONTEXT

Southern California includes four district offices of the state department of transportation, 14 subregional councils of government, six county transportation commissions that program transportation funds, and 184 cities. This is an extremely difficult environment within which to plan for freight transportation systems that transcend multiple jurisdictional boundaries within the region.

COMMUNITY IDENTIFIED CHALLENGES

Goods movement and supply chain is a complicated system of various entities such as businesses, public agencies, regulatory frameworks, labor unions, etc. many decisions are beyond control of a single agency. From the community's perspective, there is a perceived lack of organized and regional planning when it comes to goods movement. This absence of comprehensive planning contributes to a perception of apathy or ignorance towards community concerns related to goods movement. Furthermore, there is a sense that planning efforts do not adequately consider the cumulative or regional impacts of goods movement activities.

COMMUNITY IDEAS

Community members suggested greater coordination with regards to planning, routing, warehousing and safety between adjacent communities and cities, or those along the same routes.

HEALTH AND AIR QUALITY

HEALTH AND AIR QUALITY IN CONTEXT

Southern California is a federal non-attainment area, failing to meet National Ambient Air Quality Standards for excessive pollutants. A large portion of dangerous pollutants, like NOX, are created by mobile sources like trucks and ships (i.e., diesel emissions).¹⁴ Goods movement overall is responsible for 50% all NOX emissions and 18% of PM2.5 within Southern California. Heavy-duty trucks alone account for 71% of all NOX emissions in Southern California.¹⁵ Furthermore, there are major equity concerns related to health and air quality considerations. Impacted communities, particularly those in close proximity to transportation corridors and distribution centers, often bear the disproportionate burden of poor air quality and its associated health risks.

COMMUNITY IDENTIFIED CHALLENGES

During each community engagement process, the issue of pollution and particulate matter, and its detrimental impact on air quality, environmental well-being, and public health emerged as a top concern. Community members consistently linked these concerns to their overall quality of life. Additionally, discussions highlighted the negative effects of noise and visual disturbances caused by goods movement activities and facilities. Specific concerns were raised regarding the presence of trucks, not only passing through the community but also idling near sensitive areas.

COMMUNITY IDEAS

Public health emerged as the foremost concern in nearly every community engagement session. Addressing this concern, communities developed suggested solutions that revolve around two key areas: promoting remote work and implementing measures to clean up the trucking industry before further expansion.

INFRASTRUCTURE

INFRASTRUCTURE IN CONTEXT

From new signals and striping to roadway maintenance, higher travel volumes and accommodation of goods movement vehicles has an impact on highways and local roads. Communities around the region are seeing a need for more focus on the infrastructure they rely upon.

COMMUNITY IDENTIFIED CHALLENGES

Community members identified a significant issue related to the infrastructure designed for goods movement activities. Specifically, sidewalks and driveways constructed by cities and/or Caltrans often fail to accommodate the unique needs of trucks, resulting in inadequate parking and maneuvering options. This lack of appropriate infrastructure forces trucks to park or pull into areas that were not designed to accommodate them.

Furthermore, there is a pressing need to address highway maintenance, design, usage, and safety concerns related to the interaction between heavy trucks and local users. The current infrastructure and road systems do not adequately account for the presence of heavy trucks, leading to potential safety hazards and conflicts between truck drivers and other road users.

COMMUNITY IDEAS

Community members have put forward several infrastructure-related solutions to address the challenges associated with goods movement. These solutions focus on utilizing federal funding to increase roadway capacity and upgrade infrastructure to accommodate trucks. This includes repaving streets, creating specific truck routes, and implementing improvements that enhance the safety of pedestrians and cyclists, particularly in areas with high truck presence.

To improve safety for pedestrians and cyclists, suggestions were made to upgrade bike lanes and pedestrian infrastructure. These improvements aim to create a safer environment for non-motorized transportation modes in areas where heavy trucks are frequently present.

Another key solution proposed by the community is the electrification of the goods movement industry. This involves incentivizing the transition to low-emission vehicles by establishing heavy vehicle charging infrastructure. Community members suggested reaching out to electric vehicle (EV) charging companies to explore the possibility of installing charging stations and collaborating with electric trade unions to develop zero-emission infrastructure.

PARKING

PARKING IN CONTEXT

Parking availability and access to private vehicles and to heavy trucks are dealt with in a variety of ways across communities in the SCAG region. As goods movement activity increases in communities with increased activity, parking for heavy trucks stopping while en-route and in between deliveries can spill into local communities, causing issues with idling fumes, line of sight for drivers, and parking availability.

COMMUNITY IDENTIFIED CHALLENGES

Parking poses a significant challenge for both individuals within and outside the goods movement industry. The presence of large commercial trucks parking in lots and metered spaces impacts the availability of parking for paying customers of local businesses. Furthermore, trucks parking near schools can obstruct visibility and compromise the safety of students walking and biking to school. When trucks are parked improperly, residents often face difficulties in identifying the appropriate channels to address these parking issues. There is a prevalent observation that trucks are frequently parked on residential streets and in areas where they should not be, leading to increased concerns from community members.

COMMUNITY IDEAS

Truck parking emerged as a significant challenge, as highlighted by numerous community members. During the engagement process, solutions were generated to address this issue, with a focus on conducting parking studies to gain a better understanding of existing parking challenges and improving the utilization and planning of areas already designated for truck parking. Discussions also emphasized the importance of enforcement, including enforcing parking regulations in designated areas and implementing stricter citations for trucks parked improperly or illegally.

Community members expressed a desire to actively participate in reporting parking violations and getting involved in the citation process. Creating accessible channels for reporting and involving citizens in the enforcement efforts can help ensure

effective monitoring and enforcement of parking regulations.

In addition to parking studies and enforcement measures, suggestions were made to require trucks to park within the city in which related warehouses are located. This proposal aims to address the issue of trucks parking in residential areas or other inappropriate locations, by encouraging them to utilize designated parking areas closer to their warehouse facilities.

ROUTING

ROUTING IN CONTEXT

Routing and related congestion plague many communities across Southern California, and goods movement plays a part. Southern California has some of the most congested highway, rail, and airport facilities in the country. This creates substantial delays for all users of the transportation system and imposes costs on goods shipped through the regional freight transportation system.

COMMUNITY IDENTIFIED CHALLENGES

Truck routing emerged as a prominent issue during engagement forums and was a matter of concern for constituents across various communities. Participants highlighted two main aspects: trucks cutting through neighborhoods to avoid congested major roads and the overall high volume of truck traffic on major arterials.

Community members expressed frustration with heavy truck traffic on specific local roadways and main streets, which not only caused congestion but also created safety concerns for residents. Additionally, there were observations of heavier truck traffic on freeways and off-ramps, leading to increased stress for individuals driving, walking, or cycling in close proximity to trucks. The presence of trucks near sensitive areas raised concerns about potential impacts on the surrounding environment and community well-being.

A common theme that emerged from discussions was the lack of understanding regarding established truck routes and their enforcement within their community or the broader region. Community members expressed a need for clarity regarding specific routes that trucks should be following and a desire to learn how their community or the region manages the establishment and enforcement of truck routes.

COMMUNITY IDEAS

The topic of routing presented several challenges identified by community members, with two primary solutions being proposed: finding better and more efficient routes in and out of the city, and implementing stronger enforcement or incentives to encourage their use.

SAFETY AND ENFORCEMENT

SAFETY AND ENFORCEMENT IN CONTEXT

Provision of a safe transportation system is a major goal of regional planning. However, the interaction of passenger and freight transportation creates significant safety concerns, especially on high truck volume freeways and at rail-highway crossings.

Security also continues to be a concern. In the aftermath of the events of September 11th, increasing attention is being paid to freight transportation security, especially at international ports of entry.

COMMUNITY IDENTIFIED CHALLENGES

During various community forums, safety concerns and the lack of enforcement emerged as significant challenges across all communities involved. These challenges encompassed various aspects, including truck routes (if applicable), truck speeding, truck parking, and truck idling. Community members expressed their concern regarding the increase in goods movement, which led to more truckers passing through without adequate understanding, training, or a personal investment in the communities. This lack of awareness of safety hazards or indifference further exacerbated the safety issues.

One common observation made by community members was the inadequate following distances maintained by trucks, considering the high speeds at which they traveled. This raised concerns about potential collisions and the overall safety of road users. Pedestrians, particularly vulnerable groups such as youth and the elderly, expressed feeling unsafe walking near areas with frequent truck activity. Cyclists also reported difficulties in using their usual routes due to safety concerns posed by trucks.

In addition to roadway safety, challenges were raised regarding the working conditions within goods movement facilities. The safety of workers within the industry was a concern, indicating the need for improved working conditions and measures to ensure their well-being.

COMMUNITY IDEAS

When it comes to addressing challenges of truck speeds, following distances, and routing, community members suggest more enforcement of existing rules and regulations. This can be accompanied by better and more prolific signage related to truck routes, parking, rules, and indications of when one has entered a community area. Cross-jurisdictional enforcement and understanding of related rules/guidelines was suggested, and the need for funding, training or process for new or enhanced truck enforcement for police departments or even local community members. The goods movement industry could participate in equipping drivers with better training and local law knowledge, and incentives for following a "trucking code of conduct." Though not directly related to goods movement, it was also noted that better public transit would help alleviate some of the challenges faced by those walking, biking or driving and interfacing with heavy trucks.

WAREHOUSING

WAREHOUSING IN CONTEXT

High land costs in the developed areas surrounding ports, airports, intermodal terminals, and truck terminals have forced the freight transportation industry to look to outlying areas for facility growth. This coupled with the region's sprawling development patterns has caused regional freight distribution patterns that emphasize peak period congestion and high levels of freight vehicle-miles traveled. Detailed analysis of warehousing trends and challenges in SCAG region is discussed at SACG Industrial Warehousing Study, 2018.

COMMUNITY IDENTIFIED CHALLENGES

To address challenges related to truck speeds, following distances, and routing, community members have recommended a range of solutions centered around increased enforcement of existing rules and regulations. This would involve stricter monitoring and enforcement of traffic laws to

ensure compliance and promote safer driving behaviors among truckers. Additionally, community members emphasized the importance of clear and abundant signage to indicate truck routes, parking areas, and community boundaries.

To enhance cross-jurisdictional enforcement and understanding of relevant rules and guidelines, community members suggested the need for coordinated efforts and cooperation between different jurisdictions. This would help establish consistent enforcement practices and ensure a shared understanding of regulations pertaining to goods movement.

Funding, training, or processes for new or enhanced truck enforcement for police departments or even local community members were also proposed. This would involve providing resources and support to law enforcement agencies, enabling them to effectively enforce trucking regulations and ensure road safety. Collaboration with the goods movement industry was also highlighted, with the industry's participation in providing drivers with better training and local law knowledge. Incentives for adhering to a "trucking code of conduct" could also be explored to promote responsible driving practices.

While not directly related to goods movement, community members noted that improving public transit options would help alleviate some of the challenges faced by pedestrians, cyclists, and drivers who interact with heavy trucks. Enhancing public transit infrastructure and services can provide alternative transportation options, reducing the need for individuals to share the road with trucks and enhancing overall safety.

COMMUNITY IDEAS

Community members have expressed a strong desire for more thoughtful planning and design of warehouses. They emphasized the importance of communities adjacent to one another engaging in greater collaboration and coordination when it comes to location plans and zoning for warehousing facilities. The idea of sharing information and coordinating efforts prior to finalizing warehouse projects was highlighted as a proactive approach to address potential negative impacts on neighboring communities. While acknowledging that progress has been made in some areas towards collaborative planning, the primary solution community members advocated for was implementing limits on the growth of warehousing. This approach reflects their concern about the potential consequences associated with unchecked expansion of warehousing facilities.

REVIEW OF REGIONAL EXISTING CONDITIONS

The section below provides additional context on existing regional conditions related to freight. This section primarily pulls from existing regional plans and is supplemented with news articles and relevant policies. Some counties such as Los Angeles and Ventura have done comprehensive freight studies and plans. Others have relied more on state or regional planning efforts, or solutions have developed around local needs. This section primarily calls attention to the topics most relevant to this study and those that were highlighted in community discussions. As such, this section focuses on Health and Air Quality, Economic and Workforce Development, and Infrastructure, particularly as it influences local conditions such as Safety and Warehouse Development.

