

Improving Environmental Justice and Mobility in Southeast Los Angeles Executive Summary

August 2021

A Research Report from the Pacific Southwest Region
University Transportation Center

Genevieve Giuliano, University of Southern California

Marlon Boarnet, University of Southern California

Miguel Jaller, University of California, Davis

Robert Binder, University of Southern California

Sue Dexter, University of Southern California

Jiawen Fang, University of Southern California

David Flores Moctezuma, University of Southern California

Marley Randazzo, University of Southern California

Bonnie Wang, University of Southern California



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7. Author(s) Genevieve Giuliano, https://orcid.org/0000-0002-9257-8269 Marlon Boarnet, https://orcid.org/0000-0002-0890-347X Miguel Jaller, https://orcid.org/0000-0003-4053-750X		8. Performing Organization Report No. PSR-18-SP91	
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About the Pacific Southwest Region University Transportation Center

The Pacific Southwest Region University Transportation Center (UTC) is the Region 9 University Transportation Center funded under the US Department of Transportation's University Transportation Centers Program. Established in 2016, the Pacific Southwest Region UTC (PSR) is led by the University of Southern California and includes seven partners: Long Beach State University; University of California, Davis; University of California, Irvine; University of California, Los Angeles; University of Hawaii; Northern Arizona University; Pima Community College.

The Pacific Southwest Region UTC conducts an integrated, multidisciplinary program of research, education and technology transfer aimed at *improving the mobility of people and goods throughout the region*. Our program is organized around four themes: 1) technology to address transportation problems and improve mobility; 2) improving mobility for vulnerable populations; 3) Improving resilience and protecting the environment; and 4) managing mobility in high growth areas.

U.S. Department of Transportation (USDOT) Disclaimer

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the information presented herein. This document is disseminated in the interest of information exchange. The report is funded via match funding for a grant from the U.S. Department of Transportation's University Transportation Centers Program. However, the U.S. Government assumes no liability for the contents or use thereof.

Disclosure

Principal Investigator, Co-Principal Investigators, others, conducted this research titled, "Improving Environmental Justice and Mobility in Southeast Los Angeles," at University of Southern California. The research took place from October 1, 2018 to March 31, 2021 and was funded by a subcontract from University of California, Davis in the amount of \$422,500.00. Funding was provided by the California Strategic Growth Council. The research was conducted as part of the Pacific Southwest Region University Transportation Center research program.

Abstract

This case study is part of the Climate Smart Transportation and Communities Consortium (CSTACC), case studies that were conducted in various locations throughout the state to analyze environmental justice issues in low income, communities of color. This study took place in southeast Los Angeles County in partnership with the Southeast Los Angeles Collaborative (SELAC), a non-profit community-based umbrella organization representing 8 cities and several unincorporated areas. The case study has two parts. The first part examines impacts of heavy duty trucks and finds the main problems to be traffic safety and particulate emissions. An analysis of regional freight traffic reveals that current and planned regulations to achieve zero emission truck targets will significantly reduce truck-related emissions. A local analysis showed higher than average truck involved crashes and safety hot spots. Local traffic management strategies are recommended to increase safety. The second part examines public transit job accessibility. Transit accessibility depends on both service level and access to bus stops. We recommend that bike share and car share options be explored to reduce travel times to and from bus stops.

Improving Environmental Justice and Mobility in Southeast Los Angeles

Executive Summary

As part of the Climate Smart Transportation and Communities Consortium (CSTACC), case studies were conducted in various locations throughout the state to analyze environmental justice issues in low income, communities of color. Environmental justice seeks to eliminate the disproportionate impacts of environmental pollution. Low income, communities of color suffer higher rates of morbidity and mortality as a result of exposure to air toxics, hazardous materials, water pollution, and other environmental damages.

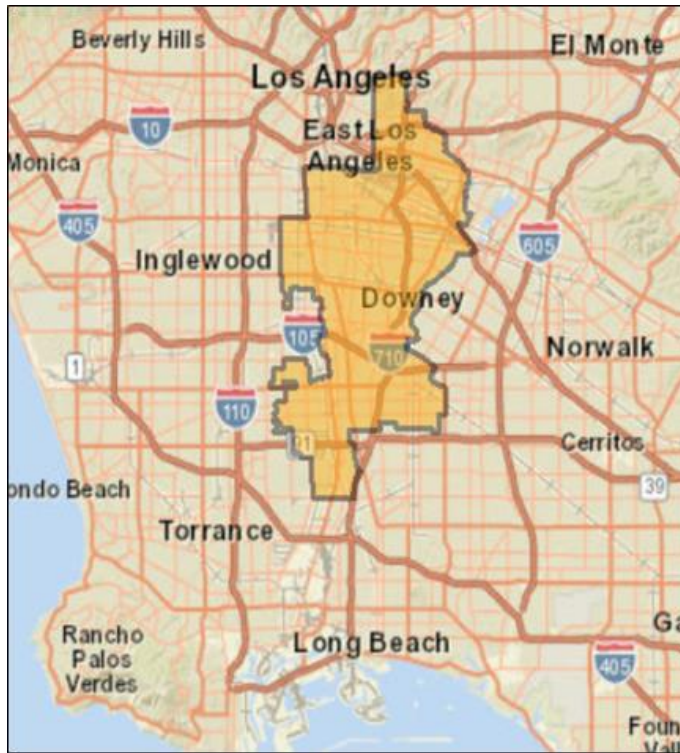
This case study took place in southeast Los Angeles County in partnership with the Southeast Los Angeles Collaborative (SELAC), a non-profit community-based umbrella organization representing 8 cities and several unincorporated areas.¹ Its mission is to strengthen communities and increase political power. SELAC participated in the study design, analysis, and policy recommendations.

This Executive Summary provides an overview of the case study results. Only the main findings and recommendations are presented. The full research project final report provides details on community participation, research methods and data, and detailed results.

The SELA Area

The area covered by SELAC. Termed the SELA area in this report, is located south and east of downtown Los Angeles. See Figure S-1. It includes the following municipalities: Bell; Bell Gardens; Cudahy; Huntington Park; Lynwood; Maywood; South Gate; and Vernon. It also includes the unincorporated areas of East Los Angeles; Florence/Walnut Park; Rancho Dominguez; and East Compton (East Rancho Dominguez).

¹ The Southeast Los Angeles Collaborative is one of several community organizations in the Southeast Los Angeles County area. See <https://www.selacollab.org/> for details on SELA.

