Low-Income Barriers Study, Part B: Overcoming Barriers to Clean Transportation Access for Low-Income Residents

APPENDICES
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Appendix A: Public Process

To better understand the barriers and opportunities to clean transportation and mobility option access, California Air Resources Board (CARB) staff undertook a public process throughout low-income communities in California to hear directly from community members and clean transportation advocates what issues and barriers they encounter. CARB and the California Energy Commission (CEC) integrated public processes where feasible, given the importance of connecting access to clean transportation and affordable energy for low-income residents and disadvantaged communities.

Staff appreciates and thanks community residents, community-based organizations, community advocacy and environmental organizations, and other stakeholders for dedicating time and resources participating in this effort. Input and feedback from the community meetings summarized in this appendix is included in the Guidance Document analysis of barrier categories and reflected in staff’s recommendations.

While each of the communities exhibited unique characteristics, several common themes were present among them. Top themes among communities included the following:

- The higher cost of new and used clean vehicles is an affordability barrier to ownership. Increase clean vehicle and charging infrastructure incentives for low-income residents, and improve incentive and education outreach to low-income consumers. Multi-language outreach is needed, especially Spanish.
- Unacceptable commute times, chronic delays, lack of weekend and evening service, and lack of regional connectivity are reliability barriers to using public transit.
- Fear of crime, injury and personal safety are overarching accessibility concerns and deterrents to using active transportation (biking, walking), and public transportation.
- Subsidized vanpools, shuttles or carpools were suggested by residents for groups of commuters going to the same work location (e.g., hotel, industrial site, agricultural facility), and as a transportation accessibility solution for off-hours shift workers, or for addressing parking issues.
- The absence of dedicated pedestrian sidewalks and bicycle facilities, and unsafe conditions created by high vehicular traffic speeds and volumes creates a multiage accessibility barrier that deters many low-income residents (adolescents, adults, persons with disabilities, and elderly), from walking and biking.
- Transportation and mobility needs vary among low-income communities. Statewide community-based assessments should be a continuing component of this effort moving forward.
The steps below were included in CARB’s public process:

1. **Meetings in Low-Income and Disadvantaged Communities:** CARB engaged in community-based roundtable meetings, participated in Environmental Justice Advisory Committee (EJAC) local community meetings, and held numerous individual meetings with community-based organizations, environmental groups and various State and local agencies.

2. **Case Study Reviews:** CARB evaluated four low-income communities, representing rural, urban and tribal regions, through meetings hosted by community-based organizations. In these meetings, staff had the opportunity to hear directly from low-income residents. Case studies also included a literature review component to further understand the regional setting, community characteristics, and community transportation profile. Information from the meetings and literature reviews were used to identify transportation barrier and opportunities, and provide recommended actions to increase clean transportation access.

3. **Additional Literature Reviews:** In addition to those above, CARB conducted literature reviews for an additional seven low-income communities. While more limited in scope than the case studies, the reviews were nonetheless of value and may lead to further study of these communities in subsequent project phases. Low-income communities were selected from throughout the State that are representative of urban, suburban, and rural settings.

4. **Research Project Reviews:** Current and proposed CARB-sponsored research projects and other transportation-related research relevant to the SB 350 goals were identified and reviewed.

5. **Ongoing Stakeholder Coordination:** CARB has maintained ongoing, informal dialogue with key stakeholders during development of the guidance document and recommendations. CARB provided stakeholders with early review drafts, asking for feedback and input that went into developing the public drafts.

The case studies and literature reviews are contained in Appendix B: Case Study and Literature Review Information, while research projects are in Appendix C: Research Projects.

**Process Initiation**
This section describes how the public process was initiated, what meetings where held, and what groups participated. Meetings included the project kick-off call, public roundtable meetings, community-based meetings associated with case study development, EJAC community-based meetings, the public comment period, and ongoing consultation with the CEC and other participating agencies.

The public process began in early 2016 when CARB staff contacted various local, regional, and metropolitan planning and transportation agencies, air districts, environmental organizations, environmental justice, equity, and advocacy groups.

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CARB took a multifaceted approach to outreach for this effort to maximize input and foster continued collaboration. A description of each step in CARB’s process is provided in more detail below.

**Project Kick-Off Conference Call**
On February 3, 2016, CARB held a project kick-off conference call to introduce the SB 350 study and explain the statute’s requirements, discuss with stakeholders their expectations for the study outcomes, and develop a plan of outreach to engage the public.

The main outcomes were initiating the process and informing attendees of upcoming meetings and how to remain involved throughout the development process. This meeting resulted in the development of a distribution list and a dedicated informational website on upcoming meetings and project-related information.

**Public Roundtable Meetings**
One of the ways CARB staff fostered collaborative and interactive thinking was to host public roundtable meetings. Staff held two public roundtable meetings open to the public to discuss barriers, opportunities, and recommendations to increase clean transportation access for low-income residents.

- March 30, 2016: Sacramento
- June 1, 2016: Sacramento

**First Roundtable Meeting Summary**
The March 30, 2016 roundtable meeting was held in Sacramento at the Cal/EPA headquarter building, with a conference call available for those unable to physically attend. The purpose of the meeting was to introduce the project, and ask for feedback on potential barrier categories to clean transportation and mobility options.

CARB invited guest speakers for this meeting to ensure multiple perspectives on transportation issues communities across California face, and to encourage open discussion. CARB provided an overview of the SB 350 requirements, proposed barrier categories to review in 2016, and existing transportation and accessibility research. Speaker comments are summarized below:

- Sekita Grant (Greenlining Institute) provided an overview of the geographic and regional differences facing low-income residents that should be considered given Guidance Document’s statewide focus. Additionally, she stressed that each community around the State will have its unique challenges. She discussed current transportation and infrastructure, and how it relates to overall accessibility for low-income residents to employment, goods and services, etc.
- Bahram Fazeli (Communities for a Better Environment) provided an overview of community needs and the importance of working at the local level with
community-based organizations to ensure transportation and mobility requirements are better understood.

- Creighton Randall (Shared-Use Mobility Center) provided an overview of the importance of connecting clean transportation policy and implementation.

The following themes, observations and issues were discussed:

- Roads must be in good condition to allow for viable clean transportation and mobility options in low-income and disadvantaged communities.
- Rural communities need to be considered in SB 350 discussions.
- Communities have long-term needs and policies in place, but not funding. GGRF investments are limited and do not reach in all areas of the State. A focus on rural and tribal areas, and Census Designated Places is needed, but often critical data is lacking and the tools used for making important decisions exclude these vulnerable locations of the State.
- Across California, public transit maintenance is facing funding cuts and experiencing funding shortfalls. Funding sources in additional to GGRF is needed to meet the needs of these projects.
- Stakeholders support the framework of this study to be a “guidance document,” designed as a path forward to a better understanding of how to increase access to clean transportation and mobility options for low-income residents. Low carbon transportation projects and investments require partnerships with community-based organizations that already have an established sense of trust in low-income and disadvantaged communities.
- A community driven approach to understanding barriers to clean transportation access is critical. However, CARB should also keep in mind that community-based organizations have limited resources and time. As such, stakeholders requested that CARB staff make sure resources and opportunities are provided that allow communities to engage effectively.
- Caltrans needs to be engaged in the SB 350 effort because they control State dollars used for transportation projects. Infrastructure is important. More planning agencies need to be involved and providing input. Highway placement can cut off and marginalize communities, and reduce residents’ mobility.
- The study goal should focus on recommendations to get low-income residents into biking and walking, and other alternative mobility options and out of cars, or into clean vehicles.
- CARB should highlight other programs that may complement this effort, such as CEC’s vehicle ownership surveys to be completed in 2017, which can provide important insight into what influences zero-emission vehicle purchases. In addition, CEC has been providing funding for zero-emission vehicle readiness planning which can provide important insight into this effort.
• Traditional funding sources for clean transportation and mobility projects are not yet in sync with policy-level goals. Funding needs to be coordinated across agencies and long-term commitments made across multiple funding sources (state, local, federal, and private).

• There is a substantial need for biking infrastructure in rural areas, and a corresponding need for safety education.

• Zero-emission ferries should be considered as a transportation option for review when evaluating communities in the San Francisco Bay Area.

Second Roundtable Meeting Summary
On June 1, 2016 a roundtable meeting was held in Huntington Park in southeast Los Angeles, at the Communities for a Better Environment headquarters building. The purpose of the meeting was to provide the public with an update on the project and discuss barriers, opportunities, and recommendations to increase clean transportation access for low-income residents. Staff invited guest speakers for this meeting to ensure multiple perspectives, and to encourage an open discussion.

Staff facilitated the discussion, first providing an overview of the SB 350 project and the importance of ensuring the study included reviewing and understanding multiple clean transportation and mobility options, such as biking and walking. Laurie Waters from the California Transportation Commission then provided an overview of the Active Transportation Program, and current efforts underway to increase active transportation in disadvantaged communities.

The meeting continued with breakout sessions allowing focused discussions on different barrier categories, including:

• Transportation Planning, Infrastructure, and Investment
  ○ Facilitated by: Jeanie Ward-Waller, California Bicycle Coalition

• Accessibility and Convenience of Transportation Options, Including Public Safety and Access to Technology and Banking, and Reliability and Affordability of Transportation Options
  ○ Facilitator: Ashley Dunn, California Air Resources Board

• Community-based Needs, Including Public Health and Safety
  ○ Facilitator: Bahram Fazeli, Communities for a Better Environment

• Transportation Education and Outreach, Including Awareness, Attitudes, Interest and Potential Opportunities
  ○ Facilitator: Violet Martin, California Air Resources Board

The main observations and feedback from this meeting included:
• Communities need additional assistance and resources to apply to State and local grant programs.

• Selection criteria for grant funding needs to place less emphasis on conventional credentials, (i.e., college degrees, experience, etc.). The selection criteria for grant funding needs to consider whether a project can be replication in additional area (leapfrog approach to minimize resources and share lessons learned across communities).

• Interagency coordination is a barrier in and of itself, in addition to local government planning.