This section pulls from the *LA County Metro Goods Movement Strategic Plan*,¹⁶ *Ventura County Freight Corridors Study*,¹⁷ and

the *Connect So Cal 2020 Goods Movement Technical Report*,¹⁸ and a collection of relevant policies and news articles to discuss regional conditions around key challenges.

EXISTING PLANS AND IDENTIFIED CHALLENGES

LOS ANGELES COUNTY

The Los Angeles County Metro Strategic Goods Movement Plan consists of five initiatives which is composed of 23 strategies and 84 specific actions. For more details about the specific actions identified for each strategy, please visit the LA Metro Goods Movement Strategic Plan.

VENTURA COUNTY

To identify and prioritize the most significant freight corridors for improved freight connections, the Ventura County Transportation Commission (VCTC), the Port of Hueneme, and Caltrans partnered with the Southern California Association of Governments (SCAG) to develop the Ventura County Freight Corridors Study (Study). The Study alludes to six challenge categories that merit consideration: Inadequate Infrastructure, Future Truck Growth, Safety Conditions, Truck Parking, Emissions, and Equity.

The County identified over 152 potential projects and 28 concepts to form a larger list of 182 solution strategies. The implementation status ranges the full spectrum of the project development process from project concepts without an identified lead agency to fully funded projects in the design phase. The potential solutions are listed in Appendix 2 of the Ventura County Freight Corridors Study. There is also a "Recommended areas of focus" list, organized into three categories: Improving Existing Freight Corridors, Strengthen Port Access, and Improve Truck Supportive Infrastructure. Improving truck supportive infrastructure includes Public Truck Parking, Commercial Vehicle Enforcement Facility Upgrades, and a Transition to Zero Emissions Vehicles.

ORANGE COUNTY

As mentioned earlier, Orange County has not completed a freight specific study in recent years, nor is the matter incorporated into a larger plan. A draft version of the Orange County 2022 Long-Range Transportation Plan is scheduled to be released in Fall 2022¹⁹ – this may include more information on their future goods movement plans.

RIVERSIDE AND SAN BERNARDINO COUNTIES

Though a specific freight plan was not reviewed for these counties, a review of recent articles suggests that air quality, safety, warehouse construction, environmental justice, remain ongoing challenges in the region. Community groups like Safe Routes to School advocate for Safety-Focused Infrastructure Design. Some Cities in Riverside County have proposed temporary pauses of the construction of new warehouses to better evaluate the cumulative impacts of the goods movement industry on local land use, traffic, and public health.²⁰ While a temporary moratorium, does not solve the ongoing problems by itself, it can be an initiative for local businesses, industry stakeholders, communities, and public agency to collaborate and review the City's land use plans, zoning codes, and priorities to address the problems. In San Bernardino, opponents of the school-adjacent warehouse project in Fontana won a community benefits agreement and

the implementation of a local ordinance requiring a buffer zone between new warehouses and sensitive receptors such as school and homes.²¹

IMPERIAL COUNTY

The economic activity deriving from the local economy in Imperial County is small relative to the entire SCAG region. With an estimated 190,000 people living in the County, the population constitutes approximately one percent of the SCAG Region's total.¹⁸ The number of jobs available also represent approximately one percent of those available in the SCAG Region. Among the available Imperial County jobs, transportation and warehousing constitute about three percent.¹⁹ Two ongoing concerns in Imperial County include an Educational Mismatch for Employment in Goods Movement and Inadequate Infrastructure at Border Crossings. Border crossing times at land ports of entry (LPOEs) in Imperial County are among the highest of U.S.-Mexico crossings, and projected increases in the volume of goods crossing the border will generate longer waits for commercial traffic. Further, railyards and intermodal facilities lack direct freeway connections.

HEALTH AND AIR QUALITY – EXISTING CONDITIONS

Southern California is a federal non-attainment area, failing to meet National Ambient Air Quality Standards for excessive pollutants. A large portion of dangerous pollutants, like NOX, are created by mobile sources like trucks and ships (i.e., diesel emissions).²² Any new system capacity must justify that it will not negatively change air quality, which may serve as major constraint to growth in the freight transportation system. Goods movement overall is responsible for 50% all NOX emissions and 18% of PM2.5 within Southern California. Heavy-duty trucks alone account for 71% of all NOX emissions in Southern California.²³

There are also major equity concerns when it comes to health and air quality considerations. Overall, per CalEnviroScreen, Southern California contains the top two counties with the greatest share of disadvantaged census tracts: Los Angeles and San Bernardino. It also has greatest share of Warehousing and logistic space. Exposure to dangerous pollutants, such as NOX and PM2.5, and stress-inducing activity (e.g. noise) poses great public health risks, such as cancer, respiratory illness, and premature death.²⁴ The top ten communities that have warehouses/distribution centers also contain the highest areas of toxic releases, disproportionately burdening communities of color and economically disadvantaged areas.²⁵ Vehicular air pollution has been found to disproportionately impact communities of color and communities with residents that drive.²⁶

Riverside and San Bernardino rank as the two counties nationally with the highest rates of ozone pollution and in the top ten for particulate pollution rates.²⁷ The Center for Community Action and Environmental Justice (CCA EJ) analyzed local conditions in Jurupa Valley, finding high levels of freight truck traffic and numerous elementary schools located near freeways.²⁸

Often, air quality disproportionately impacts disadvantaged and low-income residents. For instance, findings from the Ventura County Freight Corridors Study suggest that "six percent of the County's population – nearly 49,000 people – live within 500 feet of a roadway that carries more than 1,000 trucks per day." According to the Study, "historic siting of low-income housing adjacent to industrial land uses and transportation

facilities led to disproportionate burdens of the freight system being placed on disadvantaged residents nationwide and in Ventura County."

ECONOMIC AND WORKFORCE DEVELOPMENT – EXISTING CONDITIONS

Goods movement is essential to support the economy and quality of life in the SCAG region. In 2017, goods movement dependent industries in the SCAG region contributed \$348 billion, or 27.7 percent, to regional GRP. Between 2012 and 2017, overall regional GRP grew more than 21 percent from approximately \$996 billion to more than \$1.25 trillion. This was driven primarily by increases in the construction industry, specifically in Los Angeles and Orange Counties, and buoyed by a 37 percent increase in Riverside and San Bernardino Counties. Goods movement also provides jobs and employment that contribute to the local and national economies. In 2017, goods movement dependent industries in the SCAG region employed nearly 2.3 million people, almost 37 percent of all employees. Employment in goods movement dependent industries experienced growth of 8.5 percent in the number of employees between 2012 and 2017, exceeding the 8 percent growth experienced by all sectors combined.²⁹ The industries and businesses in this region are world leaders in commerce and represent a major exchange point for international trade as businesses from across the globe trade via its seaport, airport, and highway facilities. While, the goods movement industry brings significant national and regional economic benefit, the externalities of this industry are felt locally and disproportionately by vulnerable communities. Given the complexity and extent of Southern California's freight system, the impacts, and challenges of operating such a system are vast.

The Strategic Goods Movement Plan by LA County Metro raised several concerns related to the logistics workforce. Regarding workforce needs, the first challenge raised by Metro is that of living wage concerns. "The typical annual salary in 2019 for transportation and material moving occupations in the Los Angeles area was \$31,328 – this income is below the living wage for one adult, and not sufficient to support a household with two adults (one working) without children in the same area."

The second workforce related challenge identified is geographical access to logistics jobs. According to Metro, "LA's increasing housing costs are pushing the logistics workforce farther away from the county's employment centers toward the outer reaches of the region. In LA County the average commute time has increased every year since 2013, with an average commute of 31 minutes in 2017. Mobility for the logistics workforce is challenging – only 3.3% of goods movement jobs are accessible within a one-hour transit trip." This is a particular concern for those with less income, as their job access potential may be more disadvantageous than those with more disposable income, and they are the most in need of better compensation opportunities.

The third challenge is that employers in the industry are citing skill gaps and a need for multidisciplinary training among mid-level technicians. The industry is transforming its operations in pursuit of higher efficiency and productivity, and employers are looking for individuals with the ability to supervise, produce, and communicate technical analyses, as well as manage compliance and contracting issues. Furthermore, as California transitions to zero-emission vehicle technologies, demand

for entry and mid-level technicians to have a foundational understanding of energy systems is also increasing.

The fourth challenge is that the logistics industry is anticipating a large wave of retirements soon, while demand for workers is expected to increase. More specifically, the industry estimates that 1.1 million new truck drivers will need to be hired over the next decade.

A mismatch between job opportunities and needed skills was also identified in Imperial County. As the goods movement industry increasingly embraces technology and automation to manage supply chains, and migration to zero/near zero operation, jobs demand more specific and advanced technical skills beyond traditional commercial driving or industrial equipment qualifications. This presents a significant challenge for Imperial County, where approximately 31.6% of residents lack a high school diploma.³⁰

INFRASTRUCTURE AND OPERATIONS - EXISTING CONDITIONS

EXTENSIVE INFRASTRUCTURE SUPPORTING THE GOODS MOVEMENT SYSTEM

The regional goods movement system comprises interconnected infrastructure components designed to serve commercial activities spurred by regional, national, and global demand. It provides the backbone for the flow of goods between businesses and consumers. Numerous demand factors (e.g., types of products, destinations, urgency, costs, etc.) create unique markets that must be accommodated by varying types of goods movement activities. These markets depend directly on the regional transportation network that provides the mobility and speed necessary to support economic growth.

The SCAG region is home to three deep-water ports: the Ports of Los Angeles and Long Beach (San Pedro Bay Ports), and the Port of Hueneme in Ventura County. The San Pedro Bay Ports are the largest container complex (by volume) in the U.S. and ninth busiest in the world. The Port of Hueneme specializes in automobiles, fresh fruit and produce, and other break bulk and project cargo.

The SCAG region has 56,276 total road miles, and 135,578 lane miles (which includes local roads, arterials, and connector facilities) and 1,634 miles of highways and Interstates. This roadway system provides mobility for truck trips of all types to locations in the region and connections outside it. The regional roadway system serves multiple functions and can be thought of as the connecting tissue that ties together the multimodal freight transportation system in Southern California, providing critical last mile connections to intermodal terminals, marine terminals, airports, border crossings, warehouses and distribution centers, and manufacturing facilities. The highway system allows trucks to perform several critical roles that support goods movement in the region.

Critical to the growth of the region's economy, the BNSF Railway (BNSF) and Union Pacific Railroad Company (UPRR), the region's two Class I railroads, carry international and domestic cargo to and from distant parts of the country. The BNSF mainline operates on the Transcontinental Line (Cajon and San Bernardino Subdivisions). The UPRR operates on the Coast Line, Saugus Line through Santa Clarita, Alhambra and LA Subdivisions and Yuma Subdivision to El Paso. Both railroads operate on the Alameda Corridor that connects directly to the San Pedro Bay Ports and on the Alameda Corridor-East which serves rail moving easterly and westerly through the SCAG

region. The San Pedro Bay Ports also provide several on-dock rail terminals along with the six major intermodal terminals operated by BNSF and UPRR outside of the San Pedro Bay Ports. Three Class III railroads operate in the region and provide short-haul services: Pacific Harbor Line (PHL), Los Angeles Junction Railway (LAJ), and the Ventura County Railroad (VCCR). PHL provides rail transportation, maintenance, and dispatching services within the San Pedro Bay Ports area.

There are seven airports that provide air cargo services in the SCAG region. Collectively, they handled nearly 3.3 million tons of air cargo in 2018.⁷ Combined, Los Angeles International Airport (LAX) and Ontario International Airport (ONT) handled approximately 97 percent of the region's international and domestic air cargo during 2018, including international goods valued at \$120 billion. Most of the remaining air cargo moves through Bob Hope, Long Beach, John Wayne, and Palm Spring International Airports.

EXPECTED GROWTH IN GOODS MOVEMENT

As the economy continues to grow, the goods movement system will be called to serve this growth. As described in the LA County Goods Movement Strategic Plan in 2021 "all modes of travel associated with goods movement – specifically, freeways, ports, rail, and streets – are projected to experience growth in the near future, which poses a concern for two reasons. First, the available travel space in the County is already constrained; and second, the goods movement network is intertwined with residential communities, so any expansion project proposed to address the existing system constraint is limited in its potential."