Figure S-1. SELA area

The SELA area population is low income, majority minority, and disproportionately impacted by environmental pollution. According to the Census Bureau, as of 2019, the SELA region is home to a population of about 757,000. This is a 7.5% share of the County of Los Angeles's total population. SELA's population is 88% of Hispanic or Latino origin. African Americans account for a 7.2% population share, followed by 2.4% White and 1% Asian. The Census American Community Survey (ACS) data estimate from 2019 indicates 21% of the region's population lives below the poverty line, compared to 15% for Los Angeles County. ACS data estimate that in 2019, 9% of the SELA area households do not have access to a private vehicle, about the same as the county rate. The SELA area is also quite dense at over 12,000 persons per square mile.

The CalEnviroScreen version 3.0 rates 85% of the census tracts making up the SELA area as "high pollution" and "high population burden" and therefore are designated disadvantaged communities under SB 535. The area straddles the I-710 freeway, a major truck corridor for port traffic, includes the I-5 industrial corridor and large concentrations of warehousing and distribution along its western border and in the southern portion. Therefore, those residing within these census tracts suffer a high rate of exposure to small particulates and nitrous oxides (NOX).

Community participation

Our main community partner was SELAC. SELAC staff served as outreach coordinators and conducted focus groups. A project advisory committee was established to serve as a sounding board for a broader group of stakeholders. The advisory committee included representatives of public agencies, local government, and community groups.² The advisory committee met semi-annually throughout the period of research. A set of three focus groups was planned; they would be held at the beginning, middle and end of the project. Only the first set of focus groups was held in person. The COVID-19 pandemic prevented additional in person meetings through the end of the project. A second set of focus groups was held via zoom, in addition to the development of an online survey to capture additional community feedback, and additional meetings of the advisory committee were used to substitute for the middle round of focus groups and provide additional community input. The research team met monthly with SELA Collaborative staff.

Defining the research

A previous study of transportation in the SELA area was conducted.³ Its purpose was to perform an overall assessment of the local transportation system across all modes and addressing passengers and freight. It revealed two main problems: extensive heavy duty truck (HDT) traffic and relatively limited and fragmented public transit service. This project builds on the previous research and conducts a comprehensive analysis of HDT traffic and public transit. The research team worked in partnership with SELAC from development of the proposal to final recommendations. Separate teams were assembled for the two parts of the project. Each project launched with a focus group meeting to identify community concerns and define the problems to be examined. These focus group meetings changed the course of the research.

The freight focus group revealed that safety was the primary concern related to HDT traffic. Focus group members related personal experiences of HDT involved crashes (including pedestrian deaths), expressed fear of driving near HDTs, and cited examples of dangerous driving by HDTs. While air pollution and its impacts were discussed, it became clear that the freight study would also have to include safety.

The transit focus group revealed that transit service problems went beyond limited service or long travel times. Focus group members described buses not stopping even when not full, personal safety concerns at stops and while traveling on buses, threatening or offensive

² Members of Advisory Board are given in the project final report: Giuliano et al, (2021) Improving Environmental Justice in Southeast Los Angeles, Final Report. Pacific Southwest Region UTC.

³ Giuliano, G., S. Kang, Q. Yuan, and N. Hutson (2018) Southeast LA (SELA) Transportation Study. Prepared for 2017 SELA SUMMIT. Available at http://calstatela.patbrowninstitute.org/wp-content/uploads/2018/05/Giuliano_ForWeb.pdf.

behavior of other passengers, and lack of cleanliness. Accordingly, the transit analysis was expanded to include safety and quality considerations.

Summary of findings: Freight analysis

This section summarizes the findings of the freight analysis. Two levels of analysis were conducted; one on regional truck traffic and one on local truck traffic. The primary source for truck traffic is the Southern California Association of Government's (SCAG) 2016 regional transportation model. SCAG's baseline model provides best estimates of origins, destinations, and network flows for HDTs.

HDT traffic in the SELA area is a mix of through traffic and SELA generated traffic:

The HDT trip generation inputs in the SCAG model were utilized to estimate the number of trips to, from, within, and through the area. Trips that have both origin and destination within the SELA area account for about 2% of the total regional freight trips. Trips that have either origin or destination in SELA together account for about 8% of regional trips. To estimate through traffic, we identified probable routes for all regional HDT traffic that could have a logical path through SELA. This generates an estimate of 11% of regional HDT traffic traveling through SELA. See Table ES-1. The SELA area therefore accounts for about 10% of all regional trips and serves as a pass through for an additional 11% of regional trips, yielding roughly 210,000 HDT trips per day.

Table ES-1: Pattern of SELA HDT flows

Trip Type	All HDTs	Percent Regional Trips
O-Ds Within SELA Trips	17,727.48	1.89%
SELA Origin Trips	36,123.48	3.85%
SELA Destination Trips	36,110.56	3.85%
Trips Through SELA	104,839.21	11.17%
<i>All Regional Trips</i>	<i>938,381.40</i>	<i>100.00%</i>

The main impacts of HDT traffic in SELA area are air pollution and crashes:

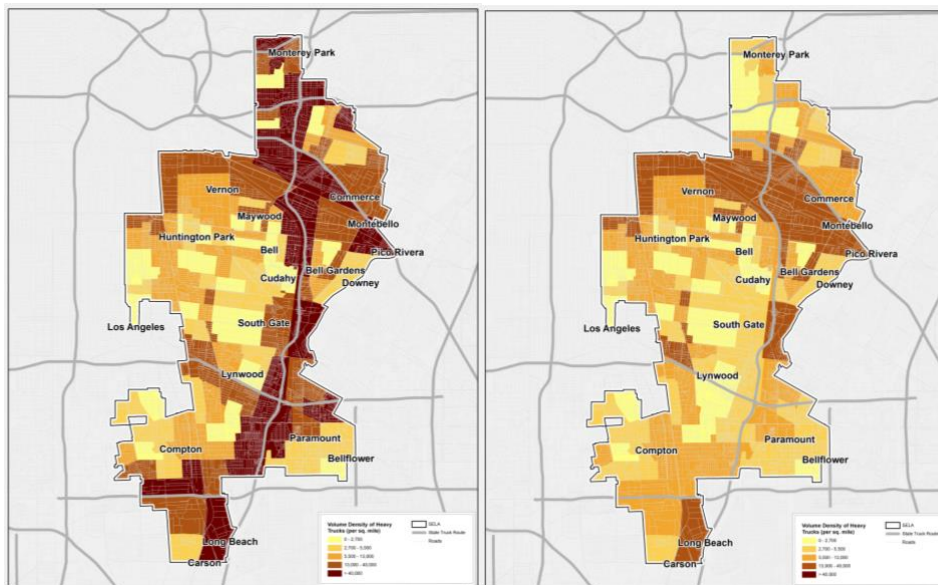
The SELA area is a hub of freight generating activity for the region. To the south lies the port complex, and to the north is an intermodal rail terminal. It is not surprising that two of the three warehouse and logistics clusters in the greater Los Angeles metro area are located in the SELA area, providing import-export distribution, manufacturing, warehouse-to-retail storage, and direct-to-consumer delivery. HDT freight is pervasive, especially along interstate highways and arterial corridors that connect these businesses.