• “Not in my backyard” philosophies can also be a barrier to using cleaner public transportation or mobility options.

• The perception that roads are meant only for cars needs to be changed to allow for adoption of active transportation, including safe paths and pedestrian spaces.

• Even though SB 350 mentions barriers to zero-emission and near-zero emission, CARB should focus on zero-emission technology now rather than a partial transition to near-zero. Transformational changes are needed to increase access for low-income residents.

• Different communities have different clean transportation needs,

• This project is an opportunity for CARB to gain familiarity at the local and regional levels and change perception of clean transportation through pilot projects.

• Needs assessment/evaluation are necessary for non-infrastructure projects

• When considering improved public transportation, ‘anti-displacement’ strategies are vital to eliminate the risk of gentrification.

• Better integration with other low-income programs (e.g. one stop shop) is critical to streamline grant and rebate application processes.

• User experience and comfort/safety are often a barrier to access clean transportation options.

• Linking technology with clean transportation and mobility programs (e.g. provide smart phone with application), is necessary.

**Community-Based Meetings**
Staff attended four community meetings hosted by community-based organizations. These meetings were regularly held meetings that include low-income residents in attendance. This allowed staff to leverage a forum that promoted collaboration and trust. Staff was given the opportunity to provide information on clean transportation and mobility options within the community, present information on the Guidance Document, and receive input and feedback on barriers and opportunities to increase access.

• June 1, 2016: Huntington Park
Additional information from these community meetings including barriers and recommendations is described in Appendix B: Case Study and Literature Review Information.

Environmental Justice Advisory Committee Community-Based Meetings

The California Global Warming Solutions Act of 2006, (Assembly Bill 32; Stats. 2006, chapter 488) calls for CARB to convene an Environmental Justice Advisory Committee (EJAC), to advise the Board in developing the Scoping Plan, and any other pertinent matter in implementing AB 32. It requires that EJAC be comprised of representatives from communities in the State with the most significant exposure to air pollution, including, but not limited to, communities with minority populations or low-income populations, or both.

Throughout the summer, EJAC and the CARB held a series of community-based meetings throughout California on the State’s climate plan. These meetings included presentations and discussion groups featuring the major topics of the State’s climate plan, including industry, transportation, agriculture and more.

Staff working on this Guidance Document attended eight of these meetings in order to gain additional information from low-income residents and stakeholders related to barriers and opportunities for clean transportation access. When feasible, staff also surveyed meeting attendees, and asked questions related to travel behavior and gaps in current transportation access.

- July 11, 2016: San Bernardino
- July 14, 2016: San Diego
- July 19, 2016: Oakland
- July 28, 2016: Modesto, Fresno, and Bakersfield (via video conference system)
- July 26, 2016: South Los Angeles
- July 29, 2016: Sacramento
- October 22, 2016: Brawley
- November 4, 2016: Orleans

Input and feedback from these meetings has been included in the analysis of barrier categories and staff’s recommendations. The following is a summary of some of the comments meeting participants made regarding accessing clean transportation and mobility options.
San Bernardino
- Innovative outreach and education strategies targeting low-income residents.
- The higher cost of electric vehicles is a barrier to ownership.
- The range of the cars and charging options/availability is not clear to residents.
- Accessibility, affordability, and safety of public transit are significant concerns that keep some residents from using these services.

San Diego
- There is a need for organized transportation for hotel service, shift, and shipyard workers. These workers cannot access public transportation during their working hours, and are not comfortable using on-demand services at night or in early morning hours. There is potential for an informal vanpool run by the workers.
- Parking is a major concern for the community and local businesses. Companies often don’t provide employee parking or transportation, forcing employees to park throughout the neighborhood. This includes the largest shipyard in San Diego.
- One of the shipyards has rented parking spaces at a hotel on the edge of Downtown San Diego and they are providing a shuttle to the shipyard, as well as shuttles from the California-Mexico border where many workers live.
- Potential for shuttles could be zero emission vehicles and represent a model for other companies. Companies could contribute towards the purchase and maintenance of the clean vehicles. The Navy has expressed interest in a program such as this, providing an interesting opportunity for federal/state collaboration.

Oakland
- Increase incentives and conduct better outreach for electric vehicles. Need more ride share options which take into account barriers related to language and finances.
- Better coordination among agencies is necessary.
- Accessible, reliable, and frequent, public transit is vital.
- Lack of awareness of Climate Change Investment Programs, in addition to a lack of understanding on funding availability and qualifications for funding.

Modesto, Fresno, and Bakersfield
- Affordable, reliable, safe, and frequent public transit is needed. Clean, green buses are necessary.
- Infrastructure improvements for active transportation are vital to adoption.
- Incentive amounts for electric vehicles need to be increased for low-income individuals.
- Encourage utilization of alternative workweek schedules to minimize work trips.
• Finance agricultural worker vanpools. Prioritize commercial vehicle replacement because they impact environmental justice communities more than personal vehicles.

South Los Angeles
• Affordable, reliable, and frequent public transportation is necessary in addition to better connectivity.
• Safe bike lanes, biker safety and paved sidewalks are vital.
• Car sharing or other mobility options need to be increased. Eliminate barriers associated with needing credit/debit cards.
• Increase funding for low-income residents to afford electric.
• More education on electric vehicle operation and maintenance is necessary.

Sacramento
• Increased incentives for zero-emission vehicles are necessary.
• Bike share incentives and improvement in community infrastructure is necessary.
• Funding availability for advanced technology projects such as creative mechanisms for energy production and passenger and freight transportation is important.

Brawley and Orleans
• Frequent, reliable, affordable and safe transit.
• Need to improve infrastructure in the community e.g., sidewalks, shaded bus stops and security at the stops especially late at night and early morning hours.

Consultation with CEC
Staff consulted with CEC on the development of this Guidance Document, and ongoing coordination will continue in 2017. Where feasible, staff from CARB and CEC attended EJAC community-based meetings jointly to speak to low-income residents about clean transportation and energy efficiency program access challenges. CARB invited CEC staff to attend its public roundtable meetings, and shared information on lessons learned regarding barriers, opportunities, and recommendations from community-based meetings with low-income residents. CARB and CEC staff also set-up meetings to specifically discuss the roll-out of the barriers reports. Staff anticipates remaining engaged in CEC’s process as we move forward and determine how to implement recommendations.

Individual Meetings
Staff organized one-on-one conference calls and meetings with various community-based organizations, environmental groups, State and local agencies and stakeholder groups. The purpose of these meetings was to discuss the SB 350 project,
barriers, opportunities, and recommendations for increasing access to clean transportation and mobility options for low-income residents and disadvantaged communities. These meetings were a critical part of the development of this Guidance Document, as they allowed for staff to evaluate barriers to clean transportation access on a more comprehensive basis, building upon the feedback we heard directly from low-income residents in the community-based meetings. Staff established many partnerships across the transportation and mobility sectors as a result of these meetings, though there are additional groups that CARB would like to reach out to in order to ensure this process is as inclusive as possible. Staff would encourage that these meetings and further relationship building continue into 2017.

As a result of these meetings, there are additional communities that staff would like to review as part of the ongoing effort in 2017. For example, San Diego and low-income areas such as Barrio Logan and Logan Heights are known for distinct transportation challenges. Staff was hoping to arrange a community-based meeting in 2016, but was unable to do so. The Coachella Valley is another area where there are known barriers to clean transportation access for low-income residents and disadvantaged communities, especially when looking at connections between the eastern and western regions. This is in part due to the diverse topography of the region, but also due to disparities between investments in infrastructure between the more affluent western region and the east. In addition, more meetings are needed in the Bay Area to discuss how clean, wind assist ferries in the San Francisco Bay can address barriers to clean transportation access for low-income residents.

Staff continues to value the partnerships that have been built with community-based organizations that have important insight into the main community concerns with transportation access. For example, CARB has been working with the City of Los Angeles on the development of the L.A. City Car Share project to assist low-income individuals in disadvantaged communities. As a part of this effort, the City of Los Angeles, Office of Sustainability, has developed strong project partners in community-based organizations who have assisted in the development of the L.A. City Car Share project. Since this project is geared toward low-income individuals in disadvantaged community and these community-based organizations have provided a unique perspective on mobility challenges or barriers for their constituents, staff believed it was critical to arrange a meeting.

On August 23, 2016, CARB staff met community-based organization representatives from Trust South LA, Koreatown Immigrant Workers Alliance, Salvadoran American Leadership and Education Fund, Shared Use Mobility Center, and Center for Sustainable Energy in Downtown Los Angeles to understand the barriers in the community. During this meeting, issues were raised about the need to ensure car sharing and other mobility projects provide direct benefits to targeted communities and are not overtaken by the general public. Significant issues on gentrification of the
community were raised, and the potential to displace existing residents or price the current community out of the area as a result of clean transportation projects. Residents stated that barriers to active transportation include bike safety and safe walking paths, and that protected bike lanes are necessary. Outreach and education are considered opportunities to remove knowledge barriers on the types and availability of clean transportation and mobility options, but communication approaches must be culturally sensitive to the community’s characteristics. As follow-up to this meeting, CARB staff expressed interest in meeting with community residents to further understand the barriers they face in accessing clean transportation.
Community-based concerns are critical to understanding barriers to clean transportation access and mobility options, and in the formulation of the Guidance Document recommendations and actionable measures described in Chapter 4: Recommendations and Actions for Overcoming Barriers to Clean Transportation and Mobility Options of the Guidance Document. A comment consistent among all stakeholders throughout the outreach process was that transportation and mobility needs vary tremendously throughout California, and are often unique to each community. Stakeholders unanimously recommended evaluations at the local level, prompting CARB to undertake the case studies and literature reviews. Limitations on timing and resources precluded conducting a quantitative transportation analysis. A small number of communities were selected for qualitative evaluation, that reflects different geographic regions and community types, (e.g., rural, suburban, urban or tribal). The two evaluation methods used to review barriers and opportunities to access clean transportation and mobility options included:

- Case study communities
  - Huntington Park
  - Huron
  - Redwood Valley
  - North Richmond

- Literature review communities
  - Lemon Hill
  - Merced
  - McFarland
  - Oroville
  - Tipton and Woodville

Low-income residents and community-based advocates continue to stress that more comprehensive analyses of local, low-income communities are needed in order to adequately address the range of barriers communities face. CARB has included a Guidance Document recommendation to continue low-income community-based evaluations as part of the process going forward.
Definitions of Terms
A “case study” included a community-based meeting and a literature review. CARB staff met with residents in a low-income or disadvantaged community to hear from them directly. This community feedback was supplemented through a literature review of existing planning documents, online census data and transportation database tools, and other publicly available data and information sources related to transportation access and mobility in the community.