Regarding freeways, given the forecasted growth in goods demand, truck traffic is expected to grow at a much higher rate than passenger auto growth. This trend means that the system performance that is already under strain will become even worse as a result of the increased truck traffic.

The SPB Ports forecast that container volume demand will double or more before 2045. To accommodate this expected demand, additional port capacity will be required, though addressing infrastructure capacity challenges is difficult. As mentioned earlier, the SPB Ports are landlocked by residential communities, offering limited amounts of land to expand. Many of the surrounding communities are low-income communities of color that continue to experience negative impacts of goods movement activities more severely than other parts of the county. The concern is so great in some communities that they have organized formally (e.g., Coalition for Environmental Health and Justice (CEHAJ), East Yard Communities for Environmental Justice (EYCEJ)), or outside entities have acted on their behalf (e.g., NRDC) to dispute projects aimed at addressing infrastructural constraints. Prominent cases include the Southern California International Gateway (SCIG) and the 710 Freeway widening plan.^{31,32}

Rail line capacity constraints are also projected to worsen as both freight rail and passenger/commuter rail services are expected to grow in the near future. Anticipated challenges include bottlenecks and increased delays because the county's freight rail network is also a shared mobility corridor with passenger and commuter rail services. Forecasts estimate that these issues will be particularly prominent on the "UP Alhambra and Los Angeles subdivisions, which will have up to 110 freight trains daily by 2040, and the BNSF segment from Los Angeles to San Bernardino, which could have as many as 125 freight trains by 2040. In addition, Metrolink, the Southern California commuter rail service, is expected to experience a 95% increase in passengers by 2025." The Metrolink Strategic

Assessment forecasts significant growth in daily boardings from 41,000 currently to 55,000 by 2025. The 2012 LOSSAN Strategic Implementation Plan forecasts significant growth as well from today's approximately 3,000,000 yearly to 4,700,000 yearly by 2030.

The Ventura County Freight Corridors Study also discusses challenges stemming from expected growth and identifies "Inadequate Infrastructure" as one of 6 top challenges. The study writes that "Many of the actions to improve freight movement are components of broader mobility, safety, and connectivity strategies involving passenger travel and mitigation of community impacts from the transportation system." In the Study, several infrastructure insufficiencies were identified including a lack of signage leading to the Port, a lack of signage and wayfinding to keep trucks out of neighborhoods, a missing connection between westbound State Route 126 and southbound US 101 other than Victoria Avenue, "under-designed" interchanges at State Route 33 and Shell Road for vehicles entering and exiting State Route 33, under-designed Del Norte and Central interchanges with US-101, and a lack of zero-emission vehicle infrastructure. A severe shortage of truck parking is also discussed in the Ventura County Freight Corridors Study.

SAFETY

The reports discussed above all touched on safety and Connect SoCal 2020 also includes information on truck collisions.

LA County Metro Strategic Goods Movement Report discusses that there is still much progress to be made on roadway safety in LA County given recent statistics. "During the five-year period between January 1, 2014, and December 31, 2018, there were 9,612 truck involved collisions on roadways in LA County. Of these, 287 individuals were killed and 12,971 reported injuries. The three most common reasons for accidents were unsafe speed (35.35%), unsafe lane changes (17.3%), and improper turning (14.39%). A majority of these collisions resulted in rear-end (3,899) or sideswipe (2,677) impacts."

The report continues: "Truck involved collisions are concentrated on major freeways with heavy truck traffic. These hotspots include the SR-57/-60 confluence, SR-60 between I-605 and SR-57, I-605, I-710 and I-5 near downtown Los Angeles. Based on the most recent traffic count information available from Caltrans (2014-2017), I-710 at the SR-91 interchange and the SR-57/-60 confluence consistently ranked as having the heaviest truck volumes in Southern California."

Communities in LA County which are adjacent to freight rail corridors have consistently expressed safety concerns as well. In addition to safety challenges, the long length and slower speed of freight trains results in longer gate downtime at the crossings, additional traffic delays, congestion and can create barriers for emergency vehicle access and response times.³³

Safety is a concern in Riverside and San Bernardino Counties as well. Several roadway engineering strategies, from traffic calming and signage upgrades to visibility improvements and curbside management have been suggested to improve truck safety. Jurisdictions can also plan for freight traffic with official truck routes, which also addresses local concerns about cut-through truck traffic on local roadways. Riverside County and San Bernardino counties have the highest ratio of truck crash to annual truck trips in the SCAG region, including high crash rates along the I-10, I-210, I-5 and CA-60, CA-101 and CA-91.³⁴ Safe Routes to School programs are particularly important in communities with extensive truck traffic. In some communities, schools are located near major freight routes, presenting safety

and equity concerns for the students and families exposed to elevated levels of truck traffic.³⁵

The Ventura County Freight Corridors Study also reports on safety conditions: "Overall, 456 truck-involved collisions (2.85 percent of the total) occurred in Ventura County from January 1, 2016, to December 31, 2019. Approximately 70 percent of these collisions (319) occurred on arterial roads and 30 percent (137) occurred on freeways. The most common primary factor in truck-involved collisions was unsafe speed which occurred in 52 percent of freeway collisions and 29 percent of arterial collisions. The next highest factors in freeway truck-involved collisions were improper turning (20 percent) and unsafe lane change (13 percent). The next highest non-speeding factors on arterials were improper turning and impeding another vehicle's right-of-way (17 percent each) and failure to abide by signals and signs (10 percent)."

Thirty-seven (37) locations had more than three truck-involved collisions over the four-year period. Due to their higher relative truck volume, state highways were the location of most of the individual highest collision locations, with US 101 having 13 truck collision hot spots, State Route 118 having six, State Route 23 having three, State Route 34 having two, and State Route 1 (Rice Avenue) having one.

However, 17 of the top 37 locations were on arterial roadways, with SR 118 at Balcom Canyon Road and Rose Avenue at 5th Street averaging more than one truck-involved collision per year. Of the locations with multiple fatal or severe collisions, two of the top three locations were arterial highways in rural areas: State Route 126 at Center Street near Piru and SR 118 at Balcom Canyon Road east of Somis."

Rail corridor safety is also a concern for safety conditions in Ventura County. "Overall, 24 highway/rail grade crossing incidents occurred from 2014 to 2019. These resulted in 11 deaths and 40 injuries. The two locations with the most incidents are Las Posas Road (five incidents) and Rice Avenue (three incidents) accounting for more than half of the fatalities and three-quarters of the injuries at highway/rail at-grade in Ventura County in the six-year period. The majority of the incidents involved Amtrak trains (17 total), followed by freight trains (5 total) and Metrolink (two total). The split of incidents involving either passenger trains or freight train is proportional to the frequency of the two types of trains: six freight trains and 18 passenger trains per day. Therefore, this does not indicate either type of train service is prone to incidents with highway use. The Study also discusses that the rail tracks are "open," and that people cross the tracks all the time, including students.

WAREHOUSE DEVELOPMENT

Riverside and San Bernardino Counties are part of what is known as the Inland Empire metropolitan area, which has been experiencing an influx of warehouses over the past decade. The Inland Empire region has witnessed significant expansion in industrial warehousing.³⁶ Although the growing goods movement industry provides employment to nearby communities and tax revenue to local jurisdictions, it also brings negative impacts like congestion and pollution. These impacts are particularly concerning when warehouses on industrial-zoned land are near residential areas.

According to real estate services company CBRE, over 150 million square feet (about 3,300 football fields) of industrial space, mostly warehouses, was built in the Inland Empire from 2010-2019.³⁷ While this has provided economic opportunity for the area, the impact of large development in a short time span has raised concerns for local communities.³⁸

LITERATURE AND EXISTING POLICY REVIEW

To supplement community recommendations and existing regional conditions, a brief literature review was done on best practices related to two areas of interest, Workforce Development and Economic Opportunities and Health and Air Quality. A review of the academic literature on addressing land use conflicts associated with warehousing was not conducted as part of this study. Instead, several guiding documents and existing policies have been developed within the state and region to address the fast-paced growth in warehousing and its impacts on communities. A few of these are briefly reviewed below. This review is not intended to be comprehensive, but rather to call attention to approaches that have seen success elsewhere and may offer guidance for communities in the SCAG region.

ECONOMIC AND

The large presence of the Ports of Los Angeles and Long Beach creates demands for port-centric jobs. However, the ports are part of a larger system in which knowledge of transport pricing, regulatory agencies, compliance issues and the terms of trade is valuable across many kinds of employers. Given the importance of the trade sector to the regional economy, many community colleges and universities offer both degree and non-credit programs, including certificates, that meet the needs of local employers.

WORKFORCE DEVELOPMENT

EDUCATION AND WORKFORCE OPPORTUNITIES TIED TO THE LOGISTICS SECTOR

Trucking, cargo handling and logisticians may be the most visible occupations tied to trade, transportation, and logistics but, the presence of a multimodal trade sector in Southern California has broader economic impact. The companies that depend upon cargo handlers also depend upon several other positions to facilitate the flow of goods and to ensure operations. These occupations support front and back-office operations, company management, data management, operations and maintenance, and compliance. The positions themselves range from dispatcher to traffic supervisor to equipment manager to planner.

While many of these positions are held by employees of private freight companies, the freight sector also impacts the need for skilled workers in the public sector. Engineers who understand the impact of truck traffic on state highways are needed by State Departments of Transportation. Planners and economists are valuable to port authorities assessing trends and preparing plans for both short term and long term growth. Fleet managers in both the public and private sector will be more valuable to their employers if they are able to manage the transition to zero emission technology mandated by California regulations.

A summary of logistics-related employment opportunities, compiled from both surveys with 50 Southern California-based companies and other research projects are presented in a recently published report: "Southern California Regional Workforce Development Needs Assessment for the transportation and Supply Chain Industry Sectors."³⁹ Table 10 provides a summary of these job categories. It is important for communities to understand vast diversity of job opportunities

TABLE 10 Job Openings identified in a survey of logistics companies in Southern California

Industry-Identified Operations & Maintenance Occupation Titles	Industry-Identified Compliance Reporting Occupation Titles
<ul style="list-style-type: none"> • Security • Estimator • Superintendent • General Foreman • Foreman and Journeyman Wireman • Maintenance Specialist • IT Analyst • IT Administrator • Project Coordinator • Fleet Manager and Staff-Dispatcher • Equipment Coordinator • Planner/Engineer I/II/III • Senior Associate • Principal • Fleet Engineering Team • Inside Sales • Safety/Maintenance Rep/Manager • Owner 	<ul style="list-style-type: none"> • Account Manager • Systems Support • Business Analyst • Implementation Manager • Mechanics • Delivery and Product Supervisors • General Manager • Vice President, Safety and Enterprise Risk Compliance Officer • Brokerage Agent • Import Agent • Quality and Compliance Manager/Officer • Safety/Maintenance/Repair Inspector • Owner • Fleet Manager • Human Resources • Dispatch Manager • Logistics Manager • Safety Security and Environment (SSE) • Chief Executive Officer (CEO) • Chief Technology Officer (CTO) • Chief Finance Officer (CFO) • Documentation Manager • Operations Manager/supervisor • Transportation Manager

TABLE 10 Job Openings identified in a survey of logistics companies in Southern California (continued)

Industry-Identified Front/Back Office Occupation Titles	Manager/ Coordinator	Industry-Identified Data Management Occupational Titles
<ul style="list-style-type: none"> • Account Manager • Systems Support • Business Analyst • Implementation Manager • Warehouse/Inventory Supervisors • Customer Sales • Product Acquisition • Customer Service Specialist /supervisor/Rep • Dispatcher • Tracing Pricing • Brokerage Agent • Import Agent • Warehouse Management Systems (WMS) 	<ul style="list-style-type: none"> • Operations Supervisor/Manager • Traffic Supervisor • Warehouse Availability • Container Availability • Inventory Control • Transportation Management Systems (TMS) Customer Care Associates • Regulatory and Compliance • Owner • Logistics Coordinator • Equipment Coordinator • Project Coordinator • Technician • Administrative Analyst • Port Captain • Port Engineer • Tank Barge Manager • Health, Safety, Quality, & Environment • Human Resources (HR) Manager • Logistics Coordinator • Transaction Coordinator • Dispatcher • Safety/Maintenance Rep 	<ul style="list-style-type: none"> • Account Manager • Systems Support • Business Analyst • Implementation Manager • Underwriters • Chartered Financial Analyst (CFA) • Delivery Management • Financial Analyst • Sales & Marketing • Construction Manager • Planner • Estimator • Brokerage Agent • Import Agent • Dispatchers • Traffic/Dispatch Supervisor • Inventory Analyst • Information Technology (IT) Analyst • Availability Clerk • Load Planners • Owners • Dispatch Workflow Planner • Customer Service Rep/Scheduler • Fleet Manager and Accounting Clerks • Planner/Engineer I/II/III • Commercial Manager • Petroleum Scheduler • Logistics Coordinator • Operations Supervisor/Manager/Analyst

available to them.