A reasonable proxy for HDT-related air pollution is the intensity of HDT traffic within the SELA area, since emission rates are roughly a function of miles traveled. The spatial units of the SCAG model are Traffic Analysis Zones (TAZ), which are roughly the size of census tracts. There are

216 TAZs within and intersecting the SELA area, and 4,109 TAZs across the entire region. We calculated the 24-hour volume of HDT traffic in each TAZ. The volume density was then calculated using the total HDT volume within each TAZ and dividing that value by the total area of each TAZ, resulting in the HDT volume per day per sq. mile in each TAZ. Figure ES-2a shows all HDT traffic volume density, and Figure ES-2b removes the freeway HDT traffic to better understand the local arterial and street impacts from HDT traffic.

The average HDT volume density with freeways is approximately 40,000 HDTs/day/sq. mile compared to the regional volume density of approximately 25,500 HDTs/day/sq. mile. The average HDT volume density in SELA without freeways is approximately 14,000 HDTs/day/sq. mile compared to the regional volume density of approximately 9,000 HDTs/day/sq. mile. The SELA region is impacted by a higher average volume density than the region with and without freeway volumes. With regard to arterial traffic, the highest volume densities are along the I-5 corridor, along the I-710 to the east of Southgate, and near the border with Long Beach to the south. The I-5 corridor is Los Angeles' historical industrial zone and includes the major intermodal rail yards. The other high-volume locations are located within warehouse and distribution clusters.

Figure ES-2a. SELA freight volume densities by TAZ with freeway volumes included; Figure ES-2b. SELA freight volume densities by TAZ without freeway volumes included



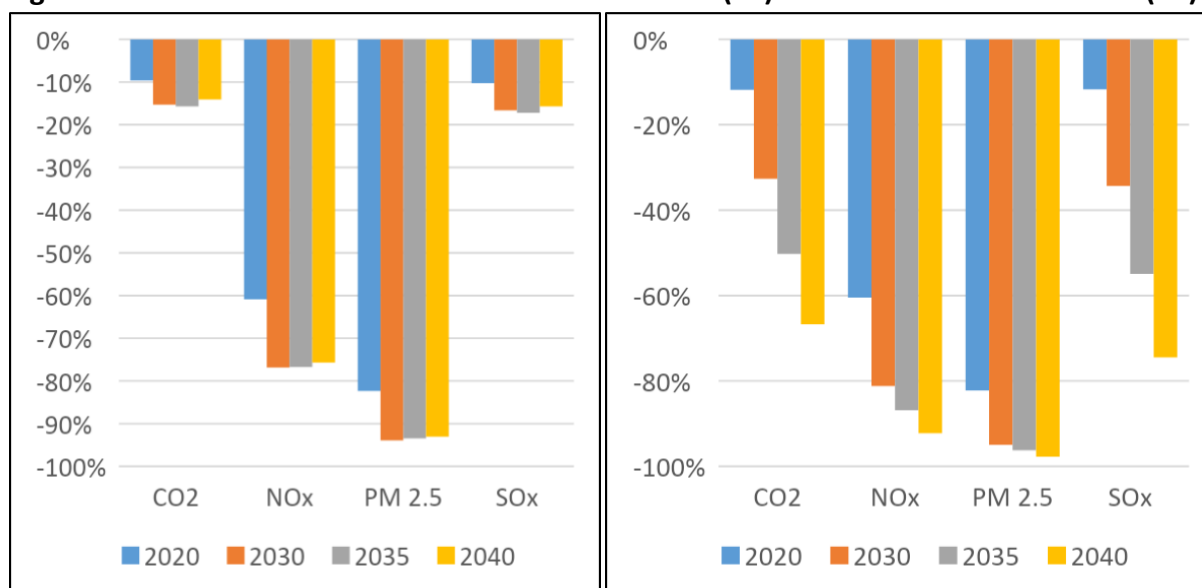
Air pollution is best addressed at the regional level

Air pollution is regulated by the state and local air districts. California has a comprehensive set of policies and regulations aimed at reducing truck emissions, including targets for achieving a zero emission truck fleet. The SCAG data was used as the base for forecasting truck traffic through 2040. In this case all truck types are included. A vehicle emissions simulator was developed and used to estimate changes in emissions for 10 criteria pollutants, including CO₂. Three scenarios were explored:

1. Business as usual (BAU): accounts for all existing regulations up to 2020. Does not include Advanced Clean Truck rule or new executive orders and legislations that mandated the acceleration of new vehicle technology adoption, and new emission standards.
2. Zero emission vehicles: includes all regulations of scenario 1, the 2020 Advanced Clean Truck (ACT) rule targets, and more rapid incremental penetration of battery electric vehicles of all types that scenario 1.
3. Operational improvements: scenario 1 with addition of off-hours deliveries, geofencing to prevent through truck trips from passing through the SELA area

Results show that BAU results in substantial reductions in CO₂, NO_x, PM 2.5 and SO_x despite an estimated nearly 50% increase in truck VMT by 2040. If the ACT rule targets are achieved, and other decarbonization strategies implemented, emissions would decrease further. See Figure ES-3a and b.

Figure S-3a and S-3b. Emissions reductions from BAU (3a) and Zero emission vehicles (3b)



Off-hours deliveries were modeled by shifting some truck traffic from peak periods to off-peak periods. Several alternatives were tested: shifting 10-30% of traffic from AM to evening, from

mid-day to evening, etc. Changes in average speed as a result of traffic smoothing contribute additional emissions reductions: 7 – 15% for CO₂ and 4-5% for PM 2.5. The final scenario explored the possibility of geofencing to prevent through truck traffic within SELA. This was done by assigning high costs to road and highway segments in the simulation model. Since deviating traffic away from SELA results in a longer path, VMT increases slightly overall, as does emissions. However, the scenario results in large reductions of emissions within SELA. Since the additional VMT are spread throughout the region, there is no disproportionate concentration of emissions elsewhere.

Our results show that state regulatory policies will result in substantial reductions of emissions not only within SELA but throughout the region. More aggressive targets, including the recent ACT program, will generate additional reductions. As a major generator of truck traffic, the SELA area will reap large localized benefits from these reductions.

HDT-related traffic safety is a serious problem in SELA:

SELA has large pockets of residential areas impacted by the volume of freight activity. A community focus group identified safety, noise, and health as significant impacts of HDT traffic in their neighborhoods, with safety being the most important. Residents spoke about the overwhelming presence of HDTs on streets causing anxiety and fear, especially in areas where children walk to and from school. To address these concerns, the team conducted an analysis of HDT involved crashes.