A “literature review” included only a review of publicly available data and information sources; no meetings were held in these locations. The case study and literature review communities are presented separately.

Several of the communities in this review are “census designated places” (CDPs), which is a US Census Bureau designation for communities that lack separate municipal governments. CDPs are defined by tribal officials, State and local agencies before each decennial census using Census Bureau criteria. The CDP designation allows these localities to be in the same category of census data as incorporated places.

The Streets and Highway Code Section 890.4 (as referenced in Caltrans, 2006), defines a "Bikeway" as a facility that is provided primarily for bicycle travel. Bikeways fall under the umbrella terminology "bike facilities" used in the Guidance Document. A Class I Bikeway (Bike Path) provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow by motorists minimized. A Class II Bikeway (Bike Lane) provides a striped lane for one-way bike travel on a street or highway. And a Class III Bikeway (Bike Route) provides for shared use with pedestrian or motor vehicle traffic. The term sidewalks fall under the umbrella terminology “dedicated pedestrian sidewalks” used in the Guidance Document.

Case Study Communities
This section contains the case study communities staff evaluated by engaging directly with low-income residents.

Huntington Park
Huntington Park was selected for a case study because it is a low-income community with a history of poor air quality resulting from factories in the neighboring cities of Vernon and Commerce. CARB was also able to leverage its relationship with Communities for a Better Environment and draw upon the organization’s existing knowledge and community relationships to reach out to the low-income residents here.

Regional Setting
Huntington Park is an urban community located within the South Gate-East Los Angeles Census Class Code. The Census Class Code indicates an active incorporated place that does not serve as a county subdivision equivalent. Huntington Park is an industrial
center located about five miles southeast from downtown Los Angeles and is known for its historical challenges with air pollution.

Community Characteristics
Huntington Park was incorporated in 1906 and encompasses an area just over three square miles. The population from the 2010 census is 58,114 people. The population is overwhelmingly Latinos and Mexican immigrants (97 percent), with non-Hispanic whites, Asian and Blacks making up the remaining ethnicities.

Transportation Profile
There are 14,597 households in the community, and vehicle ownership is 1.5 per household. The median age of residents is 29.8 years and the average commute time to work is 30.2 minutes. The H+T Index rates Huntington Park as having good access to public transportation (7.5 of 10) and compact, very walkable neighborhoods (8.8 of 10). Huntington Park’s ratings on these two metrics was highest of all the case study and literature review communities evaluated. The Regional Opportunity Index (UC Davis, 2014), rated Huntington Park “Low” for job availability, “Lowest” for job quality, and “Low” for job growth. The majority of commuters drive alone (79 percent), while 14 percent take public transit, 1.4 percent bike and 5 percent walk. Transit ridership was highest here of all the other case study and literature review communities evaluated.

Active Transportation: There are currently no bike paths, lanes or routes within Huntington Park, however the 2014 Draft Bicycle Transportation Master Plan includes policy recommendations to improve bike access for transit commuters who ride bikes to connect to transit, children who ride bicycles to school, and college students who commute by bike.

Public Bus and Rail Services: Two local public bus systems operate within Huntington Park, HP Express and COMBI. COMBI runs a fixed loop throughout the city and HP Express has fixed routes. A Dial-A-Ride program is available to eligible (elderly and disabled) Huntington Park residents. Rail services are limited. There are no Los Angeles County Metropolitan Transportation Authority Metro locations in the city. However, the Metro Blue Line’s Slauson Avenue and Florence Avenue stations are located approximately 0.25 and 0.3 miles west of Huntington Park within unincorporated Los Angeles County. The closest Amtrak station is located 6 miles from Huntington Park in Los Angeles.

Ride Sharing: Currently no bike-share or car share programs are in Huntington Park.

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1 US Census Bureau, American Fact Finder: QuickFacts, 2016
2 Advameg, Inc., Huntington Park, California Detailed Profile, CITY-DATA.COM, 2016
3 CNT, H+T Index, 2016
4 City of Huntington Park, 2014.
5 City of Huntington Park, 2014

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Clean Vehicle Incentives: In the Huntington Park zip code, 24 vehicle rebates were issued under the State’s Clean Vehicle Rebate Project (CVRP) for clean vehicle purchases, (13 plug-in hybrid electric vehicles and 11 battery electric vehicles), all but one participant were located in a disadvantaged community census tract (23).6

The Enhanced Fleet Modernization Program (EFMP) offers State incentives to qualifying low-income residents for the retirement of a high-emitting vehicle and replacement with a cleaner vehicle. This program is available through the South Coast Air Quality Management District. No residents within the Huntington Park zip code have participated in this program. One $23,000 voucher was issued under the Hybrid and Zero-Emission Truck and Bus Voucher Incentive (HVIP) for incentivizing a clean truck purchase.7

Community Meeting
CARB attended a community-based meeting with low-income residents hosted by Communities for a Better Environment on June 1, 2016 in the southeast Los Angeles community of Huntington Park. Communities for a Better Environment is a prominent community-based organization with a presence in Los Angeles and the Bay Area, focused on empowerment, environmental justice, clean energy and healthy communities.8 This group played a large role in shaping the language in SB 350 to increase access to clean transportation and mobility options for low-income residents.

The meeting was an opportunity to provide residents with information on transportation options available in Huntington Park and surrounding areas. This meeting provided an opportunity to receive input directly from low-income residents on the barriers they face in accessing clean transportation and mobility options. The meeting was attended by 24 members of the community, most from Huntington Park, but others from neighboring cities such as Maywood, Walnut Park, and South Gate. The meeting was conducted entirely in Spanish, with a meeting logistics coordinator from Communities for a Better Environment serving as a moderator and translator when needed. CARB staff conducted the discussion and asked questions to engage community members. A Spanish-speaking CARB staff member took notes to document the discussion. A photo from the Huntington Park meeting is presented in Figure 1.

6 CSE, 2016
7 Data from Nicholas Nairn-Birch, CARB Project Lead for EFMP, and Bryan Murano, CARB Project Lead for HVIP. 10 Aug. 2016
8 See the Communities for a Better Environment website: http://www.cbecal.org/

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Figure 1: Huntington Park Community-Based Meeting

Transportation Barriers and Opportunities

During the meeting, residents described the following barriers to transportation access in their surrounding communities:

- More frequent bus stops, additional routes, and more direct routes are needed. The wait times between service are too long (exceeding 30 minutes to an hour).
- Dial-a-ride ceased operation on the weekend, limiting usability for many of the residents and this is how residents travel the most to run errands, etc.
- Safer streets and roads are needed to walk and ride bikes throughout the community. Assessments need to be done of what the specific needs of the community are to ensure solutions meet the need.
- Safer end of trip bike facilities are needed, such as secure bike parking and storage locations, at schools, workplace, and public spaces. Community members believe the price of electric cars was not affordable and needs to be reduced to be within their financial reach.
- There is distrust of dealerships, and an overall feeling on the part of residents that costs are inflated especially when buying specialty vehicles.
- Payment plans for vehicles being purchased need to be more tailored to low-income individuals based on their individual disposable income availability.
- Discounts or subsidies are needed for transit.
- Community members want to learn more about advanced transportation options.
There is overall uncertainty about how individuals feel about electric vehicle technology. More outreach is needed to increase awareness of this technology and build comfort. Also there is a lack of knowledge of the EFMP program and how to access funding.

**Recommendations to Increase Clean Transportation Access**

Residents provided the following recommendations to increase access transportation and mobility options, which also applies to clean transportation.

- More frequent bus stops and more bus routes with direct service.
- Safer streets to walk and safer roads to ride bikes.
- Broader access to clean transportation information, including benefits and cost savings.
- More direct bus services to allow for easier access to medical appointments.
- Incentive opportunities to purchase or lease electric vehicles.
- Education and outreach to learn about the programs that can be accessed via South Coast Air Quality Management District Retire and Replace Program, Clean Vehicle Rebate Project vouchers for low income individuals, and other incentive projects for infrastructure.
- Additional policies that will invest in active transportation and walking paths.
- Easier access to infrastructure to support electric vehicle adoption. Some residents suggested communal locations for charging.

The following recommendations as provided in Chapter 4: Recommendations and Actions for Overcoming Barriers to Clean Transportation and Mobility Options of the Guidance Document are intended to address some of these community barriers to clean transportation access:

- **Recommendation 1a**: Continue developing, expanding, and implementing used and new light-duty vehicles ownership programs, including creative financing mechanisms, such as point-of-sale incentives and low-cost loans, available to low-income consumers, and make modifications as necessary to improve access for low-income residents.
- **Recommendation 1b**: Continue funding and expanding used and new light-duty vehicle retire and replace EFMP and EFMP Plus-up projects.
- **Recommendation 1c**: Continue supporting and incentivizing charging infrastructure installation, including in existing multi-unit dwellings, for low-income residents. Track deployment of utility infrastructure investments in low-income and disadvantaged communities, with an emphasis on multi-unit dwellings, to identify impacts and potential to enable the market in these areas. This aligns with CEC’s recommendations in the Low-Income Barriers Study, Part A.
• **Recommendation 1d**: Continue supporting charging infrastructure installation in public right of way locations in low-income and disadvantaged communities across the State (e.g. rest stops, Park and Rides, etc.).