The following categories of job opportunities are recommended for community members based on economic and industry needs and State’s regulatory framework and targets. Increasing workforce under these job categories also helps industry to reduce and mitigate impacts of goods movement industry:

- Green Jobs
- Ocean Economy Jobs
- Sustainable Freight jobs

GREEN JOBS

One aspect of regional employment that is also reflected in the freight and logistics sector is the growth in green jobs. Green Jobs exist in nearly every industry in Los Angeles County. Jobs in clean tech industries, defined as Clean Energy, Zero Emissions Transportation, and Smart and Sustainable Cities, comprise almost 40 percent of all Green Jobs in Los Angeles County. A recent report “Opportunities for Economic Recovery Through Equitable Workforce Training”⁴⁰ lays forth a course of action to grow an economy in Los Angeles that is greener, stronger, and more inclusive. The Los Angeles Cleantech Incubator (LACI) finds that, as all industries become more sustainable, Green Jobs are expected to make up a larger and larger share of total employment. LACI projects the green economy to grow from 338,000 to 600,000 jobs by 2050. This growth is expected to outpace overall County job growth, increasing by nearly 80 percent from 2020 compared to just 40 percent for all jobs countywide.

BLUE/OCEAN ECONOMY JOBS

In Southern California, employment opportunities in freight and logistics on the land side result in part from our global connections with the rest of the world. As part of the Pacific Rim, we are able to benefit from the ocean economy which includes marine

construction, marine transportation, offshore mineral resources, ship and boat building, and tourism and recreation. As is the case with green jobs, new economic opportunities are being developed from efforts to ensure the sustainable use of ocean resources in a Blue Economy.

The Los Angeles County Economic Development Corporation (LAEDC) estimates that the ocean economy is responsible for \$84 billion in gross state product (GSP) in California. In Los Angeles County, the ocean economy produced 200,400 total jobs (direct, indirect, and induced) in 2018.⁴¹ The LAEDC forecasts that by 2023 the ocean economy will produce more than 126,000 direct jobs and pay \$37.7 billion in wages, an increase of 117,900 jobs over a five-year period.

SUSTAINABLE FREIGHT JOBS

A growth area somewhat unique to California, at least for now, is Sustainable Freight Employment. California leads the nation in zero-emission vehicle (ZEV) market development, greenhouse gas (GHG) emission reductions, and economic sustainability. This is due in part to legislative mandates that have, since the mid 2000s, regulated and set ambitious targets to reduce emissions from the freight sector.

The sustainable freight workforce encompasses a broad range of occupations across a multitude of industries and organizations, in both the private and public sectors. Sustainable freight workforce competencies are foundational skill sets needed to address the expanding role of sustainability within all organizations. Competencies in sustainable freight include understanding regulatory compliance; understanding energy, infrastructure, and sustainability ecosystems; using data and metrics for process improvements and reducing transactions costs; understanding legal issues in risk management; and analyzing and presenting data. The impact is felt at all levels of employment. The transition to zero emission (battery electric or hydrogen fuel cell) trucks will require new skills of technicians, drivers, fleet managers, and supervisors. Figure 10 shows a list of industry identified job titles related to sustainable freight.

The occupations related to Zero Emissions vehicle adoption and deployment also demonstrate the range of earning potential for those new entrants to the workforce as well as those seeking to enhance their skills. Table 11 indicates, using data from BLS and Labor Insight/JobsTM Burning Glass, opportunities exist for technicians with either a High School Diploma or an Associate's

FIGURE 10 Industry Identified Titles Related to Sustainable Freight

<p>Sea and Inland Ports</p> <ul style="list-style-type: none"> •Port Engineer •Port Captain •Port Manager •Fleet Manager •Superintendent •Port Captain •Port Manager •Terminal Manager •Terminal Safety Director •Superintendent •Manager, Air Quality Practices •Environmental Specialist •Health & Safety Director •Director of Trade Development 	<p>Warehousing, Freight Forwarders Retail</p> <ul style="list-style-type: none"> •Customer Sales •Customer Service •Business Analyst •Systems Support •Dispatcher •Logistics Coordinator •Fleet Engineer •Fleet Manager •Operations •Systems Support •Safety and Maintenance Engineer •Safety and Enterprise •Logistics Coordinator •Account Manager •Chief Executive Officer (CEO) •Chief Technology Officer (CTO) •Chief Finance Officer (CFO) •Regulatory and Compliance •Food Safety Coordinator •Functional Manager •Traffic Supervisor •Product Acquisition •Implementation Manager •Administrative Analyst •Equipment Coordinator •Health, Safety, Quality, & Environment (HSQE) Specialist •Documentation Manager •Vice President, Safety and Enterprise •Principal •Chief Operations Officer •Operations Supervisor •Warehouse Managers •General Manager •Warehouse Supervisor •Inventory Supervisors •Human Resources Manager •Maintenance Specialist •Safety, Security, and Environment (SSE) •Senior Director, Logistics and Customer Compliance •Director, Global Operations •Ocean Export Manager •Planning and Business Sustainability •Special Projects 	<p>Trucking/Drayage</p> <ul style="list-style-type: none"> •Dispatcher •Operations Manager •Business Owners •Executive VP •Chief Operations Officer •Operations Manager
<p>Tug and Barge</p> <ul style="list-style-type: none"> •Vessel Agents •Inland boatmens Union (IBU) •Schedulers •Equipment Sales Representative •Tank Barge Manager •Customer Service Reps •Management/Supervisor Trainees •Regulatory Compliance Personnel •Dispatchers •Terminal Managers •Fleet Manager 	<p>Rail</p> <ul style="list-style-type: none"> •Director of Environmental Permitting and Sustainability •Environmental Permitting and Sustainability 	<p>Public Agencies</p> <ul style="list-style-type: none"> •Transportation Planners (Senior, Associate, Entry) •Goods Movement Liaison •Mayor's Office of Sustainability •Office of Economic Development •Transportation Manager •Environmental Planner – General •Associate General Planner – General •Senior Environmental Planner •Environmental Specialist •Regional Planner •Air Resources Supervisor •Energy Commission Specialist •Manager, Government Affairs •Planner •Economic Development Officer •Freight Technology Unit: Supervisor •Energy Commission Specialist •Sustainable Transportation Grant Manager •Traffic Safety Engineer •Safety and Traffic Engineer •Chief, System Planning •Manager, Freight Policy •Air Resources Engineer •Air Pollution Specialist •Air Quality Specialist •Modeling •Procurement Manager
<p>Shipping Companies</p> <ul style="list-style-type: none"> •Area Sales Manager •Office Manager 		
<p>Emergency Operations</p> <ul style="list-style-type: none"> •Emergency Operations Personnel 		
<p>Industry Associations</p> <ul style="list-style-type: none"> •Manager, Government Affairs 		
<p>Airlines</p> <ul style="list-style-type: none"> •Managers 		
<p>Airports</p> <ul style="list-style-type: none"> •Senior Strategic Planner •Airport Engineer •Airport Planner •Sustainable Campus Division •Environmental Supervisor •Environmental Specialist 		

Degree, engineers with a Bachelor's Degree, and others who are trained through registered apprenticeship programs.

Sustainable freight workforce encompasses a broad range of occupations across a multitude of industries and organizations, in both the private and public sectors. Sustainable freight workforce competencies are foundational skill sets needed to address the expanding role of sustainability within organizations. The potential for future workforce education programs in sustainable freight can vary in content, design, and audience. A CITT report⁴² identified a need for professional development workshops in sustainable freight for public and private sector planners who develop, implement, and enforce regulations affecting freight. This need for education and training in sustainable freight issues is critical with the growth in last mile deliveries, faster fulfillment demands, and the development of infrastructure required to support this movement of goods. Targeted training concentrating on freight issues can inform policy makers of the implications planning decisions have on economic competitiveness and environmental sustainability.

CITT conducted a survey to understand the emerging skills required in sustainable freight sector. Figure 11 shows the summary

TABLE 11 Critical Zero Emission Vehicle Related Occupations, Prerequisites, and Trends

Occupation	Green Occupation Category	Employment Change 2016-2026 (thousands)	Percent Increase (%)	Median Wage (USD)	Typical Entry-Level Education	Typical On- The-Job Training
Electricians	Green Increased Demand	59.6	8.9	54,110	High School Diploma or Equivalent	Apprenticeship
Electrical Engineers	Green Enhanced Skills	16.2	8.6	95,060	Bachelor's Degree	None
Automotive Engineers	Green New & Emerging	25.3	8.8	85,880	Bachelor's Degree	None
Automotive Specialty Technicians	Green Enhanced Skills	45.9	6.1	39,550	Post- Secondary non-degrees award	Short Term On-The-Job Training
Electro-Mechanical Technicians	Green Enhanced Skills	0.5	3.5	56,740	Associate's Degree	None
Transportation Vehicle, Equipment and Systems Inspectors	Green Enhanced Skills	1.7	5.9	72,140	High School Diploma or Equivalent	Moderate Term On-The-Job Training
Energy Engineers	Green New & Emerging	8.5	6.4	97,250	Bachelor's Degree	None
Software Developers, Systems Software	Green Increased Demand	47.1	11.1	107,600	Bachelor's Degrees	None
Electric Power-line Installers and Repairers	Green Increased Demand	16.8	13.9	69,380	High School Diploma or Equivalent	Long Term On-The-Job Training
Computer Systems Engineers/Architects	N/A	26.6	9.3	88,510	Bachelor's Degree	None
Solar Photovoltaic Installers	Green New & Emerging	11.8	104.9	39,490	High School Diploma or Equivalent	Moderate Term On-The-Job Training
Maintenance Technician	Green Enhanced Skills	112.5	7.9	37,670	High School Diploma or Equivalent	Moderate Term On-The-Job Training

of these skills.

RESOURCES FOR STUDENTS

As students seek opportunities in the markets described above, local schools, including community colleges, are a good first stop in identifying programs that can support a student’s career pathway in freight and logistics. In addition to reviewing degree and certificate programs, there are other considerations that will likely determine a student’s success. The questions below are shared to help community members evaluate their educational resources. Questions are categorized as following:

- Components of programs- questions that students/ applicants should ask to choose an education program that fits their needs.
- Skills and knowledge – questions about the curriculum of the program and how it relates to job’s requirements
- Student support – questions about resources to help students successfully graduate from the program and find suitable employment

QUESTIONS ABOUT THE COMPONENTS OF A PROGRAM

- Does my community college or university offer degree programs with combined industry-recognized certifications?
- What industry trade associations are represented on the school’s advisory boards? How do they help in the development and assessment of education and training programs?
- How are industry professionals incorporated into classroom based learning?
- What opportunities do students have to build familiarity with Excel and other tools in demand by employers?
- Are there industry-supported forums and workshops?
- Does the program use group projects and case studies to replicate work-based problem solving?
- How are the unique needs of adult learners and working professionals addressed?

- Are there articulation agreements in place between the community college and a university to facilitate transition from one institution to the other?
- What changes have been made since the pandemic to combine distance-based learning opportunities with opportunities for in-person engagement with industry professionals and other students.