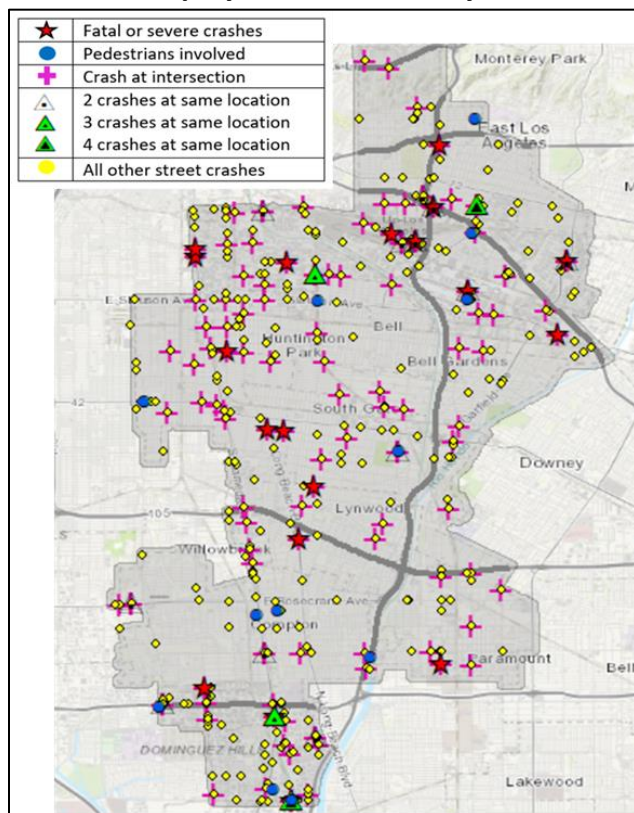
The crash analysis used four years of data (2015-2018) from the Transportation Injury Mapping System (TIMS), which consolidates crash data collected by the California Highway Patrol. Both highway and street crash data are included. HDT-pedestrian, HDT-other vehicle, and HDT-property records were extracted from the database. The analysis is restricted to heavy duty HDTs (class 7 or higher). Table ES-2 gives SELA crash rates vs City of LA and LA County. SELA has a higher rate of HDT incidents on a square mile basis and higher fatalities as a percentage of the total than the other areas (data not available to calculate crashes per miles traveled). For the period studied, SELA arterial street crashes make up 55% of the 743 HDT crashes (highway and non-highway).

Table ES-2: Heavy duty HDT involved crashes 2015-2018

	SELA area	City of Los Angeles	Los Angeles County
Total crashes	743	2,674	7,935
Crashes per sq mi	11.4	5.7	2.0
Total fatalities	24	62	232
Fatalities/crash	3.2%	2.3%	2.9%

To better reflect the local experience with HDTs, we eliminate crashes on freeways and examine crashes on arterials and ramps. Figure ES-4 maps these crashes by type (fatal or severe, pedestrian involved), frequency (number of crashes in same location), and location (intersection or other). Of these crashes, 31% occur at intersections, and 12 locations have more than one crash recorded. Statistically significant spatial clusters of arterial HDT crashes are located in the City of Rancho Dominguez, BNSF intermodal yard, the I-5 and I-710 freeway to freeway interchange areas, and Alameda Street. Eighty-two percent of crashes occur during the weekdays, with over 50% occurring during regular business hours. On average, four people were killed and 127 injured per year by HDTs on city streets. A small number of crashes involved pedestrians (25 of 407, 6%) but made up 38% of the fatal accidents. Of these pedestrian accidents, 42% occurred at legal intersections. The top three causes of street HDT collisions are unsafe speed, crossing the right way of another vehicle, and improper turning. Combined, these account for 59% of all crashes.

Figure ES-4. SELA map showing heavy-duty HDT crashes (excluding freeways) from 2015-2018. ArcMap by Environmental Systems Research Institute, Inc.