• **Recommendation 1o**: Continue to expand the implementation of pedestrian and bicycle infrastructure improvements, including for separated bikeways or cycle tracks (Class IV bikeways) and mobility hubs.

• **Recommendation 1p**: Develop District-level plans to identify bicycle and pedestrian needs and priority projects on or parallel to the state highway system, with a focus on closing gaps and building complete, comfortable regional networks.

• **Recommendation 1q**: Continue to support new active transportation projects and policies that promote safety and increased pedestrian and bike facilities. Expand funding for current projects including the California Transportation Commission’s Active Transportation Program, Complete Streets, and Safe Routes to School.

• **Recommendation 1r**: Continue to fund the Pedestrian Safety Improvement Monitoring Program to identify and address pedestrian related high collision concentration locations, with the long-term goal of substantially reducing pedestrian fatalities and injuries on the California State Highway System. Develop and implement a Bicycle Safety Improvement Monitoring Program.

• **Recommendation 1s**: Continue the development of a systemic safety analysis program to address infrastructure that poses a higher risk to pedestrians and bicycles.

• **Recommendation 3a**: Develop and implement a clean transportation outreach plan targeting low-income residents in rural, urban, tribal, and disadvantaged communities. Ensure outreach efforts include other State and local transportation, energy and air quality programs.

• **Recommendation 3g**: Develop a statewide network of car dealerships that low-income residents can rely on for the purchase or lease of clean used and new vehicles. The car dealerships could become “dealer champions” if they complete clean vehicle training and meet and maintain the statewide network best practices and ethical standards to be established.

**Huron**

This community was chosen for a case study representing a rural and predominantly agricultural community historically challenged by transportation. Huron is identified by CalEnviroScreen 2.0\(^9\) as being in the top 85 percent of worst pollution impacted California communities. CARB has an existing relationship with the Valley Latino Environmental Advancement Project (Valley LEAP), who arranged this meeting. Valley LEAP has participated in development of CARB’s Low Carbon Transportation Car

\(^9\) OEHHA, 2016
Sharing Pilot Projects and staff wanted to leverage this relationship and their in-depth knowledge of the Huron community to reach out and hear from low-income residents about their experiences accessing advanced clean technology transportation.

Regional Setting
The City of Huron is a rural community located on the west side of Fresno County. CalEnviroScreen 2.0 identifies 131 census tracts in Fresno County that are in the top 25 percent of California census tracts most impacted by pollution. The county’s population was 930,450 during the 2010 census, with a population density of 150 people per square mile. In 2010, when the State’s overall poverty rate was 15.8 percent, 26.8 percent of the county’s residents lived in poverty—nearly 25,000 residents—and was the highest poverty rate of any California county.

Community Characteristics
Huron is a small farming community of 6,754 residents, of which over 96 percent are Hispanic. The community’s population is dynamic and changes according to the seasons. For example, the population is known to double during the harvest season from March to October.10 Huron is located five miles east of Interstate 5 and is about an hour west of the City of Fresno or north east of Paso Robles on the Pacific Coast. The city is compact and comprises 1.34 square miles, with a public library, elementary school, and a middle-school. The nearest public high school is 25 miles away in Coalinga. The two census tracts in Huron are both identified by CalEnviroScreen 2.0 as in the top 20 percent of California census tracts most impacted by pollution. The Housing and Transportation Affordability Index indicates Huron residents have low access to jobs (2.9 out of 10), and only 2 percent of residents commute by public transit.11

Transportation Profile
Active Transportation: AllTransit indicates that Huron residents do not walk to work but almost 4 percent bike.12 The Huron Local Government Commission indicates the importance of biking and walking in Huron and the potential the city has to support and increase the use of active transportation modes. There is a dire need for street connectivity for biking and walking, safety improvements, and supporting biking and walking facilities.13

Public Bus and Rail Services: The Fresno County Rural Transit Agency operates demand response and fixed route inter-city bus services that serves Huron and provides connections to other rural cities and the Fresno area, such as Coalinga. Service is

10 Huron Local Government Commission, 2014
11 CNT, H+T Index, 2016
12 CNT, AllTransit, 2016
13 Huron Local Government Commission, 2014
generally available Monday through Friday from 7:00 a.m. to 5:30 p.m. There is also a demand response service via Huron Transit, which is a part of the Fresno County Rural Transit Agency. This service is available from 6:00 a.m. to 6:00 p.m. Monday through Friday. An intercity express service runs a few times between 7:00 a.m. and 7:30 p.m.\textsuperscript{14}

\textbf{Ridesharing:} The Fresno Council of Governments, through funding made possible by passage of Measure C, offers subsidies Agricultural Worker Vanpools, Commuter Vanpools, and incentive cash and prize programs for carpools that originate within Fresno County. The organization also sponsors a ridesharing website called ValleyRides.com that provides web-based information on air, rail, bus, taxi and other transportation services, and downloadable maps of bicycling and walking trails. The San Joaquin Valley Air Pollution Control District Vanpool Voucher Incentive Program to encourage vanpooling to reduce single occupant vehicle commuters within the San Joaquin Valley Air Basin.

\textbf{Community Meeting}
CARB attended a community-based meeting with low-income residents hosted by Valley LEAP on August 11, 2016 at the John Palacios Community Center in Huron. Valley LEAP is a prominent community-based organization with a presence in the San Joaquin Valley, focused on empowering communities to achieve environmental and climate justice.

The purpose of this meeting was to provide information on transportation options and clean transportation programs available in Huron and surrounding areas, and hear feedback directly from low-income residents regarding barriers to access clean transportation and mobility options. The meeting was attended by 18 members of the community, most of which were from Huron. Some attendees were from neighboring cities such as Stratford and Avenal. The meeting was conducted all in Spanish. A coordinator from Valley LEAP moderated the meeting and discussed the areas of biggest opportunity for the community to increase clean transportation access. CARB staff conducted the discussion and engaged directly with community members. A CARB and community note taker documented the discussion from multiple perspectives.

\textsuperscript{14} Huron Local Government Commission, 2014
Residents described the following barriers to transportation access:

- Many of Huron’s residents are retired agricultural workers, living on a fixed monthly income. Needs of the community need to be assessed and understood based on this demographic.
- The residents are not familiar with clean transportation programs and incentives, or are not eligible if they live in certain parts of Avenal or Coalinga that are not within a census tract or zip code designated as a disadvantaged community.
- There is a lack of charging infrastructure in the San Joaquin Valley.
- Public transportation is not convenient and therefore not used frequently.
- Bus routes are limited, and public transportation overall is not timely or reliable. Buses are typically running behind and drive fast down rural roads, making residents feel unsafe.
- An average trip to Fresno for residents of Huron and surrounding communities takes hours round trip and is very expensive. Currently, the community relies on informal vanpooling or ride sharing, which can be costly (up to $100 for a ride to the local valley children’s hospital). There is a need to empower members of the community to increase clean transportation access. Residents argued that a dispatch service is needed to maximize the number of rides or “raites” that community members can take and reduce the costs over time.
- Residents lack knowledge on EV technology, clean car makes and models, costs and access. Community members felt the price of electric cars was more reasonable than they thought, and wanted to better understand the technology and what it can do. Many had questions on how electric vehicles are charged, and whether they can be charged using a standard outlet.

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• Given the large elderly population, medical transportation is critical. This is a huge barrier for the community. Current medical transport services are limited to 4 times a month and only available for some types of appointments, which is restricting. Taxi scrip is discounted for seniors, but is still very expensive and tends to only be used by Huron residents for emergency purposes.

• School transportation is also a major concern. School buses are also not reliable and make it difficult to get children to school on time. Sometimes students are waiting for the bus from 6 am and ride until 8 am and are sometimes late to school. Parents found that taking students to afterschool practice or activities and picking them up is nearly impossible.

• There is a lack of supporting infrastructure for walking and biking, and large commercial trucks on the road make it dangerous.

• Roadways in Huron are not well maintained. For example, in the rainy season water does not drain well from the roads; they are not in a good state of repair.

Recommendations to Increase Clean Transportation Access
Residents provided the following recommendations to increase access transportation and mobility options, which also applies to clean transportation.

• Provide funding for and formalize vanpooling to make it more broadly available to residents.
• Provide bike safety and security education to students and employers.
• Improve punctuality of public transportation.
• Make clean transportation information widely available in Spanish and update information routinely.

The following recommendations as provided in Chapter 4 of the Guidance Document are intended to address some of the community barriers to clean transportation access:

• Recommendation 1k: Continue funding programs that create or expand transformative clean transportation car sharing, ride sharing, bike sharing, vanpooling, micro-transit, and other mobility options.
• Recommendation 1m: Continue to identify and implement policies that increase the frequency, reliability, and safety of clean public transportation options.
• Recommendation 1q: Continue to support new active transportation projects and policies that promote safety and increased pedestrian and bike facilities. Expand funding for current projects including the California Transportation Commission’s Active Transportation Program, Complete Streets, and Safe Routes to School.
• Recommendation 2a: Continue to conduct or expand community-based needs assessments to better understand local barriers and opportunities for increasing
access to clean transportation, especially in low-income and disadvantaged communities.

- **Recommendation 2c**: Promote a more localized review of unmet clean transportation and mobility option needs of low-income residents as part of Regional Transportation Plan development and other local, State, and regional planning and direct funding to gaps identified.

- **Recommendation 3b**: Design or modify clean transportation outreach and education materials, including online resources, which are specific to community needs and are relevant, accessible, practical, and available in the spoken languages of those communities.

- **Recommendation 3e**: Streamline and simplify the clean transportation grant and incentive application process for State and local funds in a way that promotes inter-agency coordination and enables more low-income residents to apply and benefit from programs. Provide coordinated technical assistance across agencies and local programs.

**Redwood Valley**

Redwood Valley was selected for a community meeting and literature review because it adds a rural tribal element to this study that is often overlooked when attempting to address barriers to clean transportation access. Together with the CEC and the Strategic Growth Council, CARB worked with the Nevada California Indian Housing Authority Tribal Task Force and the North Circle Indian Housing Authority to arrange a roundtable meeting in Redwood Valley with representatives of many Northern California tribes and low-income Redwood Valley residents.