- They also offer an annual MAST Expo with local STEM/STEAM student engagement and collaboration with local businesses and Port partners

QUESTIONS ABOUT THE DEVELOPMENT OF KEY SKILLS IN DEMAND BY EMPLOYERS

In this program, how will I have an opportunity to:

- Gain exposure to key reports from government and industry sources that will be useful on the job?
- Network with industry professionals?
- Develop professional writing and presentation skills?
- Develop and apply skills in the use of spreadsheets?
- Work with computer applications and programs?
- Get hands-on experience with driving simulators or transportation and warehouse management systems?
- Test my communications skills?
- Demonstrate math literacy?
- Learn customer relationship management best practices?
- Gain industry familiarity: basic concepts, vernacular, systems knowledge

QUESTIONS ABOUT STUDENT SUPPORT

- Does the institution offer support for internship or job placements?
- Do students have access to resources that assist in the development of professional skills (resume building, interview skills, time management e.g.)?
- Is there career counseling available to students in non-degree based programs?
- Is there support for students seeking to join professional organizations and associations?
- Are there scholarships or financial aid packages available to students in both degree and non-degree programs?
- Are there mental health support services that help to ensure a student's success?
- Are transit and transportation support programs available that eliminate barriers to the classroom

SAMPLE WORKFORCE AND EDUCATIONAL PROGRAMS AVAILABLE IN THE SCAG REGION

- Moreno Valley College Job Training Program, including free tuition for workers in the goods movement sector⁴³
- Sustainable Freight Foundations Certificate – currently under review by the California Energy Commission. Tom O'Brien led a session on this proposed program at the 101st annual Transportation Research Board (TRB) meeting in Washington, DC in January 2022.⁴⁴ This is in response to the State of California's Zero Emissions mandates⁴⁵
- Port of Los Angeles Community Investment Grant Program. For FY 2021-2022, nearly \$1M in total grant funding was awarded by the Port to help build strong partnerships with organizations like Boys and Girls Club, local high schools, aquariums, and museums
- Port Hueneme in Ventura County offers an award-winning 12-week Global Trade & Logistics class for Oxnard Union High School District students and partners with local universities to develop maritime education programs

OTHER EDUCATION AND TRAINING OPPORTUNITIES

In addition to programs offered by institutes of higher education, students in Southern California may benefit from a number of other training programs and association-based certifications that supplement and complement degrees and, in some cases, offer an on-the-job training alternative.

PRIVATE SECTOR APPRENTICESHIP MODELS

Registered apprenticeships are not a new training option for students, but they are often associated with trades. Increasingly logistics companies incorporate apprenticeships into their employee recruitment and retention models.

For example, Kuehne & Nagel, a European-based logistics company created an apprenticeship program for its operations in Southern California. After experiencing high employee turnover resulting from a highly competitive regional labor market that made it difficult to retain workers, the apprenticeship program was implemented to ensure employee stability. This was an effort to replace temporary workers with permanent, long term employees. Long term employees are desired as they reduce the costs of training and come to understand the company culture. The apprenticeship model is a 22-week rotational program intended for students enrolled in a 4 year university, or a community college. The different departments apprentices may engage in include airfreight (import/export), sea freight (import/export), key accounts, transportation, sales, finance, and customs brokerage among others. The benefits of the apprenticeship program include:

- Paid work
- Tuition reimbursement
- Flexible hours
- Enrollment in international Freight Forwarding certification program

Prior to the pandemic, a total of 10 apprentices were hired and 2 permanent appointments have been made.

CERTIFICATION PROGRAMS

The transportation and supply chain industries have many certification programs which focus on skill development and enhancement for new entrants as well as incumbent workers. The aim of these certifications is to ensure that the workforce is well equipped for career advancement. It is desirable to obtain certifications focused on a specific function. The fact that they are offered by recognized and well-respected industry associations provides a level of confidence to the employer that the person holding the certification possesses workplace-relevant knowledge. This includes knowledge of vocabulary terms, ideas, and concepts common to the industry.

While there are a number of supply chain management certifications related to specific industries, general certifications include:

- [Supply Chain Professional \(CSCP\) – Offered by APICS \(The Association for Operations Management\)](#)
- [Certification in Logistics, Transportation Distribution, \(CLTD\) – Association for Supply Chain Management \(ASCM\)](#)
- [Energy Industry Fundamentals Certificate Program – Center for Energy Workforce Development \(CEWD\)](#)

There are also certifications that provide valuable knowledge in areas that increasingly benefit supply chain and logistics operations. These include the Sustainability Certification offered by the International Society of Sustainability professionals. This certification provides 1) a macro examination of the core business processes and stakeholders within supply chain management, identification of strategic opportunities for the application of sustainability principles and 2) specific application of tools at a tactical level to achieve sustainability objectives.

Certifications may result in promotions and increased wages. ISM's own salary survey states that professionals with a CPSM earn 9 percent more than those without it.

Like many companies across the country, logistics companies are also making significant strides in increasing the diversity of the workforce. Changes in employee recruitment and hiring practices and the creations of Equity Officers are common approaches. Employers also draw upon third parties with expertise in developing career pathway programs for individuals from groups underrepresented in transportation and logistics. One example is the Women in Sustainable Employment (WISE) Pathways Pilot Program, a forty - hour career exploration and workplace skills development program. WISE allows students to build awareness of sector-specific skill in energy and sustainability while also providing support in resume preparation, interviewing skills, teamwork and group dynamics, and conflict management and responding to sexual harassment in the workplace.

Other certifications that are held by professionals working in the logistics field or for logistics-supporting companies include:

- Certified Global Business Professional (CGBP)
- Global Logistics Professional (GLP)
- General Journeyman
- Fire Life Safety
- Voice Data Video certifications
- Licensed Customs Broker
- Engineer in Training (EIT)
- Professional Engineer (PE)
- American Institute of Certified Planners (AICP)
- Professional Transportation Planner (PTP)
- Maritime licenses

INVESTMENT IN LOGISTICS WORKFORCE AND COMPETENCY FROM THE LA COUNTY GM STRATEGIC PLAN (2021)

Solutions for workforce development were specifically called out in the LA County Goods Movement Strategic Plan. The following strategies are pulled from the plan to "Ensure that LA County has a strong labor pool to support its economy and fill the jobs of tomorrow through research and initiatives to identify and address workforce skillset gaps and investment need."

- **Strategy 5.1:** Partner with academic and research institutions to pursue applied research to understand gaps in skills and competencies of the region's logistics workforce that are sought by employers.
- **Strategy 5.2:** Expand Metro's partnership with trade schools, community colleges, and major employers to offer opportunities to experiment and validate existing workforce development programs.

- **Strategy 5.3:** Expand Metro's local and targeted hiring policies to benefit members of historically disadvantaged communities.
- **Strategy 5.4:** Expand Metro's current training programs with the foresight to train the workforce of the future to ensure it will be equipped to respond to changing technologies in the transportation and transit industry.
- **Strategy 5.5:** Advocate for regional, state, and federal funding programs for building and enhancing workforce development and competency to ensure that workers in LA County will be able to capitalize on employment opportunities.
- **Strategy 5.6:** Improve the countywide transit service network offered by Metro and regional partners to meet the needs of the goods movement workforce and enhance its ability to access desirable jobs and training sites.

HEALTH AND AIR QUALITY

As described above air quality and related health concerns was a frequently reported concern. A review of current best practices shows several ways to address this. New technologies can be used to more closely monitor air quality, to transition internal combustion vehicles to those with zero emission technology, to reduce idling, and to deliver cargo with alternative modes, for instance cargo bikes. The AB 617 Program and the CERPs developed through this program offer examples of local air quality mitigations.

AB 617/COMMUNITY AIR PROTECTION PROGRAM (CAPP)

In response to AB 617 (C. Garcia, Chapter 136, Statutes of 2017), the California Air Resources Board (CARB) established the Community Air Protection Program (CAPP). CAPP's focus is to reduce exposure in communities most impacted by air pollution. Communities around the State are working together to develop and implement new strategies to measure air pollution and reduce health impacts.

AB 617 is a wide-reaching program and contains many complementary components. The components relevant to communities interested in participating in the development of pollution reduction programs are the Community Air Monitoring Plans (CAMP), Community Emissions Reduction Plans (CERP), and Community Air Grants.

The purpose of a CAMP is to identify air monitoring activities for addressing the major air quality concerns identified by a community's respective Community Steering Committee (CSC). A CERP works in conjunction with a CAMP to outline the actions and commitments made by the CSC, AQMD, and CARB, to reduce air pollution. To develop a CAMP and CERP, an area must be selected as an AB 617 Designated Community, a community must go through the process of identification, recommendation, and selection.⁴⁶ See the current AB 617 Communities in Figure 12.

FIGURE 12 Southern California AB 617 Communities as of 2021



Source: California Air Resources Board (CARB)⁴⁷

The Community Air Grants Program aims to provide support for community-based organizations to participate in the AB 617 process, and to build their own capacities to become active partners with government to identify, evaluate, and ultimately reduce air pollution and exposure to harmful emissions in their communities.⁴⁷ Examples of what Community Air Grants are being used to fund includes, but is not limited to community engagement and outreach related to AB 617, hiring consultants and/or technical experts, travel and logistical support for hosting and/or attending meetings related to AB 617, support for community operated air monitoring, data collection and analysis, and community based participatory research projects.

LOW-COST SENSORS

Low-cost sensors, such as PurpleAir32, are being installed in homes and schools as the cost for these sensors becomes lower and more affordable for communities and businesses. Publications exist of these hyperlocal technologies being deployed along freight corridors to estimate the emissions from heavy truck traffic and the corresponding health implications. Air pollution is now the world's fourth leading fatal health risk and the top environmental health risk (The Lancet, 2018). According to the World Health Organization (WHO), more than 90% of the world's population are living in areas with unsafe air quality levels. It's a symptom of a larger development challenge, combined with an energy-transition problem and a pollution political cycle that can be difficult to navigate. California Assembly Bill (AB) 617 is the citizen protection bill that helped establish a center where citizens can collect air quality data using low-cost sensors and work directly (for the first time) with local air quality management district to analyze the information.

FIGURE 13 Air Sensor Toolbox Resource

Air Sensor Toolbox

Sensor Data on the AirNow Fire and Smoke Map

EPA and the U.S. Forest Service (USFS) are conducting the AirNow Sensor Data Pilot to show data from air sensors on the Fire and Smoke Map, located on the AirNow.gov website.

Air sensor monitors that are lower in cost, portable and generally easier to operate than regulatory-grade monitors are widely used in the United States to understand air quality conditions. This website provides the latest science on the performance, operation and use of air sensor monitoring systems for technology developers, air quality managers, citizen scientists and the public. The EPA is involved in the advancement of air sensor technology, including performance evaluations of sensor devices and best practices for effectively using sensors. The information can help the public learn more about air quality in their communities.

Source: US Environmental Protection Agency (EPA)⁴⁸

TECHNOLOGIES

Technologies comprises six elements that aim to reduce emissions and improve operations and safety across the supply chain through the direct application of developed (or developing technology):

ELECTRIFICATION

At the end of 2019, there were approximately 2,000 electric trucks operating on U.S. roads, and that number is expected to grow to over 54,000 by 2025. Industry practices currently include equipment retrofits and/or accelerated replacement. In recent years, California's regulatory requirements (see CARB's Advanced Clean Trucks regulation)⁴⁹ and incentive programs have driven investment into new zero-emission technologies, most notably all-electric and hydrogen fuel cells.

ALTERNATIVE FUELS

On the testing and implementation front, the Ports of Long Beach and Los Angeles have been able to influence the conversion of diesel trucks to alternative fuels, such as natural gas trucks serving the ports, through tariffs that set requirements for terminal operators who lease from the ports. In support of both natural gas and hydrogen fuel cell deployments, the ports have also been investing in the fueling infrastructure. There are three critical factors for the industry when deciding to invest in these new technologies: 1) cost, 2) reliability and travel range, and 3) fueling infrastructure. The fueling and recharging network is a critical piece that public agencies can affect.

CLEAN TRUCKS PROGRAM

The San Pedro Bay Ports of Los Angeles and Long Beach launched the Clean Trucks Program in 2008.⁵⁰ What made the Clean Trucks Program successful and sustainable was the partnerships and collaborations established prior to its inception, which enabled wide-scale support for the program – especially from private logistics operators and trucking companies.