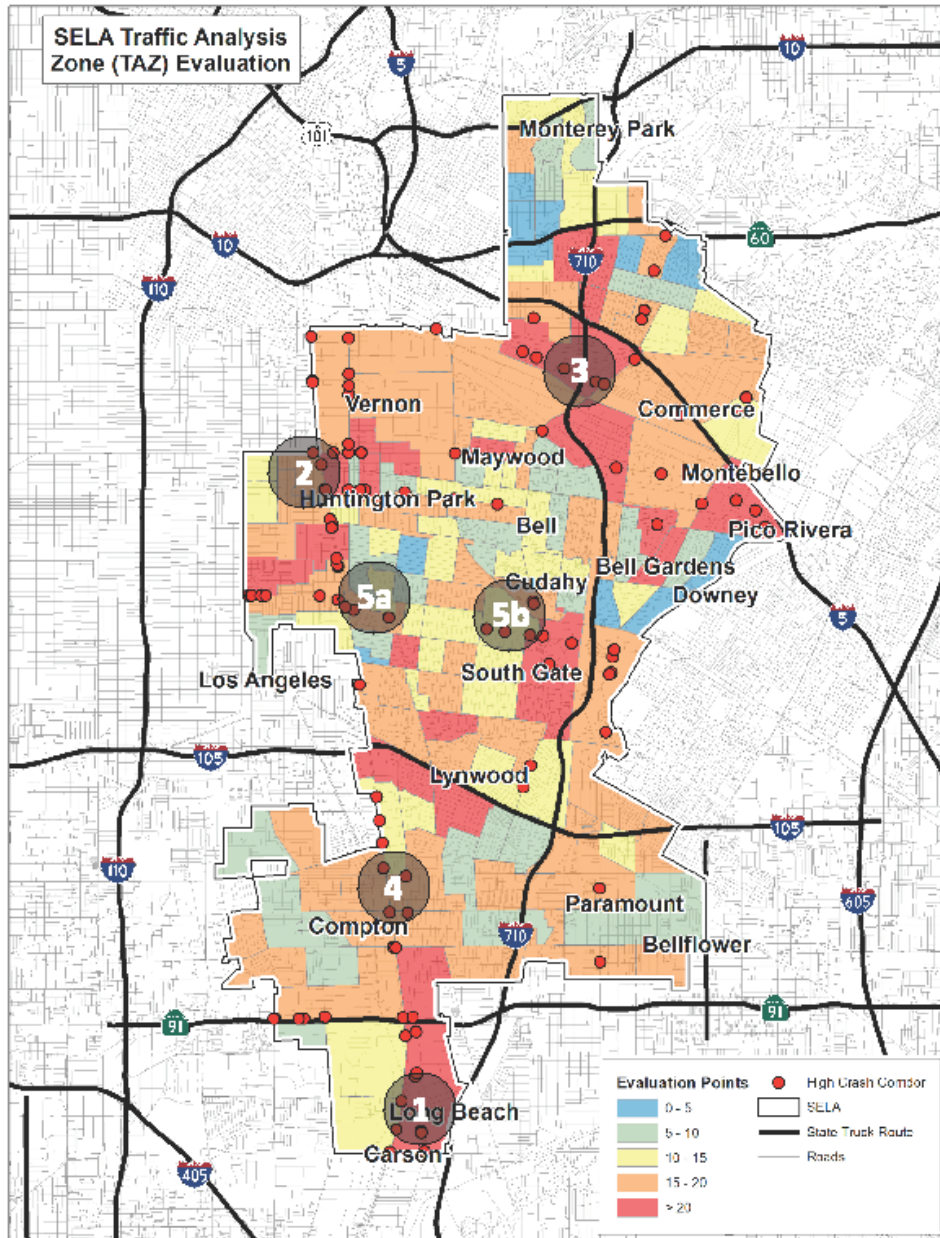


Solving safety problems requires highly localized solutions

We conducted a hotspot analysis to address concerns raised by key stakeholders and SELA area community members and identify specific sites in need of improvement. The hotspot analysis

is based on crash data, HDT traffic, land use, and presence of schools. Results are shown in Figure ES-5. Six locations were identified as hotspots, and field surveys of each were conducted.

Figure ES-5. SELA hotspot evaluation zones and high-interest areas.



We selected two locations for in-depth study based on the hotspot analysis and community discussions. The case studies are intended to provide guidance to the community to advocate safety improvements. The locations are the intersection of Alameda Street and Slauson Ave, and Firestone Blvd (see Figure ES-5, locations 2, 5a, and 5b). We used traffic simulation modeling to examine reconfiguration of intersections and the divided structure of Alameda

Street, and use of geofencing to prevent route deviations from Firestone Blvd onto residential streets. Results provide examples of how solutions can be generated for specific safety problems.

Summary of freight policy recommendations

The successful implementation of vehicle technology-related and other operational strategies included in current regulations to reduce emissions will require support and funding. To achieve success, continuous programs that offer adequate incentives (monetary and non-monetary) are needed to help during the transition and to foster an equitable distribution of benefits. The technical limitations of ZEV HDTs related to load capacities and ranges will have to be addressed, and major investments in fueling infrastructure will be required.

Local pollution hotspots in SELA can be mitigated by accelerating the transition to zero and near zero emission trucks operating within SELA. Charging stations should be considered in the I-5 corridor, the Carson area warehousing cluster, and the Alameda Street industrial corridor. Low emission zones may be considered to promote use of cleaner vehicles in these areas. There is potential for the SELA region to participate in demonstration projects related to these policy and technology implementations

Local HDT safety hotspots should be evaluated for operational changes. Our hotspot analysis revealed specific problem areas with higher-than-average HDT crashes and exposure to residential areas and schools. To improve upon pedestrian and traffic safety specific operational and geometric improvements are recommended for the Alameda Street corridor, by potentially eliminating the Alameda Street Auxiliary or one-waying the auxiliary, and along the Firestone Boulevard corridor by updating traffic signal timings along the corridor and along major cross-street corridors to minimize HDT traffic diversions onto side-streets and Southern Avenue. It is recommended that the remaining hotspots be similarly evaluated.

Geofencing should be considered to reduce HDT traffic in residential areas. To further minimize localized pollution impacts in the interim period, geofencing policies should be implemented to keep heavy duty HDTs out of residential neighborhoods. In some cases, HDTs deviate routes to save time. Geofencing would also have the additional benefit of pedestrian and traffic safety in these neighborhoods.

SELA Collaborative should partner with local governments to achieve traffic safety changes. Our hot spot analysis showed that each safety problem is unique. Operational improvements

have the potential to reduce risk, and these changes are largely under the jurisdiction of municipalities.

Summary of findings: Transit service

We examined access to jobs by car and by transit to evaluate the performance of existing public transit services and how it might be improved. We focus on possible network changes including different headways and first/last-mile transit access options (bikeshare or shuttles). We use a common measure of job access -- the number of jobs that can be reached in a transit trip within set travel times of 30 or 60 minutes. We use this approach to then simulate how job access changes for several possible changes in the transit network. We examined headway changes, the addition of the in-planning West Santa Ana Branch (WSAB) light rail line, and improved first-last mile access to transit stations. We find that the largest job access increase results from improved first-last mile access to stations.

The job access scenario analysis was envisioned as the central focus of the transit access research, but we adjusted the research in two ways based on evolving circumstances and the needs of the SELA community. Our early focus groups with the SELA community revealed that the cleanliness, timeliness, and service quality of the transit system were perceived as being as important as the connectivity of the transit network. We adjusted the research to add a small service-quality survey and we also summarized insights from L.A. Metro rider surveys to add insights that respond to those community concerns. In March of 2020, the still unfolding COVID-19 pandemic reached the U.S. and Metro, like virtually all large transit operators, had to reduce service. We added an assessment of the impact of those COVID pandemic changes on transit access.

Data and Methods: Transit Scenarios

We utilize the 2017 LODS Workplace Area Characteristics (WAC) data and the Remix commercial transit access tool to examine how changes to the transit network could change job access in the SELA region. Our simulations were conducted at the city level, for the fifteen cities or unincorporated areas in SELA. We modeled the following scenarios: Baseline (the transit network as of March 2019); 10-minute headway, system-wide (increasing frequency to at least 10 minutes, morning weekday peak hour, for all L.A. Metro transit lines); 10-minute headway, SELA region only (increasing frequency to at least 10 minutes, morning weekday peak, only for lines that traverse SELA); adding the West Santa Ana Branch (WSAB) light rail line (currently still in planning); and first/last-mile options that simulate station access/egress via bicycle speeds (e.g. bikeshare) or automobile speeds (e.g. shared ride or shuttle to/from stations). We also examined the impact on transit job access of the April, 2020 L.A. Metro service changes due to the COVID-19 pandemic and the regional job losses due to the early stage of the pandemic-induced recession.

All scenarios were run based on the following assumptions:

- Departure time: 9am Weekday (morning peak)
- Wait time: average (1/2 headway) for all the scenarios except for WSAB which used actual (based on real timetable as represented in Remix)
- Travel mode for accessing to/egressing from transit stops: walking (except for First/Last-mile options), the speed of which is approximated at 3 miles per hour.