**Regional Setting**

Mendocino County is a sparsely populated rural county in Northern California, with a population of about 90,000 residents. Situated along the Pacific Coast, agriculture and tourist services are the main economic drivers, and land use policies focus on agriculture and forestlands. Air quality in Mendocino County is good; none of the County's census tracts rank in the top (worst) 25 percent most exposed by CalEnviroScreen 2.015. However, the County ranks near the worst quartile of California counties for residents living below the federal poverty level. Hispanics are the largest ethnic minority in the County, which is also home to eleven federally-registered Native American Rancherias (Pomo, Yuki, and other native peoples), some of which are located in the County’s most isolated locations. No dedicated commuter passenger rail service exists in the County, and owned vehicles are the primary source of transportation, with 88 percent of residents owning a vehicle and over 90 percent using a car or truck to commute to work.

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15 OEHHA, 2016

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Community Characteristics
Redwood Valley, Zip Code 95470, is a census designated place (CDP) that had a population of 1,729 at the time of the 2010 census. Redwood Valley is located mid-county about 10 miles north of Ukiah and 15 miles south of Willits, and is primarily a residential community surrounded by wine-grape growing operations. Residents are predominantly white (77 percent), with Hispanic (17.6 percent) and Native American (2.6 percent) as the next largest groups. The percentage of residents living in poverty in 2013 was 16.8 percent. The median age is 42.9 years old. Redwood Valley’s Air Quality Index level in 2013 was 46.1, which is significantly better than the State average. The CalEnviroScreen 2.0 scores for its two census tracts are 18.14 and 10.47, which are better than 60 percent and 85 percent of other California census tracts, respectively.

Redwood Valley residents face many transportation access barriers. According to the Housing and Transportation Index, residents budget 36 percent of household income for transportation, compared to a national average of 31 percent. The index also reports that residents have very low access to jobs (scoring 0.7 on a scale of 10) and are car-dependent with very limited access to public transportation (scoring 0 out of 10). Neighborhoods are low density with limited walkability (scoring 0 out of 10). Alltransit reports that nearly 100 percent (98.9) of Redwood Valley workers commute by car, truck, or van, with less than one percent commuting by other sources. Access to public transit is hindered due to limited destinations, low route frequency, and long distances from housing.

Transportation Profile
Active Transportation: Alltransit indicates that less than 1 percent of Redwood Valley residents commute by walking or biking. The 2012 Mendocino County Rail-with-Trail Corridor Plan identifies rail-to-trail projects to increase access to walking, bicycling, and equestrians along multiple sections of former Northwestern Pacific Railroad right-of-way.

Public Bus and Rail Services: Redwood Valley is relatively well-served for public transit by Mendocino Transit Authority (MTA), but riders needing off-peak service or who have beginning/end-points that are not near bus stops may experience difficulties accessing the system. Routes between Ukiah and Willits stop in Redwood Valley several times on weekdays, but service ends between 7:00 p.m. and 7:00 a.m. Once-a-day routes offer transit to points further north or south. From Fort Bragg, Ukiah, and Santa Rosa, riders can transfer to routes that run to coastal towns such as Bodega Bay and Point Arena.

16 US Census Bureau, American Fact Finder, 2016
18 CNT, H+T Index, 2016
19 CNT, AllTransit, 2016
20 CNT, AllTransit, 2016
21 MCOG, 2012b

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Santa Rosa is a transfer point for Lake Transit, Sonoma County Transit, Golden Gate Transit, and Amtrak.

A 2015 Mendocino Countywide Transit Ridership Survey noted that the County’s Tribal members were much less satisfied with transit service than other groups. Tribal members also indicated that they don’t get updated schedule information and are confused about what transit services are available. The survey also revealed 20 percent of respondents have no internet access, 49 percent don’t have home internet access, and 81 percent don’t have smart phones.\(^2\)

*Ride Sharing:* The Dial-A-Ride and Paratransit services offered by MTA in the County’s larger communities are not available in Redwood Valley. Some health agencies and Tribal governments in Mendocino County operate vehicles or vans for clients, but no formal car sharing service currently exists in Mendocino County. Other transit networking companies such as Lyft and Uber are not currently available in Redwood Valley. An MTA project to provide 15-passenger vans to transport farmworkers to fields with volunteer drivers was discontinued.

*Clean Vehicle Incentives:* Based on data from March 2010 through September 2016 from the State’s Clean Vehicle Incentive Program, one battery electric vehicle and five plug-in hybrid vehicle rebates were issued in Redwood Valley (totaling $10,000 overall).\(^2\) No vehicle incentives have been issued under the State’s EFMP light-duty vehicle retirement program or HVIP, CARB’s incentive for clean trucks and buses.\(^4\) The closest charging sites to Redwood Valley are in Ukiah about 10 miles to the south. The Mendocino Council of Governments (MCOG) is currently working on Phase 2 of its Mendocino County Zero Emission Vehicle Regional Readiness Plan to develop 18, public “opportunity charging” stations approximately 25 miles apart across the county, and allowing electric vehicle travel into more isolated areas. The intent of the public network is to have a system that pays for itself. MCOG is seeking funding to help with site preparation, charging equipment and installation, but operation and maintenance costs would be recovered through payments collected from EV owners using the stations.\(^5\)

*Community Meeting*
CARB attended a community-based meeting with tribal representatives and low-income residents on August 31, 2016 at the Consolidated Tribal Health Project Wellness Center in Redwood Valley. The meeting was hosted by the Nevada California Indian Housing Authority Tribal Task Force and the North Circle Indian Housing Authority. The Nevada California Indian Housing Authority helps tribes provide quality affordable housing for

\(^2\) Mendocino Transit Authority, 2015
\(^3\) CSE, 2016
\(^4\) Data from Nicholas Nairn-Birch, CARB Project Lead for EFMP, and Bryan Murano, CARB Project Lead for HVIP, 10 Aug. 2016
\(^5\) MCOG, 2015b; MCAQMD and MCOG, 2013

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Native peoples.²⁶ The North Circle Indian Housing Authority is a consortium of seven California tribes that constructs and manages housing for member tribes and works with tribal leaders to address community issues, provide affordable housing, and promote healthy communities.²⁷

**Figure 3: Redwood Valley Community-Based Meeting**

The meeting was attended by twelve tribal representatives from five tribes, residents of tribal communities, CARB, the Energy Commission, the Strategic Growth Council, the California Department of Housing Community Development, and California Coalition for Rural Housing. A Nevada California Indian Housing Authority Tribal Task Force member moderated the meeting. Participants were asked to fill out a survey with similar transportation related questions.

**Transportation Barriers and Opportunities**

**Active Transportation:**
- Active transportation choices of walking and biking are not only hindered by time and distance but also by roadway safety concerns and the real threat from wildlife to walkers and bikers. Thus, vehicle ownership is a primary necessity.

**Public Bus and Rail Services:**
- Infrequent routes and lack of service in rural areas are barriers for Tribes.
- Providing fixed-route public transit in rural areas is expensive, and despite long-term efforts by the Mendocino Council of Governments to address unmet transit needs, many areas are under or unserved.²⁸

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²⁶ National American Indian Housing Council, 2006
²⁷ North Circle Indian Housing Authority, [http://www.nciha.org/](http://www.nciha.org/)
²⁸ MCOG, 2016b; MCOG, 2015; MCOG, 2012a

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Clean Vehicle Incentives:
- Tribal residents report a lack of up-to-date information on financial incentives available to purchase or lease plug-in hybrid or battery-electric vehicles.
- Many expressed concerns about insufficient battery range and lack of public charging infrastructure to support electric vehicle technology in their community.
- Tribes feel overlooked by government agencies, and distrust that incentive programs will deliver on promises.

Recommendations to Increase Clean Transportation Access
- Opportunities exist in rural areas to increase attractiveness and appropriateness of active transportation through adoption of Complete Streets protocols and to follow through with proposed bicycle and trail projects, such as the Mendocino County Rail-with-Trail Program.
- Public transit in rural areas could better accommodate riders who need off-peak hours. Subsidized vanpooling or shared car services placed in small communities could supplement transit bus routes for these riders.
- Transportation planners and providers can seek more input from Tribal groups about the unique barriers to clean transportation they experience. Planners and providers should also take steps to accommodate the large number of low-income and rural residents who do not have reliable access to the internet, do not own a smart phone, or who do not use banking services.
- Public entities could increase outreach and education to Tribal members to better inform them of available programs and services. Programs should address Tribal needs and make provisions to assist Tribes to apply for funding. Project design should also incorporate feedback loops to create follow through and ongoing communication.
- More transportation electrification infrastructure is needed in rural areas. Assessments would need to be done on placement of this infrastructure. As California moves to an increasingly electrified transit grid, rural areas stand to become further isolated if charging infrastructure sites are primarily based in high traffic locations.
- Tribal areas present a good opportunity to test all-encompassing “green-cities” projects to install, test, and learn about the latest clean energy, transportation, and housing technologies.

The following recommendations as provided in Chapter 4 of the Guidance Document are intended to address some of the community barriers to clean transportation access:
Recommendation 1d: Continue supporting charging infrastructure installation in public right of way locations in low-income and disadvantaged communities across the State (e.g. rest stops, Park and Rides, etc.).

Recommendation 1m: Continue to identify and implement policies that increase the frequency, reliability, and safety of clean public transportation options.

Recommendation 1n: Identify and direct funding toward increasing the availability of diverse payment options for low-income residents. Allow for cash loading options for payment cards.

Recommendation 2b: Require cities and counties across the State to update or develop new zero-emission vehicle readiness plans, and that these plans address widespread transportation electrification in order to ensure low-income households and disadvantaged communities have access to ZEV infrastructure and facilities.

Recommendation 3a: Develop and implement a clean transportation outreach plan targeting low-income residents in rural, urban, tribal, and disadvantaged communities. Ensure outreach efforts include other State and local transportation, energy and air quality programs.