AUXILIARY POWER UNITS (APUS)

Heavy-Duty Greenhouse Gas (HDGHG) rule sets the rules for original equipment manufacturers with respect to idle reduction requirements.⁵¹ This rule requires idle reduction technology, such as Auxiliary Power Units (APUs) for the model year 2021 new Class 7 and 8 trucks with sleeper cabs. It is important to note that there are two main types of APUs: diesel-powered APUs and battery-electric APUs. Therefore, to ensure the maximum emission reduction benefits, battery-electric APUs should be encouraged and diesel-powered APUs should be discouraged.

SMALLER SIZED DELIVERY VEHICLES

Smaller, lighter, and more fuel-efficient delivery trucks/vans with lower profiles and fewer driver blind spots significantly improve safety while also reducing emissions.

CARGO BIKES

Maneuvering and parking large trucks on congested, narrow city streets can be hazardous for drivers, cyclists, and pedestrians. Non-motorized or electric-assisted cargo bicycles have been gaining popularity in North American and European cities as a last-mile delivery solution. Small-sized goods are typically consolidated at an Urban Consolidation Center (UCC) or vicinity loading zone and transported to the final market destination. B-Line is an example of this type of service operating in Portland.⁵²

FIGURE 14 Electric Cargo Bike



B-line delivery trikes on the Morrison Bridge in 2010. Image Source: Jonathan Maus/Bike Portland.⁵³

POLICIES ADDRESSING WAREHOUSING LAND USE CONFLICTS

A review of the academic literature on addressing land use conflicts associated with warehousing was not conducted as part of this study. Instead, research has identified several guiding documents and existing policies that have been developed within the state and region to address the fast-paced growth in warehousing and its impacts on communities. A few of these are briefly reviewed below.

CALIFORNIA SUSTAINABLE FREIGHT INITIATIVE – CONCEPT PAPER

This Concept Paper intended is prepared by California Air Resources Board (CARB) to prioritize and accelerate the development and implementation of freight regulations that address the public health concerns identified in the Concept Paper. CARB provides several implementation tools through the Community Air Protection Resource Center – found online.⁵⁴ The Concept Paper works as an informational resource for community advocates, local decision makers, and freight facility developers, owners, and operators. The Concept Paper is intended to support public review, discussion, and feedback on the identified practices for the siting, design, construction, and operation of freight facilities to minimize community exposure to air pollution from freight.

ATTORNEY GENERAL, XAVIER BECERRA DOCUMENT – WAREHOUSE PROJECTS: BEST PRACTICES AND MITIGATION MEASURES TO COMPLY WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

This document builds upon the California Attorney General’s Bureau of Environmental Justice’s (Bureau) comment letters on warehouse projects’ compliance with CEQA, collecting knowledge gained from the Bureau’s review of hundreds of warehouse projects across the state. It is meant to help lead agencies pursue CEQA compliance and promote environmentally-just development as they confront warehouse project proposals. While CEQA analysis is necessarily project-specific, this document provides information on feasible best practices and mitigation measures, the overwhelming majority of which have been adapted from actual warehouse projects in California.

GOOD NEIGHBOR POLICY EXAMPLES

The following section details the Good Neighbor Policies for siting new and/or modified warehouse distribution facilities for Western Riverside Council of Governments, Riverside County, the City of Riverside, and the City of Moreno Valley. These policies were identified by the California Attorney General, Xavier Becerra in the State’s report, “Warehouse Projects: Best Practices and Mitigation Measures to Comply with the California Environmental Quality Act” – mentioned previously – as minimum standards that all warehouses in the jurisdiction must meet. Communities can request their local agencies to develop an adopt such policies. They can also form coalitions with businesses and industry stakeholders to provide inputs to support the City.

TABLE 12 *Good Neighbor Policies Summary*

Government Authority	Policies Title	Adoption Year
Western Riverside Council of Governments	Good Neighbor Guidelines	2005
Riverside County Board of Supervisors	Good Neighbor Policy	2019
City of Riverside	Good Neighbor Guidelines	2020
City of Moreno Valley	Good Neighbor Guidelines	Post-2005

WESTERN RIVERSIDE COUNCIL OF GOVERNMENTS (WRCOG)

In January 2003, the Riverside County Board of Supervisors (Board) directed Executive Office staff to initiate the establishment of a Regional Air Quality Task Force (RAQTF) to study air quality issues and implement air quality mitigation measures for the region. Since many communities within the region either have a separate air quality element or address air quality issues in the land use section of their General Plan, the RAQTF developed the “Good Neighbor Guidelines for Siting New and/or Modified Warehouse/Distribution Facilities,” (referred to as “Good Neighbor Guidelines”) for local governments to voluntarily adopt when siting new warehouse/distribution centers.⁵⁵

These Good Neighbor Guidelines are designed to help minimize the impacts of diesel particulate matter (DPM) from on-road trucks associated with warehouses and distribution centers on existing communities and “sensitive receptors” located in the subregion. According to the policy, sensitive receptors generally include residences, schools, parks, playgrounds, day care centers, nursing homes, hospitals, and other public spaces where residents are most likely to spend time.

The adopted document is organized into seven local and regional goals: (1) minimize exposure to diesel emissions to neighbors that are situated in close proximity to the warehouse/distribution center; (2) eliminate diesel trucks from unnecessarily traversing through residential neighborhoods; (3) eliminate trucks from using residential areas and repairing vehicles on the streets; (4) reduce and/or eliminate diesel idling within the warehouse/distribution center; (5) establish a diesel minimization plan for on- and off-road diesel mobile sources to be implemented with new projects; (6) establish an education program to inform truck drivers of the health effects of diesel particulate and the importance of reducing their idling time; and, (7) a public outreach program and conduct periodic community meetings to address issues from neighbors.

RIVERSIDE COUNTY

The Riverside County Board of Supervisors approved the Good Neighbor Policy in November 2019.⁵⁶ Their policy was established to mitigate the impacts of construction and operations of logistics/warehouse projects near residences or other sensitive land uses (“sensitive receptors”). According to the policy, sensitive receptors generally include residences, schools, parks, playgrounds, community centers, assisted living, day care centers, nursing homes, hospitals, and similar uses.

The application of the policy is included in the conditions of approval as part of individual development projects and is applicable to new projects submitted after the policy approval date (November 2019). The policy applies to logistics and warehouse projects that include any building larger than 250,000 square feet in size with more than 20 loading bays. The policy is implemented during the land use review process on a district-by-district basis, and the hearing body (Planning Commission, City Council, or Board of Supervisors) has the discretion to approve projects that deviate from the guidance provided in the policy.

The policy is organized into six categories: studies/analysis, construction phase, siting and design, operations, signage, and community benefits.

CITY OF RIVERSIDE

The City of Riverside (City) adopted the Good Neighbor Guidelines (GNG-2020) in November 2020.⁵⁷ The GNG-2020 identifies ways to ensure air quality, noise, and neighborhood character are considered as new industrial facilities are sited in the City, with the particular intent to protect sensitive receptors. Industrial uses are defined and regulated in Title 19 – Zoning of the Riverside Municipal Code. The Guidelines apply to all new industrial use applications received by the City and are considered as part of the design and entitlement process. GNG-2020 ensures proper consideration of and mitigation of potentially significant adverse environmental impacts that are identified under CEQA.

CITY OF MORENO VALLEY

The Good Neighbor Guidelines (Guidelines) used in Moreno Valley are a modified version of the WRCOG’s RAQTF Guidelines specific to the needs of the City.⁵⁸ For the purpose of the Guidelines, warehouse/distribution center means a building used for the storage, receiving, shipping, or wholesaling of goods and merchandise, and any incidental or accessory activities that is greater than 650,000 square feet. Multiple warehouse buildings deemed as part of a project or a phased project exceeding a combined total building area of 650,000 square feet will be considered on a cumulative basis. Furthermore, a warehouse or distribution center is not intended to include “big box” discount or warehouse stores that sell retail goods, merchandise or equipment, or storage and mini-storage facilities that are offered for rent or lease to the general public.

The policy is organized into four goals: (1) minimize exposure to diesel emissions to neighbors that are situated in close proximity to the warehouse/distribution center; (2) eliminate diesel trucks from unnecessarily traversing through residential neighborhoods; (3) eliminate trucks from using residential areas and repairing vehicles on the streets; and, (4) reduce and/or eliminate on-site diesel idling at warehouses/distribution centers.

CONCLUSION AND POTENTIAL NEXT STEPS

In addition to discussing the approach to the Southern California Goods Movement Communities Opportunities Assessment, this report has included input and recommendations from communities to address goods movement in their communities. In the preceding sections, this report highlighted best practices and recommendations for communications and engagement and workforce development. The following section addresses the remaining areas that were discussed throughout this study.

This section combines community input with information in the literature and other case studies to offer suggestions on how communities may address goods movement challenges. It is advised that communities use this section to foster discussion and further develop solutions to improve quality of life in goods movement impacted communities. The recommendations discussed in this conclusion represent a menu of options that may be applied by communities in the appropriate context. They are not intended as a one size fits all solution for the region.

More specifically, several sources help shape this discussion:

- Existing Regional and Local Studies and Plans – each county in the SCAG region may have specific challenges, some regions have existing plans or conducted studies which include concepts for possible solutions and platforms from which communities can build upon. SCAG as the respective regional MPO have also prepared regional goods movement plans.
- Participant communities – throughout the engagement process, as challenges were raised, the project team worked with community members to encourage discussion on opportunities these challenges created. This process resulted in some potential solutions as shown below.
- Literature review of best practices – based on the challenges identified and the ideas generated by the engagement process, best practices were gathered. These are from academic research, or examples of successful approaches applied in other areas.

As a whole, this was an iterative process, with feedback from the community directing the project team to research existing regional approaches and broader best practices from the literature. From this work, the following are identified as the key findings from this effort:

HEALTH AND AIR QUALITY

- > Empower communities with monitoring equipment
- > Push for use of alternative fuels and electrification
- > Reduce traffic and GHGs with cargo bikes and smaller local delivery trucks
- > Leverage grants and other funding resources such as AB617, SCAQMD, CARB, Port of Long Beach Community Grants Program (CGP)
- > Limit warehouses near residential, school, and other sensitive uses due to the truck traffic they generate
- > Where resources allow, establish a community working group to monitor conditions, recommend solutions, engage locally, and pursue funding opportunities

Air quality and noise issues have been a consistent theme in the feedback received from the seven communities. The afore-mentioned list of strategies and measures are aimed at reducing noise and emissions, but this is by no means an exhaustive list. Other measures may be more appropriate or require modification due to the local context. To determine the best local fit and assist with implementation of the different strategies, agencies may consider establishing a working group or advisory committee. The working group may establish noise and air quality thresholds for sensitive areas in each City. This establishes a locally accepted baseline and provides transparency to the businesses, freight operators, and the local community. The working group should explore all avenues and opportunities for funding and collect feedback from the local communities and businesses. If applicable, a monitoring program/framework could be developed to implement specific thresholds.

There are a variety of air quality measures that are aimed at reducing the effect of freight and good movements through, adjacent to and within local communities. These measures are focused on minimizing exposure to freight related noise, emissions, and greenhouse gases. The following measures are options to address these issues:

- Open space landscaped buffers and increasing vegetation such as trees as feasible
- Heating, ventilation, and air conditioning (HVAC) upgrades such as modern equipment and better-quality air filters
- Greater investment in zero emission vehicles and their supporting infrastructure and use of incentives for local businesses
- Low emission delivery zones
- Air quality monitoring studies with more stringent thresholds
- Noise buffers, sound walls, raised banks
- Noise insulation – window/glass upgrades in buildings at sensitive locations

- Public information programs designed to reduce exposure to emissions

In developing these recommendations, the following air quality and funding resources were consulted and these are referenced here if more information is needed:

- Ports of Long Beach Community Grants Program and Investment Plan (July 2016)
- South Coast Air Quality Management District – Clean Fuels Program 2019 Annual Report & 2020 Plan Update (March 2020)
- San Pedro Bay Ports Clean Air Action Plan (May 2020)
- Moreno Valley Good Neighbor Guidelines for Warehouse Distribution Facilities
- San Pedro Bay Ports Technology Advancement Program: Program Guidelines (December 2019)
- Caltrans Considering Equity Community Impact Analysis for Projects
- South Coast Air Quality Management District - Community Emissions Reduction Plan San Bernadino, Muscoy (September 2019)
- South Coast Air Quality Management District - Community Emissions Reduction Plan Wilmington, Carson, West Long Beach (September 2019)
- California Sustainable Freight Initiative Concept Paper for Freight Handbook (December 2019)
- State of California – Warehouse Projects: Best Practices and Mitigation measures to Comply with the California Environmental Quality Act

These recommendations are primarily focused on improving air quality, reducing noise levels, safety, and the protection/improvement of infrastructure such as roadways. The measures presented herein should not be considered an exhaustive list, rather a starting point for coordination with local communities, decision makers, and other stakeholders.