The assumptions were kept the same across the scenarios. We note that 9 a.m. is the shoulder of the morning peak, and will not reflect the highest levels of peak congestion. The bicycle access scenario approximates bicycle access speed at 8.1 miles per hour, and the automobile access scenario approximates car access speed at 17.4 miles per hour. Details are in Appendix A of the full report.

Job Access Scenarios: Highlights of Results

Results of selected key scenarios are shown in Table ES-3. The baseline (March, 2019) job access from each of the 15 SELA communities is shown in the left-most column, and then the additional jobs for four scenarios are shown: reducing headway for all transit lines passing through SELA to 10 minutes (moving any line with baseline headway greater than 10 minutes to a 10 minute headway), adding the WSAB as currently planned, moving station first-last mile access/egress speeds to the speed of bicycle travel, and moving first-last mile access/egress speeds to the speed of car travel. Each column to the right of the baseline job access shows first the increase in the number of jobs that can be reached via transit in 30 minutes (Jobs+) and then the percentage increase (Jobs+%).

Table S-3. Selected Scenarios, 30-minute transit travel time job access

Scenario City	Base 9am N of Jobs	Headway -SELA		Add WSAB Rail		First-Last Mile Driving		First-Last Mile Biking	
		Added jobs	Added %	Added Jobs	Added %	Added jobs	Added %	Added jobs	Added %
Bell	66,822	6,701	10%	6008	8%	143192	214%	50347	75%
Bell Gardens	37,087	29,804	80%	2361	5%	154016	415%	40155	108%
Commerce	52,360	16,927	32%	0	0%	425454	813%	202297	386%
Compton	42,823	43,840	102%	0	0%	111940	261%	39208	92%
Cudahy	61,437	21,552	35%	5340	15%	102772	167%	26206	43%
East Compton	29,460	55,630	189%	0	0%	99548	338%	37701	128%
East LA	383,546	34,717	9%	0	0%	422146	110%	142628	37%
Florence-Walnut Park	56,074	8,971	16%	2777	4%	129607	231%	48676	87%
Huntington Park	63,534	34,407	54%	12899	13%	97001	153%	26775	42%
Lynwood	34,204	5,605	16%	0	0%	139854	409%	54099	158%
Maywood	112,116	23,006	21%	5798	6%	156266	139%	37623	34%
Paramount	24,202	47,627	197%	2022	5%	53030	219%	23977	99%
Rancho Dominguez	47,423	0	0%	0	0%	51354	108%	9287	20%
South Gate	28,152	16,390	58%	0	0%	52852	188%	24485	87%
Vernon	36,669	52,256	143%	0	0%	93455	255%	26646	73%
Unweighted Average	71,727	26,496	37%	2480	2.8%	148,832	207%	52,674	73%
Weighted Average *	85,850	26,216	31%	2,338	2.2%	156,573	182%	56,075	65%

Among all the potential changes to the transit network, first-last mile options such as bikeshare or shuttles are the best ways to increase transit job access. Bicycle speed first-last mile station access would increase transit job access by 65% over baseline in the SELA region, while driving speed first-last mile station access would increase transit job access by 182% over baseline. Bringing all transit lines in the SELA region to 10 minutes or less headways would increase transit job access by 31% over baseline, and the same 10 minute or less headway system wide (not shown above but see the full report) brings a 34% increase in SELA transit job access. All these results are population weighted averages of the access improvements in the fifteen SELA cities and unincorporated areas, modeled for 9 a.m. weekday departure times.

Adding the West Santa Ana Branch light rail line, as currently planned, increases transit job access on average in SELA's cities by 2.2 percent. The West Santa Ana Branch provides larger job access increases in cities with stations, increasing transit job access in Cudahy by 14.5% over baseline and in Huntington Park by 13.2% over baseline. Not shown above but modeled in the full report, we examined the job access changes that resulted from service changes that L.A. Metro implemented at the beginning of the COVID-19 pandemic. In response to COVID-19, L.A. Metro reduced service systemwide in April 2020. Those service changes reduced transit job access by 19% relative to baseline in the SELA region.

The spatial pattern of job access changes from reducing headways, systemwide and only in SELA, and from moving first-last mile access to bicycle and driving speeds are shown in Figures ES-6 and ES-7.

FIGURE ES-6. The Percentage of Increase in Job Access after Headways Being Decreased to 10 Minutes During Peak Hours on Weekdays

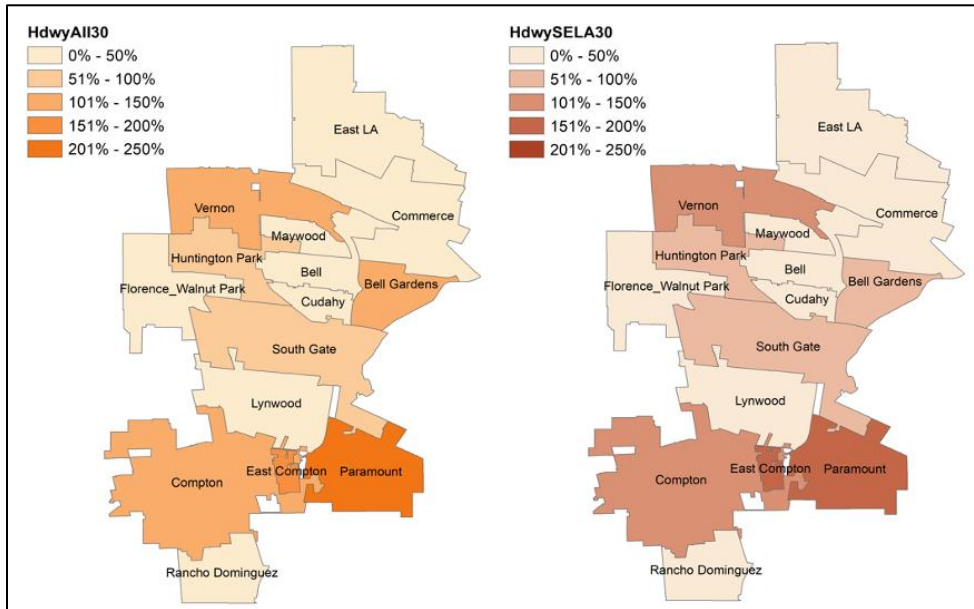
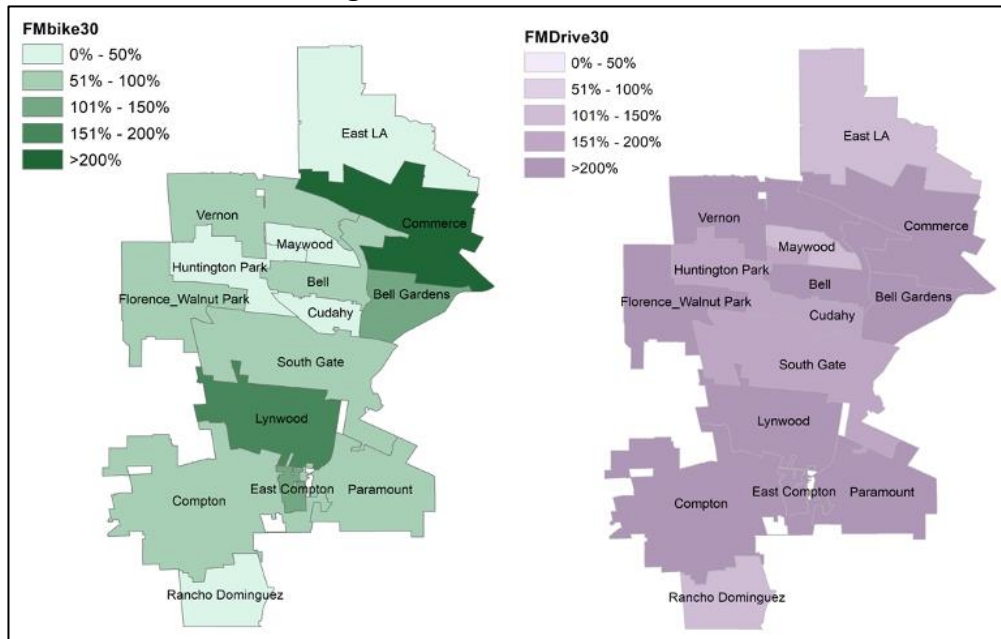