North Richmond
The North Richmond area is isolated. Access to transportation options is limited, insufficient or unsafe bus stops, and lack of resources for mobility choices. It is because of these challenges it was selected as one of the case studies to take a closer look at the community and reach out to residents to see if there are recommendations that can be put in to place that can help the community with these challenges.

Regional Setting
North Richmond is a census designated place in Contra Costa County, an unincorporated area and is considered a disadvantaged community per Cal EPA Senate Bill 535 (CES 2.0 Score of 40 and a percentile range of 81 to 85 percent\(^{29}\)). The city is urban, about 1.5 square miles in size and is located adjacent to two main interstates (Interstate 80 to the east and Interstate 580 to the south). The main street running through the North Richmond area is Richmond Parkway, a main thoroughfare.

Community Characteristics
The population of North Richmond from the most recent census (2010) is 3,717 people. The population density is 2,400 residents per square mile. North Richmond is the one of the poorest community in Contra Costa County, the racial makeup of North Richmond was 33 percent African American, 17.1 percent White, 11.6 percent Asian, 0.6 percent Native American, 0.5 percent Pacific Islander and 32 percent from other races\(^{30}\).

\(^{29}\) OEHHA, 2016

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Hispanic or Latino of any race was 50.1 percent.\textsuperscript{31} The North Richmond community is surrounded by the City of Richmond to the north, east, and south, and the City of San Pablo on the east. North Richmond gets its services from Contra Costa County and its law enforcement from the County Sheriff’s department.

**Transportation Profile**

North Richmond residents own an average of 1.8 vehicles per household. According to the H+T transportation index, North Richmond has good access to public transportation (rating 6.2 of 10), and compact, walkable neighborhoods (rating 6.4 of 10).\textsuperscript{32} This rating, however, may not capture residents’ concerns with safety and access to different mobility options. The AllTransit Performance Score (0-10) for North Richmond is 3.9, the score is a look at connectivity, access to land area and jobs, and frequency of service. Transit Connectivity Index (0-100) is 5; it’s a measure of the number of bus routes and train stations within walking distance for household in a given area. The majority of North Richmond residents commute by car (81 percent), while 7 percent use public transit, 1 percent commute by motorcycle, 7 percent walk and 2 percent use other means.\textsuperscript{33}

**Active Transportation:** The surrounding City of Richmond currently has approximately 12 miles of on-street bikeway facilities and 20 miles of multi-use paths, consisting of approximately: 28.6 miles of Class I multi-use paths, 6.7 miles of Class II bike lanes, and 5.3 miles of Class III bike routes. There are several bike paths that extend into North Richmond. In a recent announcement on September 15, 2016, the San Francisco Bay Conservation and Development commission (BCDC) approved a 4-year pilot project to open up a new eastbound vehicle traffic lane during afternoon peak hours on the Richmond-San Rafael Bridge and a new bi direction pedestrian /bicycle lane on the upper level.

**Public Bus and Rail Services:** The public bus system includes Alameda-Contra Costa Transit (AC Transit) and West Contra Costa Transit Authority (WCCTA), each operates in North Richmond. Richmond has a para transit system with service provided by AC Transit. R-Transit provides door-to-door transportation service to persons with disabilities and seniors (age 55 and older) living in North Richmond as well as other neighboring cities.

There is no train station in North Richmond, the distance from North Richmond to the nearest Bay Area Rapid Transit (BART) Station, is approximately 2.5 miles. This is too far to reasonably walk for a commute, and there is no dedicated bike route. There is limited bus service at roughly 20 minute intervals. The bus service may not be convenient for residents to access. The Amtrak station is located at the same place as

\textsuperscript{31} “North Richmond, California,” Wikipedia, 2016
\textsuperscript{32} CNT, *H+T Index*, 2016
\textsuperscript{33} CNT, *AllTransit*, 2016

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the BART station so the same challenges face residents in reaching the station for services.

Ride Sharing: The Richmond Car Share pilot project funded by the Metropolitan Transportation Commission (MTC) was available to Atchison Village Residents and City of Richmond employee carpool groups. Atchison Village is a cooperative housing community comprised of 450 apartments. Residents were able to use the car share vehicles to plan transportation trips for personal errands. The Richmond Car Share program aimed to lower greenhouse gas emissions by providing automotive access on an as-needed basis. Due to lack of funding for this project, the project could not be sustained and ceased operations.

Clean Vehicle Incentives: In the North Richmond zip code, 55 vehicle rebates were issued under the State’s Clean Vehicle Rebate Project (CVRP) for clean vehicle purchases (16 plug-in hybrid electric vehicles; 38 battery electric vehicles; and 1 fuel cell vehicle) 9 were designated in a disadvantaged community census tract.

The Enhanced Fleet Modernization Program (EFMP) is not available in this region, but it is anticipated that there will be a program administered by the Bay Area Air Quality Management District for a vehicle retirement and replacement program by summer 2017. Three vouchers under the Hybrid and Zero-Emission Truck and Bus Voucher Incentive (HVIP) were issued by the State in the North Richmond zip code for $69,000.

In November 2015, the Community Housing Development Corporation (CHDC) based in Richmond, California was awarded a grant to administer a Financing Assistance Pilot Project for the Air Resources Board. This program improves financing options for lower-income consumers living in disadvantaged communities to purchase hybrid, plug-in hybrid or battery electric vehicles. The project combines a point-of-sale grant with a low interest loan (capped at 8 percent). As of December 15, 2016, seven consumer loans are funded. The pilot project has goal to fund 100 loans for clean vehicles over three years. CARB will use project data to better understand the costs, types, and issues associated with vehicles purchased or leased, how well the needs of participating consumers are met, and future opportunities to continue or expand this project. In addition, this data will help inform anticipated funding needs in the future.

Community Meeting
CARB attended a community-based meeting with low-income residents hosted by the North Richmond Municipal Advisory Committee and Community Housing Development Corporation at the Senior Center on September 6, 2016 in the Bay Area community of North Richmond. The North Richmond Municipal Advisory Committee was established

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34 CSE, 2016
35 Information provided by Nicholas Naim-Birch, CARB Project Lead for EFMP, 10 Aug. 2016
36 Data provided by Bryan Murano, CARB Project Lead for HVIP, Aug. 2016

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to provide community members with an opportunity to provide feedback to their local supervisors on community issues related to public health, safety, welfare, public works and planning.

This community was chosen due to its historic challenges with transportation and gaps in access, particularly for low-income residents. In addition, CARB has an existing relationship with Community Housing Development Corporation as administrator of the Light-Duty Financing Assistance Pilot Project in Disadvantaged Communities. The Community Housing Development Corporation was founded in 1990 by local leaders in North Richmond working to improve housing opportunities for current and future residents, and create better economic conditions.

The meeting was attended by 15 community members. There was a meeting logistics coordinator from the North Richmond Municipal Advisory Committee and Community Housing Development Corporation who helped moderate the meeting.

Transportation Barriers and Opportunities
- Assessments need to be done to ensure there is a better understanding of transportation gaps and residents' needs.
- More bus stops are needed, since existing bus stops are limited with connections to Bay Area Rapid Transit and are not convenient or safe.
- Bus stops are in blighted areas, are not clean and do not have shelter to protect individuals from the elements.
- More bike lanes are needed to promote biking.
- More infrastructure and outreach for advanced technology vehicles is needed.
- More advanced technology vehicles are needed.

A supplemental survey was handed out to attendees to determine travel behavior and needs within this community.

Recommendations to Increase Clean Transportation Access
- Conduct a community based needs assessment of the community. Identifying where there is a need for transportation improvements both in transit, bike and active transportation, in existing communities.
- Provide access to better transportation options to link up to BART station. Conduct an analysis to determine if it's better to increase the reach of bus service, frequency of service, or subsidize a transportation network company.
- Determine how to increase interest and safety in active transportation.

The following recommended actions as provided in Chapter 4 of the Guidance Document are intended to address some of the community recommendations:

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• **Recommendation 1q**: Continue to support new active transportation projects and policies that promote safety and increased pedestrian and bike facilities. Expand funding for current projects including the California Transportation Commission’s Active Transportation Program, Complete Streets, and Safe Routes to School.

• **Recommendation 2b**: Require cities and counties across the State to update or develop new zero-emission vehicle readiness plans, and that these plans address widespread transportation electrification in order to ensure low-income households and disadvantaged communities have access to ZEV infrastructure and facilities.

• **Recommendation 2c**: Promote a more localized review of unmet clean transportation and mobility option needs of low-income residents as part of Regional Transportation Plan development and other local, State, and regional planning and direct funding to gaps identified.

• **Recommendation 3a**: Develop and implement a clean transportation outreach plan targeting low-income residents in rural, urban, tribal, and disadvantaged communities. Ensure outreach efforts include other State and local transportation, energy and air quality programs.

**Literature Review Communities**

This section contains literature reviews of seven low-income community areas. The depth and scope of the reviews is limited, and further evaluation of one or more communities may be proposed as part of subsequent project phases. A consistent format is applied that includes: 1) basis for community selection; 2) regional setting; 3) community characteristics; 4) transportation profile; 5) barriers and opportunities; and 6) recommendations to improve clean transportation access that link to Guidance Document actionable measures. Publicly available information sources were used, including public planning documents, media sources, online census and community data, and transportation-related database tools. In some cases, information was supplemented through informal communication with community residents, not-for-profit advocacy organizations, and public and private sector stakeholders.

**Lemon Hill**

The selection of Lemon Hill was based on its high CalEnviroscreen 2.0 scores, input received from community roundtable meetings, and our desire to include an urban, Central Valley low-income community.

**Regional Setting**

Lemon Hill is a census designated place (CDP) in southern Sacramento County, approximately 10 miles from Downtown Sacramento. Sacramento County encompasses 994 square miles in Northern California’s Central Valley. The City of Sacramento is both the State’s Capital and the Sacramento County Seat. It is the largest city and most urbanized area in the county, with a population density of 4,660 residents per square mile, compared to the county’s population density of 1,427 per
square mile. The topography of Sacramento County is predominately flat, ranging from sea level to just under 1,000 feet.