INFRASTRUCTURE MAINTENANCE AND IMPROVED OPERATIONS

- > Expand infrastructure for truck electrification and other zero emission fuels such as hydrogen, and near zero emission fuels as a bridging technology
- > Prioritize roadway resurfacing and improvements on routes trucks are using, regardless of designation
- > Test off-hour deliveries to reduce traffic
- > Re-route trucks to avoid sensitive uses and pedestrian hubs and incentivize trucks to be off local roads when at all possible
- > Enforce speed and safety policies for trucks
- > Collaborate on zoning practices and warehouse locating across jurisdictional boundaries
- > Build First/Last Mile infrastructure that emphasizes pedestrian and vulnerable user safety

This section includes discussion of infrastructure and operations including recommendations for routing, parking, safety, and enforcement. As documented above, Southern California is a freight gateway that services the larger state and nation with large economic consequence. At a regional level, planning and advocacy work is done to coordinate and prioritize investments in freight serving infrastructure and ensure adequate federal and state resources to maximize capacity and efficiency, and support maintenance and improvements where necessary. Connect So Cal 2020 has an extensive list of regional infrastructure projects that will facilitate improved goods movement and revisions and updates to this regional infrastructure plan are currently being coordinated and will be released as part of Connect So Cal 2024. As described above, additional investment in zero emissions trucks and their supporting infrastructure is an important part of this strategy.

While SCAG does not coordinate infrastructure improvements at the local level, several concerns about local infrastructure were raised during this study. Locally, truck and freight activity may burden local infrastructure such as city streets and can also impact pedestrian and bicycle safety. It is recommended that cities identify and document conditions, in particular areas with safety concern. Public agencies should make relevant information accessible including where to find funding/incentive programs, local truck ordinances, specific truck route plans and restrictions, and identification of impacted areas and sensitive locations.

A consistent theme amongst the communities centered on the lack of enforcement. Each community should review their local municipal codes and ordinances to establish the degree to which modifications are required to strengthen enforcement. It is suggested that the discussion around enforcement occur as part of a local public outreach process highlighting the effects of freight on the local community and surrounding environment. Any changes to the municipal code or new ordinances need to be considered by decision makers and may require significant changes to current practice.

Existing policies are only successful when enforced. Public agencies can play a greater role in enforcing truck/freight vehicle violations. For instance:

- Enforcement of truck route violations
- Enforcement of truck vehicle idling
- Noise and air quality monitoring threshold enforcement
- Continuous engagement programs to understand trucking community needs and concerns and to the extent possible, address them in advance to minimize violations

The list below includes potential infrastructure improvements and program options that may manage the impact of truck activity and associated business through local authorities: Sidewalk safety upgrades e.g., wider sidewalks, protective fences/buffers

- Pavement maintenance repair programs funded by increased penalties for code and ordinance violations
- Improved signage and wayfinding for trucks
 - Safe routes for seniors and school
 - Neighborhood protection e.g., diverters, street cul de sac etc.
 - Warehouse design guidelines e.g. loading bay orientation
 - Time of day vehicle restrictions
 - Employee commuting programs to lessen vehicular activity to/from warehousing
- Providing better access to truck refueling and rest facilities
- Buffered bicycle lanes on heavily traveled truck facilities/routes

COMMUNICATIONS AND ENGAGEMENT

Public outreach and education helps inform residents and decision makers of the implications of land use choices and other freight related activities and decisions. Information about current issues, including both the positive and negative impacts of freight can be shared, as well as information and opportunities to mitigate the impact of freight related decisions. Improving community engagement focuses primarily on improving and building trust and requires development of relationships over time. Simply bringing stakeholders to the table is not enough if their input is not actually applied. Outreach is necessary to inform the public and create awareness about freight opportunities and challenges, while engagement is vital to receive stakeholder feedback on their experiences and how to best develop strategies to reduce the impacts especially of those disproportionately affected.

Suggestions to improve communications around goods movement include:

- Engage at an appropriate time
- Implement inclusive outreach methods Identify and remove barriers to access
- Create community partnerships
- Have a Public Participation Plan and update it on a regular basis
- Incorporate community input into the final deliverable
- Seek community feedback on the engagement process and iterate where needed

ECONOMIC AND WORKFORCE DEVELOPMENT

Many employment opportunities exist in occupations that are directly related to the logistics sector and indirectly related to logistics via the wide array of services that support logistics including finance, security, information management and operations management. It is important to develop workforce and career development opportunities that ensure local communities have access to the benefits of the freight system by prioritizing local hires, and doing engagement to ensure that the local workforce is aware of these opportunities.

Some options for this include:

- Leverage local high schools or community colleges to research and organize data for community needs and provide engagement
- Provide more upskilling opportunities
- Expand the ease and speed of obtaining necessary certifications.
- Foster communities of practice where innovative training programs such as apprenticeships are encouraged in line with community, governmental and industry need (LB Post 2021; O'Brien & Jakovich 2021)
- Work with schools to include more classes related to workforce development such as understanding requirements and skills for various jobs, preparing resume, identifying employers and job opportunities
- Educate the students on available career pathway opportunities in goods movement and the ways in which they can find multiple "on ramps" to careers via internships and other work-based learning, as well as tools to translate on-the-job experience into academic credit
- Focus on opportunities in rapidly developing and technology-based freight sectors such as truck electrification technology & maintenance. Efforts such as this could empower those burdened communities by enabling them to be a part of the solution moving forward, instead of only bearing the environmental impacts of goods movement
- Promote opportunities via in-demand, entry level careers such as independent trucking that support the development of the region's small businesses

APPENDIX – FUNDING OPPORTUNITIES

FUNDING OPPORTUNITIES

The following section describes funding from federal, state, and regional/local government entities for environmentally and equity-related freight projects.

TABLE 13 Government Funding Opportunities for Port and Clean Truck Projects

Federal Funding
Infrastructure Investment and Jobs Act (IIJA/BLI)
Inflation Reduction Act (IRA)
US EPA Diesel Emissions Reduction Act (DERA) Grant Funding
State Funding
California State Budget FY22-23
Senate Bill (SB) 1 Road Repair and Accountability Act
Carl Moyer On-Road Heavy-Duty Voucher Program (2022)
Volkswagen Environmental Trust for California
Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP)
Sustainable Transportation Equity Project
Regional/Local Funding
San Pedro Bay Port Complex Clean Truck Fund
Regional Climate Collaboratives Program
Port of Long Beach Community Grants Program (CGP)

FEDERAL FUNDING

JUSTICE40 INITIATIVE

Via Executive Order 14008 President Biden made it a goal that 40 percent of the overall benefits of certain Federal investments flow to disadvantaged communities that are marginalized, underserved, and overburdened by pollution.

The categories of investment in what are known as Justice40 “covered programs” are: climate change, clean energy and energy efficiency, clean transit, affordable and sustainable housing, training and workforce development, remediation and reduction of legacy pollution, and the development of critical clean water and wastewater infrastructure. The list of Justice40 covered programs was released on August 18, 2022 and can be found on the White House’s website (www.whitehouse.gov).⁵⁹ Federal agencies like USDOT have begun to include Justice40 requirements in their competitive IIJA grant Notice of Funding Opportunity (NOFOs).

INFRASTRUCTURE INVESTMENT AND JOBS ACT (IIJA)

On November 15, 2021, President Biden signed the Infrastructure Investment and Jobs Act (IIJA) (also known as the “Bipartisan Infrastructure Law” or BIL) into law. The Bipartisan Infrastructure Law is the largest long-term investment in our infrastructure and economy in our Nation’s history. In total, over fiscal years 2022 through 2026, it authorizes \$1.2 trillion in spending and provides \$550 billion in new Federal investment in infrastructure, including in roads, bridges, and mass transit, water infrastructure, resilience, and broadband.

This bill represents a significant down payment on modernizing and upgrading port and intermodal infrastructure including over \$5 billion exclusively for port programs and an additional \$41.3 billion for which ports would be eligible to apply.⁶⁰ The \$45.35 billion in port-eligible funding comes from continued programs including RAISE grants (formerly BUILD grants) (\$12.5 billion),⁶¹ Infrastructure for Rebuilding America (INFRA) grants (\$7.25 billion),⁶² Consolidated Rail Infrastructure and Safety Improvement (CRISI) grants (\$5 billion), and Congestion Management/Air Quality (CMAQ) grants (\$13.2 billion),⁶³ as well as new programs including National Infrastructure Project Assistance Program (Mega) (\$5 billion),⁶⁴ Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) grants (\$1.4 billion),⁶⁵ and Federal Reconnecting Communities Pilot Program (\$1 billion).⁶⁶ For more information, visit the FHWA’s one-stop shop website⁶⁷ for the implementation of the IIJA, including everything from fact sheets and funding notices to guidance, regulations, and presentations.

INFLATION REDUCTION ACT (IRA) 2022

The IRA, a scaled-down version of the Build Back Better Act, calls for a more-than-\$300-billion investment in energy and climate reform. It was signed into law by President Biden on August 17, 2022.⁶⁸ Among the investments committed in the IRA, there are two clean energy-related provisions that are relevant to ports and clean truck initiatives. The first are investments targeted at decarbonizing all sectors of the economy; the second focuses investments in disadvantaged communities, otherwise referred to as environmental justice initiatives.^{69,70}

Among the provisions to decarbonize the economy, the IRA demarcates tax credits and grants for clean fuels and clean commercial vehicles to reduce emissions from all parts of the transportation sector. These include an extension of the current biodiesel and renewable diesel credit, a commercial clean vehicle credit, competitive grants for biofuel infrastructure, and a methane emissions reduction program. Additionally, IRA includes over \$60 billion in environmental justice priorities to drive investments into disadvantaged communities. Some of the highlights include grants to reduce air pollution at ports, grants and rebates for clean heavy-duty vehicles, and block grants for environmental and climate justice.

US ENVIRONMENTAL PROTECTION AGENCY (US EPA) DIESEL EMISSIONS REDUCTION ACT (DERA) GRANT FUNDING

The Diesel Emissions Reduction Act (DERA) Program funds grants and rebates that protect human health and improve air quality by reducing harmful emissions from diesel engines. The Port of Long Beach (POLB) is an eligible applicant for this program, which includes funding for reducing emissions

from diesel-powered drayage trucks, among other diesel-powered equipment, such as locomotives and cargo handling equipment. The last funding was awarded in late 2021 and no new grant opportunities have been announced as of the time of this report.

STATE FUNDING

CALIFORNIA STATE TRANSPORTATION AGENCY (CALSTA) CLIMATE ACTION PLAN FOR TRANSPORTATION INFRASTRUCTURE (CAPTI)

In July, 2021, the California State Transportation Agency (CalSTA) adopted the Climate Action Plan for Transportation Infrastructure (CAPTI).⁷¹ The plan details how the State recommends investing billions of discretionary transportation dollars annually to combat and adapt to climate change while supporting public health, safety, and equity.

To direct the State’s transportation investments, the CAPTI contains 10 guiding principles which include:

- Investing in networks of safe and accessible bicycle and pedestrian infrastructure
- Advancing investments in light, medium, and heavy-duty zero-emission vehicles and infrastructure
- Strengthening the commitment to social and racial equity by reducing public health and economic harms and maximizing community benefits
- Promoting projects that do not substantially increase passenger vehicle travel
- Developing a zero-emission freight transportation system

CALIFORNIA STATE BUDGET FY22-23

The State of California passed a \$308 billion budget for fiscal year 2022-23. The following transportation and climate change packages contain planned spending for projects that will advance environmentally and equity-related freight projects.