FIGURE ES-7. The Percentage of Increase in Job Access with Bikeshare or Rideshare Options

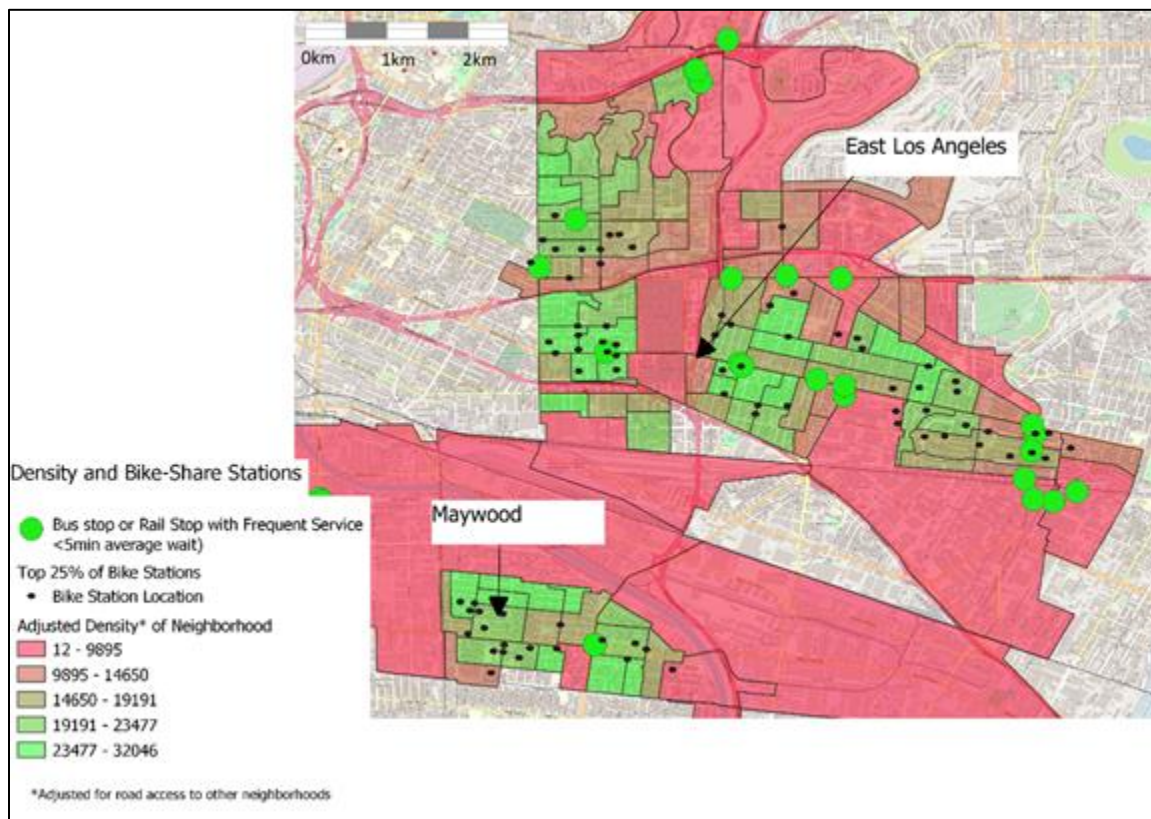


Docked Bikeshare Case Study

Because first-last mile improvements had the biggest impact on transit job access in our scenarios, we conducted a case study of the potential impact of a docked bikeshare system in two SELA study locations – East Los Angeles and Maywood. We used data on docked bikeshare ridership and land use correlates from CitiBike in Brooklyn, New York, to develop a siting method for a docked bikeshare program in East Los Angeles and Maywood. The Brooklyn neighborhoods used for CitiBike data have census block group population density of 21456 - 47287 people per square mile compared to population densities in our East Los Angeles and Maywood study areas of 16983 and 23255 people per square mile. Note that this is a simulation exercise. We did not discuss the interest in community bikeshare in either community.

We identified optimal bikeshare locations by choosing one location in each 300 x 300 meter grid cell in those two communities, based on population density, planned bicycle lanes, access to high frequency (10-minute or less morning peak hour) transit, and access to parks. The top 25 percent highest scoring possible locations for docked bikeshare are shown in Figure ES-8.

Figure ES-8. Location of the Top 25% Highest Score Bikeshare Locations, East Los Angeles and Maywood



We found that a docked bikeshare system with those top 25% highest scoring locations - the 78 locations shown above - could bring approximately two-thirds of the population in East Los

Angeles and Maywood within a 10-minutes bicycle ride of high frequency transit (a transit stop with morning peak frequency less than 10 minutes.) Implementing 310 docked bikeshare locations in the two locations would bring over 85 percent of the population of East Los Angeles and Maywood within a 10 minute bicycle ride of a high frequency transit station, as shown in Table ES-4.