Community Characteristics
Lemon Hill is unique in that it lies in county jurisdiction but is surrounded on the north, east, and west by city jurisdiction, thus having a different mix of public services than neighborhoods only blocks away. Lemon Hill has a relatively young population, and the community is experiencing growth, sprawl, and a rising cost of living. Lemon Hill’s boundary streets, including Fruitridge Boulevard (Blvd) to the north, 47th Avenue in the south, Stockton Blvd. on the east, and Franklin Blvd. to the west, are major arteries in the city’s and county’s street network.

Lemon Hill is a mixed industrial, commercial, and residential area with a population of 13,729 and a population density of 8,422 people per square mile. Its poverty rate of 38.6 is higher than either Sacramento, (23.4 percent), or the County (19 percent). The racial makeup is diverse (45 percent Hispanic, 22 percent White, 19 percent Asian, and 11 percent Black), which is reflected in the mix of ethnic shopping and restaurants in the area, including the city-designated Little Saigon commercial area. According to the Housing and Transportation Affordability Index, Lemon Hill has very high access to jobs (8.5 of 10). Predominant commercial activities include construction, administrative support, waste management services, and manufacturing, with residents primarily employed in construction, production, building/grounds cleaning/maintenance, moving, and personal care occupations.

Lemon Hill’s Air Quality Index level in 2013 was 102, (worse than the U.S. average of 75). This combination of low-income and high exposure to pollution is reflected by CalEnviroScreen 2.0, with five of the six Lemon Hill census tracts ranked in the top (worse) 25 percent in the State.

Transportation Profile
Lemon Hill residents primarily commute alone by car (71.4 percent), which is about average for California, but 16.7 percent carpool, exceeding the State’s 10.9 percent. The H+T Index rates Lemon Hill as having good access to public transit (7.2 of 10), and compact, walkable neighborhoods (7.5 of 10), surpassing the average scores for the county and city. About 10 percent of residents use public transit, while 1.9 percent commute by bicycle, (above the State’s 1.1 percent average), and 2.3 percent walk (below the State’s 2.7 percent average).

References:
38 US Census Bureau, American Fact Finder, 2016
40 OEHHA, 2016
41 CNT, H+T Index, 2016

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Active Transportation: Existing opportunities for safe, convenient and connected bikeways throughout the community are somewhat lacking. However, the 2016 City of Sacramento Bicycle Master Plan includes five new Class II bike lanes specific to Lemon Hill (along Fruitridge Blvd., 41st / Lemon Hill Avenue, 47th Avenue, 44th Street, and Sampson Boulevard). Regional efforts are ongoing to enhance bikeway connectivity, bikesharing, and assist low-income residents with bike ownership and upkeep.

Public Bus and Rail Services: Sacramento Regional Transit (SacRT) offers five routes that service Lemon Hill. Buses are powered by compressed natural gas (CNG) and equipped with two to three bicycle racks. Bikes are allowed on SacRT’s light rail system, and lockers and racks are at many stations. SACOG plans to implement “Connect Card”, a single fare card system that works on other transit operations in the area and allows fare payment by smartphone. SacRT operates a 4-line, 53-station light-rail system in the County, with an extension to the Sacramento International Airport expected in 2018. The Blue Line directly serves Lemon Hill and provides connections to two community colleges and the city downtown area. A Downtown/Riverfront Streetcar project is also planned. Inter-city rail service is provided by Amtrak’s Capitol Corridor, a passenger train system with 32 daily trains between Sacramento and the Bay Area and San Jose. The San Joaquin Line runs two trains and connects Bakersfield and Stockton with Sacramento.

Ride Sharing: The Sacramento Metropolitan Air Quality Management District is installing the Our Community CarShare Sacramento project, an eight vehicle electric-vehicle car sharing system for three Sacramento-area subsidized housing complexes in disadvantaged communities. One of the housing complexes that will be served is located on Lemon Hill Avenue and will offer two electric vehicles and chargers for the shared use of community residents. Other rideshare services available in the County include Lyft, Uber, taxis, Paratransit, Dial-a-Ride, and eRideShare. Craigslist Sacramento also lists ridesharing offers.

Clean Vehicle Incentives: Based on data from March 2010 through September 2016 from the State’s Clean Vehicle Incentive Program, 4 plug-in hybrid vehicle rebates and 7 battery electric vehicle rebates were issued within the Lemon Hill CDP, (totaling $23,500 overall), which is well below the per capita average for the County. Lemon Hill currently has no public charging sites. The County has 1 public hydrogen station and 92 public electric vehicle charging sites, but currently no public charging is available in Lemon Hill.

42 City of Sacramento, 2016
43 Capitol Corridor Joint Powers Authority, 2016
44 Our Community CarShare, 2016
45 CSE, 2016; data from Nicholas Nairn-Birch, CARB Project Lead for EFMP, 10 Aug. 2016

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Transportation Barriers and Opportunities

Poverty limits the choices of Lemon Hill residents. Some residents walk or bike if they are physically able. Others may use public transit services, but for some residents it may not meet their late-night or early-morning transit needs or is too expensive. Residents also may not be able to access other ridesharing options that require a credit card, bank account, smart phone, or internet service. Residents who can afford a vehicle purchase or lease may not be able to afford the increased expense of an advanced technology vehicle. Most importantly, public charging isn’t readily available in this community in order for these residents to be convinced that advanced technology vehicles can fit into their day-to-day routine. While active transportation is an option they can consider, concerns about crime and personal safety limit their use of cycling, walking, and using public transportation.

The main opportunities for low-income residents in Lemon Hill to gain better access to clean transportation are to improve the affordability of public transportation, transform the transit bus fleet to clean technology buses, increase the safety of streets for pedestrian and bicycle use, make the purchase of clean technology vehicles more affordable, and increase the availability of public and multi-family electric vehicle charging stations in the neighborhood.

Recommendations to Increase Clean Transportation Access

- Enhance clean transportation and infrastructure program funding opportunities for low-income individuals and disadvantaged community residents.
- Develop and fund clean transportation programs that increase information and accessibility to clean first-mile and last-mile transit connectivity options.
- Work with transit providers to develop or expand programs that provide discounted or free transit passes and offer diverse and easy to use payment options.
- Begin collecting and reporting vanpool usage information to the Federal Transportation Database to justify additional funds for new, clean transportation services.  

The following recommended actions as provided in Chapter 4 of the Guidance Document are intended to address some of the community recommendations:

- **Recommendation 1a**: Continue developing, expanding, and implementing used and new light-duty vehicles ownership programs, including creative financing mechanisms, such as point-of-sale incentives and low-cost loans, available to low-
income consumers, and make modifications as necessary to improve access for low-income residents.

- **Recommendation 1b**: Continue funding and expanding used and new light-duty vehicle retire and replace EFMP and EFMP Plus-up projects.

- **Recommendation 1k**: Continue funding programs that create or expand transformative clean transportation car sharing, ride sharing, bike sharing, vanpooling, micro-transit, and other mobility options.

- **Recommendation 4c**: Expand opportunities and create connections for good quality clean transportation jobs in low-income and disadvantaged communities.

**Merced**

Three low-income census tracts within the Merced Zip Code 95341 zip were selected because of the disproportionately high percentages of residents living in poverty and because county-level transportation assessments and published transit quality indices indicate residents have limited transportation access and connectivity. These census tracts represent urban, high-density communities in the northern San Joaquin Valley.

**Regional Setting**

Merced County encompasses 1,979 square miles and had a population of 255,793, and a population density of 130 people per square mile at the time of the 2010 US Census. The City of Merced is the largest of Merced County’s six incorporated cities with close to 79,000 residents, followed by Atwater, Los Banos, Livingston, Dos Palos and Gustine. The remaining 77,500 residents are in unincorporated areas.

Agriculture accounts for more than 90 percent of Merced County’s total area and is the largest employer, supporting one third of the County’s work force. Though prosperous in agriculture, Merced County’s annual unemployment rate ranked fourth highest in the State and first among San Joaquin Valley counties in 2015 at 11.4 percent.

The City of Merced had a population of 78,958 with a population density of 3,400 people per square mile according at the time of the 2010 census. The overall racial makeup of the city is predominantly white and Latino, followed by “other races,” then Asian. Nearly all of the population lives in households, and of those, 72 percent are families. The average household size is 3.1 and the average family size is 3.6. The median age is 28 years. The annual unemployment rate in 2010 was 8.6 percent, increasing to 14.5 percent in 2013, and dropping to 11.4 percent in 2015.

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47 US Census Bureau, American Fact Finder; OEHHA, 2016
48 MCAG, 2014; City of Merced, 2013; CNT, H+T Index, 2016; CNT, AllTransit, 2016; UC Davis, 2014
49 US Census Bureau, American Fact Finder, 2016
50 US BLS, 2016
51 US BLS, 2016

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Community Characteristics
This literature review describes the following three, low-income census tract communities in south Merced.

- Census Tract 60470015.02
- Census Tract 60470015.03
- Census Tract 60470016.01

In cases where census-tract level information and data are not available, including transportation needs and opportunities identified through local planning efforts, information is provided at the Zip Code 95341 level.

Census tract sizes range from 0.3 square mile (Census Tract 15.02) to 0.8 square mile (Census Tract 16.01). Compared to city averages, population densities in the three low-income census tracts are more concentrated, with an average household size of 4 people. A larger segment of the population is under 18, and the ethnic ratio is more heavily Latino or Hispanic (ranging from 60 to 82 percent), followed by Asian (nine to 27 percent). Job availability, growth, quality and accessibility are low for all three census tracts, resulting in higher unemployment and poverty rates. The unemployment rate in Zip Code 95341 is 14 percent. Accommodation, food services, and wholesale trade (farm and garden machinery and equipment) are the top industries in the zip code based on numbers of employees. The median household income ranges from $24,791 to $28,186, and poverty rates range from 33 percent (Census Tract 15.02) to 56 percent (Census Tract 16.01) below the federal poverty level.