Within the transportation package, \$15 billion in additional state funded investments in transportation infrastructure over the next four years, among which includes goods movement and port spending (\$1.2 billion), climate adaptation programs (\$200 million), and clean California local grants (\$100 million).

The budget also created a package specific to climate change which includes \$38.8 billion over five years, for a total \$53.9 billion under a climate and opportunity agenda. Spending demarcated in this package includes a one-time general fund for electric school buses (\$1.5 billion), one-time greenhouse gas reduction fund to support zero-emission trucks, buses and off-road equipment (\$600 million), one-time federal funds to implement ZEV charging infrastructure programs (\$383 million), a greenhouse gas reduction fund to low-income consumer purchases and zero-emission trucks, buses, and off-road equipment (\$676 million), the AB 617 Community Air Protection Program (\$600 million), one-time General Fund for a grant program to bolster the actions of local health jurisdictions and develop regional Climate and Health Resilience Plans (\$25 million), ongoing General Fund to establish a monitoring program to track emerging or intensified climate-sensitive health impacts and diseases (\$10 million), and a General Fund over three years for a Goods Movement Training Center in Southern California (\$110 million).

SENATE BILL (SB) 1 – ROAD REPAIR AND ACCOUNTABILITY ACT FUNDING PROGRAMS

In 2017, the California State Legislature passed, and the Governor signed Senate Bill (SB) 1 (Beall, 2017), also known as the Road Repair and Accountability Act of 2017, increasing transportation funding and instituting much-needed reforms. SB 1 provides state transportation funding for various programs over a period of 10 years. Programs funded under SB 1 include the Trade Corridor Enhancement Program (TCEP), (\$300–815 million), Local Streets and Roads Program (LSRP) (\$1.5 billion), Solutions for Congested Corridors Program (SCCP) (\$250 million), and the Local Partnership Program (\$200 million).^{72,73,74,75}

CARL MOYER ON-ROAD HEAVY-DUTY VOUCHER INCENTIVE PROGRAM (ON-ROAD VIP) (2022)

The Carl Moyer Program Voucher Incentive Program (VIP) provides grant funding for the incremental cost of cleaner-than-required engines, equipment, and emission reduction technologies. The Carl Moyer Program complements California's regulatory programs by funding emission reductions that are surplus (i.e., early and/or in excess of what is required by regulation). On-Road VIP is part of the Carl Moyer Program and is a streamlined funding option for heavy-duty vehicle replacements. Currently, On-Road VIP provides a streamlined funding option for up to the zero-emission standard.

In VIP, funding is directed exclusively to small fleets with 10 vehicles or less, where eligible applicants can receive grants to purchase cleaner replacement vehicles. Applications are reviewed on a first-come, first-served basis, and applicants are notified within 15 business days upon receipt of their application.

VOLKSWAGEN ENVIRONMENTAL TRUST FOR CALIFORNIA

The Volkswagen (VW) Environmental Mitigation Trust (Trust) provides about \$423 million for California to mitigate the excess nitrogen oxide (NOX) emissions caused by VW's use of illegal emissions testing defeat devices in certain VW diesel vehicles.

The Trust provides funding opportunities for specified eligible actions that are focused mostly on "scrap and replace" projects for the heavy-duty sector, including on-road freight trucks, transit and shuttle buses, school buses, forklifts and port cargo handling equipment, commercial marine vessels, and freight switcher locomotives. Two-hundred and twenty million dollars of the available funds are allocated specifically for port-related projects.^{76,77}

HYBRID AND ZERO-EMISSION TRUCK AND BUS VOUCHER INCENTIVE PROJECT (HVIP)

CARB's California's Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) accelerates commercialization by providing point-of-sale vouchers to make advanced vehicles more affordable.

The latest voucher release occurred on March 30, 2022, and offered \$196.6 million in standard HVIP funding for California-based businesses and other organizations transitioning their fleets to zero-emission vehicles (ZEVs), \$46 million of which has been allocated for class 8 tractors performing drayage operations. HVIP vouchers reduce the purchase

cost of advanced-technology vehicles to reduce emissions and air pollution, with increased incentives for vehicles in disadvantaged communities or purchased by tribal entities. An additional \$23.4 million has also been set aside for the Innovative Small E-Fleets program.

SUSTAINABLE TRANSPORTATION EQUITY PROJECT (STEP)

STEP is a new transportation equity pilot that aims to address community residents' transportation needs, increase access to key destinations, and reduce greenhouse gas emissions by funding planning, clean transportation, and supporting projects. STEP's overarching purpose is to increase transportation equity in disadvantaged and low-income communities throughout California via two types of grants: Planning and Capacity Building Grants and Implementation Grants. Within these two grant types, CARB has awarded a total of \$44.5 million. CARB is currently working with stakeholders through the Fiscal Year 2022-23 Funding Plan and Three-Year Plan for Clean Transportation Incentives to determine the future of STEP.

REGIONAL/LOCAL FUNDING

SAN PEDRO BAY PORT COMPLEX CLEAN TRUCK FUND

In the 2017 Clean Air Action Plan (CAAP) Update, the Port of Los Angeles (POLA) and Port of Long Beach (POLB) (collectively known as the San Pedro Bay Port Complex) jointly proposed modifications to the Clean Trucks Programs with a goal of transitioning to zero emission trucks by 2035. A critical element of this program is the establishment of a Clean Truck Fund Rate (CTF Rate). The Ports began collecting a \$10 per TEU CTF Rate on April 1, 2022. The program is projected to generate \$90 million total, or \$45 million per port, in its first year.⁷⁸

REGIONAL CLIMATE COLLABORATIVES PROGRAM

The Regional Climate Collaboratives (RCC) Program is a new capacity building grant program for under-resourced communities in California. Administered by the Strategic Growth Council, RCC enables community-rooted and cross-sectoral partners to deepen their relationships and develop the processes, plans, and projects that will drive and sustain climate action. The goal of the program is to strengthen local coordination, leadership, knowledge, skills, and expertise with a particular focus on increasing access to funding resources for project planning and implementation within under-resourced communities.

The program funds Collaboratives to conduct place-based capacity building activities, within a three-year grant term, that support under-resourced communities in accessing funding and resources to plan and implement climate mitigation, adaptation, and resiliency projects. These place-based activities will both align with and inform regional priorities and efforts. RCC does not fund built infrastructure.

SGC anticipates that \$8.35 million will be available for competitive awards in this funding round. The program will fund multiple Collaboratives in award amounts ranging from \$500,000 to \$1,750,000 for three-year grant terms.

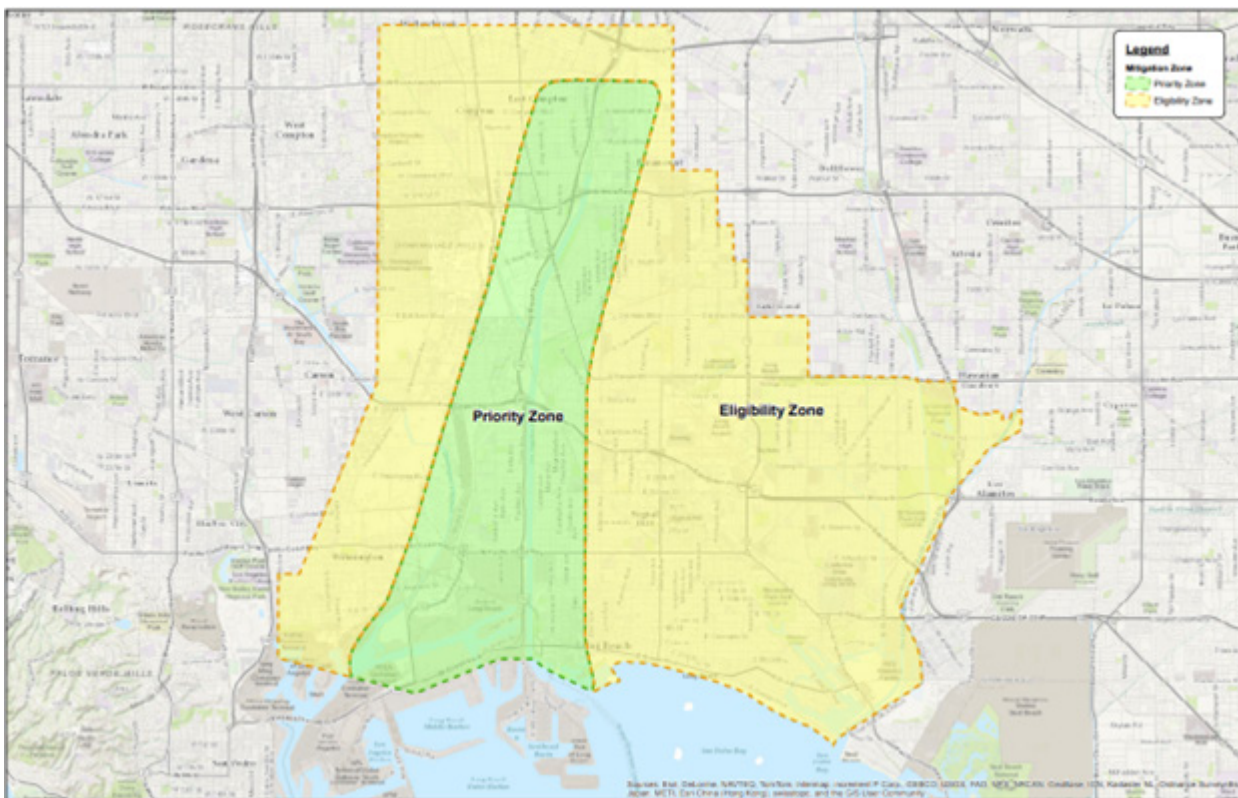
PORT OF LONG BEACH COMMUNITY GRANTS PROGRAM (CGP)

In 2009, POLB launched its Community Grants Program (CGP) to address cumulative air and health impacts arising from new development projects.⁷⁹ Since establishing the grant programs, the Port has funded over \$17 million in nearly 120 community-based mitigation programs, improvements, and projects to offset major Port infrastructure and terminal projects, such as the Gerald Desmond Bridge Replacement Project and the Middle Harbor Terminal Redevelopment Project. These community-based mitigation grants have funded improvements that directly benefit local residents impacted by Port operations, such as new air conditioning/heating systems, air filters, windows and doors in schools, daycare facilities, and other sensitive receptors, mobile asthma vans and education programs that serve the local community, and a tree planting program.

The CGP is designed to fund projects outside the Harbor District that mitigate the POLB-related impacts identified in the Community Impact Study (CIS). The program is funded with a \$46.4 million contribution and is intended to provide long-term funding until all funds are exhausted.

CGP investments are guided by three major goals: (1) reduce POLB-related community impacts; (2) benefit areas and populations most impacted by port operations; and, (3) prioritize sensitive populations (e.g., children, pregnant women, chronically ill, and sensitive receptor building facilities, etc.). To assist with carrying out Goal 2 – Benefit areas and population most impacted by port operations, POLB has defined a Priority Zone (PZ) and an Eligibility Zone (EZ) and created an online interactive map as well as a static copy of the map.⁸⁰

FIGURE 15 Community Grants Program – Priority Zone & Eligibility Zones



Source: Port of Long Beach⁸¹

The CGP is intended to provide long-term stable funding for community-based mitigation. Funds are expected to be apportioned over the next 12-15 years at roughly \$3-4 million per year. Additionally, as part of the yearly budget process, the Board approves a CGP budget for the coming fiscal year.

Funds are awarded through a competitive grant process. Following approval of the CGP annual budget, the Port issues solicitations (i.e., Requests for Proposals, or RFPs) pursuant to the plan. All funding awards are approved by the Board of Harbor Commissioners which are aided by Port Staff and a Community Grants Advisory Committee.

ENDNOTES

- 1 No self nominations were received for communities of this type, indicating lack of capacity/interest in participating.
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