Table ES-4. Population Within 5 and 10 Minutes of High Frequency Transit, Walking and Docked Bikeshare, East Los Angeles and Maywood, Straight-Line Travel Times

Category	No Bike-share System (walking station access/egress)	Top 25% of Bikeshare Locations	All 310 Bikeshare Station Locations
Population within 5-minute commute to frequent transit	34,716	52,342	103,800
Population within 10-minute commute to frequent transit	87,869	105,987	138,103
Total Population of Case Study Area	159,243		

Focus Group and Survey Analysis

Focus group members raised concerns about bus service in SELA, especially issues related to reliability, safety, and cleanliness. To examine this further, we designed a survey to gather insights from local residents and help us understand transit service in the SELA neighborhood. We partnered with the SELA Collaborative for survey design and distribution. Due to the COVID-19 pandemic, what we had anticipated would be an intercept survey, distributed at or near transit stops, had to be distributed via social media and in limited cases through flyers distributed by SELA. The distribution dates were from April 10, 2020 to July 31, 2020. We received a total of 77 responses with 80% of respondents living in the SELA region. Note that the survey period occurred during the early wave of the pandemic, when concerns about COVID were particularly high. While the questions asked about typical travel experiences, unrelated to COVID, the nature of responses or the sample of the respondents was likely affected by the pandemic conditions during that time period.

Results showed that 59% (35) of respondents have seen a bus drive by without stopping. Of those, 45% (14) said there was still room on the bus, but the bus did not stop.

We compared the results of our small pilot survey with results from L.A. Metro's onboard rider survey, conducted October through November, 2019. Metro's onboard survey had 10,652 respondents. Metro's onboard rider survey, from before the pandemic, provides a snapshot of pre-pandemic sentiment. We selected responses from bus lines that went through the Gateway Cities governance council area, which includes an area that goes beyond SELA but also includes

the SELA study communities of Bell, Bell Gardens, Commerce, Compton, Cudahy, Huntington Park, Lynwood, Maywood, Paramount, South Gate, and Vernon. The results of Metro’s onboard survey differed from our social media pilot survey. The L.A. Metro survey found that 85% of respondents in the Gateway Cities feel safe while waiting for and riding on the bus, and that more than 80% of the respondents agreed that the bus and bus station areas are clean.

The L.A. Metro on-board had a larger sample, drawn from riders. Due to the COVID-19 pandemic, our pilot survey was circulated via social media. We note the different sampling methods. While the Metro survey indicated a high level of satisfaction, our focus group results were more consistent with our pilot survey, indicating concerns about the perceived safety and cleanliness of the busses and bus stops in SELA. We note that focus group respondents emphasized service quality – including whether drivers stopped when persons were waiting and the sense of safety and cleanliness – as more important than access characteristics for encouraging transit use.

Policy Recommendations for Transit Access

L.A. Metro should expand their on-demand shuttle pilot in the SELA region. Los Angeles Metro launched an on-demand shuttle service, called Metro Micro, in October of 2020. The shared ride pilot service has expanded to five pilot areas with four more launching in 2021. Of those, the Watts-Willowbrook area serves the central part of the SELA region. The service allows users to schedule a shared ride, on small shuttle vehicles, at an introductory rate of a dollar per ride. Metro Micro provides rides within local service areas during designated service hours, currently 5 a.m. to 11 p.m. in the Watts-Willowbrook service area.

We recommend that L.A. Metro prioritize expansion of Metro-Micro into other parts of the SELA region. Our simulations show that every one of the fifteen SELA study areas can more than double their job access if riders can access stations at driving speeds. Particularly attractive locations for an expansion of Metro-Micro are Commerce in the northern part of the SELA region, Bell Gardens and Lynwood (see the full report for details on these results.) Funds will likely be available from federal and state stimulus and pandemic recovery programs.

L.A. Metro should work with cities and partner entities to bring a robust bikeshare program and bicycle infrastructure to the SELA region. The best location for a bikeshare pilot should be examined in collaboration with the community, but we note that the job concentrations and existing high frequency bus lines in the northern part of the SELA region suggest that a promising early opportunity for docked bikeshare focused on station access would be in the northern part of SELA.

Successful bikeshare programs require supportive infrastructure, including separated (Class IV) bikeways or cycle tracks. Sidewalks should remain wide enough, even with docked bicycle stations, to allow easy access for persons with disabilities. Traffic safety is an important issue in

SELA – a point reinforced by the freight focus groups’ comments about traffic safety related to HDT travel through the region. We recommend that a bikeshare program include development of a network of bicycle lanes – ideally separated and protected from traffic – to allow safe travel. Bikeshare should be implemented with consultation and full participation of the community.

The two recommendations above will help bring first-last mile station access in the SELA region to bicycle or car speed. First-last mile improvements only within SELA will not deliver the full job access increases from the scenarios. Yet even if one assumed that the first-last mile job access improvements that we modeled would be cut in half from programs that only improve access at origin stations within SELA – certainly an underestimate given that some trips are wholly within SELA – half of the modeled first-last mile improvements would still deliver important job access gains.

Prioritize bus frequency improvements in the SELA region. Based on our analysis, we recommend that Metro prioritize studying and implementing frequency improvements in the SELA region as part of their restoration of service with the waning of the COVID-19 pandemic.

Continue to focus on improved transit service. Our focus group participants highlighted their concerns about the safety, cleanliness, and reliability of L.A. Metro bus lines. They mentioned concerns about the quality of transit service more often than they discussed job access. Given the differences from LA Metro on-board surveys, we recommend that L.A. Metro supplement their on-board surveys with focus groups organized in collaboration with SELA community groups. The SELA Collaborative can provide more information about community groups in the SELA region.

Plan for first-last mile access to future West Santa Ana Branch light rail stations. Our analysis demonstrates the importance of first-last mile connections to West Santa Ana Branch stations. Those first-last mile connections can make the West Santa Ana Branch a valuable access tool for the entire SELA region. We recommend that SELA cities, regional and West Santa Ana Branch planning bodies, and L.A. Metro collaborate to prioritize robust bicycle, pedestrian and shuttle access to West Santa Ana Branch stations.

Restore transit service to pre-pandemic levels at the earliest opportunity. Understanding that service restoration depends on demand and budgets, we recommend that L.A. Metro move to reverse the pandemic transit service reductions as soon as feasible.

Summary of recommendations for implementation

The overall goal of this research is to move some recommendations to implementation. To accomplish this, we make the following recommendations:

- Communicate study results to the larger SELA community through a community open meetings, social media and print communications.
- Promote clean HDT pilot programs and demos in the SELA region, as well as EV infrastructure investment
- Work with cities to promote specific intersection improvements, other operational strategies including addressing bicycle facility and pedestrian sidewalk gaps to improve traffic, pedestrian and bicyclist safety
- Work with LA Metro to further explore transit service issues and first and last mile needs for bicyclists and pedestrians who access transit
- Explore Metro Micro on-demand service and bikeshare solutions as opportunities for further study.