Transportation Profiles
Transportation costs average about 30 percent of the total household income in these census tracts. The number of autos per household averages 1.6, which is below the city and State average and in the lowest ranking for vehicle availability. The two most common commute modes reported for zip code 95341 are driving alone (73 percent) and carpooling (10 percent). The most commonly reported commute time for residents in zip code 95341 is 10 to 14 minutes, and the average household annual vehicle miles traveled within the three census tracts is 20,517.

Active Transportation: The City of Merced has the most extensive bike path system in the country, however, significant safety issues exist in these census tracts related to active transportation. Incidents of pedestrian and bicycle collisions near school sites within the City of Merced were studied from 2007 to 2009, and the number of collisions

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52 UC Davis, 2014
54 US Census Bureau, American Fact Finder, 2016; UC Davis, 2014
55 CNT, H+T Index, 2016
56 UC Davis, 2014
57 MCAG, 2014

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in these census tracks was documented among the highest in the city.\textsuperscript{58} Efforts are ongoing to improve active transportation safety, especially close to schools, parks, and businesses, and to enhance neighborhood connectivity.

\textit{Public Bus and Rail Services:} Commuters using transit within the three census tracts range from 0.82 percent (Census Tract 15.03), to 1.6 percent (Census Tract 16.01). Transit performance scores are moderately low, based on the low combination of trips per week and number of jobs accessible, enabling few people to take transit to work\textsuperscript{59}. The Transit Connectivity Index score is poor, averaging 7.3 out of 100.\textsuperscript{60}

\textit{Ride Sharing:} Commute Connection is an employer-based Travel Demand Management (TDM) program that has served Merced County since 2010\textsuperscript{61}. The program helps commuters transition from driving alone to a convenient ridesharing option such as carpooling, vanpooling, bicycling/walking or riding transit. The program includes free services such as commuter ridematching, Emergency Ride Home and Employer Services. Other carpool connections are available through Uber Merced, Merced rideshare through Craigslist, and carpoolworld.com. No ridesharing programs are located specifically in these census tract communities.

\textit{Clean Vehicle Incentives:} In Zip Code 95341, four high-emitting vehicles were retired and replaced with used, clean vehicles using the State’s clean vehicle incentives programs ($4,500 for each retirement and $2,500 toward each clean replacement)\textsuperscript{62}. No State or local vehicle rebates for the purchase of new, electric or clean technology vehicles have been reported in any of the census tracts\textsuperscript{63}.

\textbf{Transportation Barriers and Opportunities}

Regional and city transportation planning efforts have made progress in increasing transportation access, but have also identified many challenges and opportunities associated with improving transportation access for low-income residents and transit-dependent populations in both Merced County and the City of Merced.\textsuperscript{64}

The City of Merced’s General Plan includes policies and capital improvement projects that respond to many of the transportation needs of low-income populations within these zip codes (i.e., complete streets policies, bikeway improvements, improved transit service for workers and transit-dependent citizens, and promoting clean technologies).\textsuperscript{65} The benefits will likely be gradual within these communities as projects will take time and sustained funding to implement. New bikeway improvements were approved as part of Merced’s bicycle transportation plan in 2013.\textsuperscript{66} Several new bike lanes and

\begin{footnotesize}
\begin{enumerate}
\item City of Merced, 2013
\item CNT, AllTransit, 2016; CNT, H+T Index, 2016
\item CNT, H+T Index, 2016
\item See Commute Connection at: http://www.commuteconnection.com/
\item Data from Nicholas Nairn-Birch, CARB Project Lead for EFMP, 10 Aug. 2016
\item CSE, 2016
\item MCAG, 2014; City of Merced, 2012, 2013
\item City of Merced, 2012
\item City of Merced, 2013
\end{enumerate}
\end{footnotesize}

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dedicated bike boulevard options were identified within the census tracts, in addition to other bikeway and bike facility improvements.

**Recommendations to Increase Clean Transportation Access**

To the extent feasible, clean transportation access goals under SB 350 should maintain compatibility with, and enhance, existing strategies adopted by Merced County and the City of Merced.67

- Improve active transportation safety and connectivity for residents, especially youths, who are biking or walking daily to school, parks and other youth-oriented venues.
- Expand multi-modal transportation options, including clean-technology transit service, to allow low-income residents access to employment, and to higher-wage jobs outside of these census tracts.
- Local, State and federal incentives funding should be increased to help defray upfront costs of the City of Merced’s planned capital improvements that will benefit clean transportation access to low income residents. This includes public fleet expansions using clean technology vehicles, public charging infrastructure, and dedicated bike lanes. The City of Merced’s prioritized improvements for active transportation and enhanced public transit are expected to benefit residents living in these three census tracts.

The following recommended actions as provided in Chapter 4 of the Guidance Document are intended to address some of the community recommendations:

- **Recommendation 1 h**: Secure binding commitments from the State’s public transportation agencies to purchase and transition to zero-emission and near zero-emission buses.
- **Recommendation 1i**: Secure binding commitments from school bus fleet owners to purchase and transition to zero-emission and near zero-emission school buses and install supporting charging and fueling infrastructure in vehicle yards and maintenance facilities.
- **Recommendation 1n**: Identify and direct funding toward increasing the availability of diverse fare payment options for low-income residents. Allow for cash loading options for payment cards.
- **Recommendation 1q**: Continue to support new active transportation projects and policies that promote safety and increased pedestrian and bike facilities. Expand funding for current projects including the California Transportation Commission’s Active Transportation Program, Complete Streets, and Safe Routes to School.

67 MCAG, 2014; City of Merced 2012, 2013

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• **Recommendation 4e:** Design clean transportation and infrastructure projects to avoid substantial burdens, such as physical or economic displacement of residents or businesses in low-income and disadvantaged communities or increased exposure to toxics or other health risks.

**McFarland**
McFarland is an incorporated city within Kern County in the San Joaquin Valley, approximately 30 miles north of Bakersfield and 90 miles south of Fresno. The closest neighboring city is Delano, which is approximately 7 miles to the south and one of the largest cities in Kern County. The selection of McFarland was based on its high CalEnviroscreen 2.0 scores, input received from SB 350 stakeholders, and the desire to include an urban, agricultural community representing the southern end of the San Joaquin Valley.

**Regional Setting**
Kern County encompasses 8,161 square miles and had a population of 839,631 and a population density of 100 people per square mile at the time of the 2010 census. The western portion of Kern County is in the San Joaquin Valley Air Basin, while the eastern portion is in the Mojave Desert Air Basin. Kern County serves as a transportation corridor for vehicles, trucks, rail, and pipelines, and is a central hub for goods movement across the State and internationally. Bakersfield is the largest population center in the county, with approximately 347,483 people supporting about 60 percent of the county’s total population, followed by Delano, Ridgecrest, and Wasco that all have populations less than 55,000.

Kern County’s economy is strongly tied to agriculture and petroleum extraction, and approximately 70 percent of the land in the county is dedicated to non-urban uses. The county consistently ranks among the top five agriculturally productive counties in the country and is also one of the nation’s top petroleum producers. Kern County was one of the top ten fastest growing counties in the nation from 2012 to 2013, and is forecasted to grow by more than 500,000 people by the year 2014. While the economic health of the county is trending upward, unemployment in the region remains consistently higher than the California average, and was the third highest of the eight counties in the San Joaquin Valley in August 2015. Growth over the last 10 years has been concentrated in urbanized areas and smaller communities, but much of the county’s employment opportunities remain dispersed, resulting in workers commuting to outlying employers such as food processing facilities, farms, oil fields and energy facilities, prisons and government installations.

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68 City of McFarland Transportation website: [http://www.mcfarlandcity.org/269/Transportation](http://www.mcfarlandcity.org/269/Transportation)
70 KCOG, 2014
71 US BLS, 2016
72 KCOG, 2014; Kern Economic Development Corporation, 2012

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Community Characteristics
This review provides a demographic and transportation profile of McFarland Zip Code 93250 and for the following two low-income census tracts:

- 6029004701
- 6209004702

McFarland covers an area of about 2.5 square miles in the northern portion of Kern County and is east-west by State Route 99. The median age of McFarland residents is 26 years old, which is younger on average than other communities statewide, and 48 percent of the population is under 25 (compared to the State average of 35 percent). Household with children under 18 comprise 70 percent of households, and the average household contains 4.4 occupants, even though the median household income of $34,212 is significantly lower than the California or national average. The average per capita income is $8,594. Although jobs are seasonally available, in 2015, the average unemployment rate was 10.2 percent (exceeding the California average of 6.2 percent), and 32.9 percent of residents were living in poverty. Sixty percent of jobs are associated with agriculture, and are located outside urbanized areas of the city. High school graduation rates are low and nearly 60 percent of the population over 25 reports lacking a high school education. This is likely due to many residents being “first-generation Americans” from countries where English is not the primary language.

Persons with disabilities comprise about 7.2 percent of the city’s population. McFarland can experience periods of poor air quality resulting from high levels of ozone and PM 2.5. In 2013, the Air Quality Index Level averaged 111, while the U.S. average was 75. In 2015, the air quality index was classified as “Good” for 83 percent of the year, “Moderate” for 13 percent, and “Unhealthy for Sensitive Groups” for 3 percent.

McFarland is one of several communities in Kern County that is experiencing rapid population growth. The population in 2010 was 12,707 with a population density of 4,763 people per square mile. In 2015, the population had grown to 13,985.

Transportation Profile
McFarland faces both challenges and opportunities in meeting the current and expanding transportation needs of its residents, many of whom are transit-dependent. Population growth is expected to continue, resulting in increased regional traffic and congestion and the need to invest in cleaner, more efficient means of meeting the

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74 KCOG, 2015
75 KCOG, 2015

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accessibility needs of its residents.\textsuperscript{76} The single largest transit-dependent population in McFarland is youth (40 percent), followed by low-income residents (30 percent).\textsuperscript{77}

Transportation costs in McFarland comprise 30 percent of the household income and housing comprises 25 percent.\textsuperscript{78} The number of autos per household averages 1.6, which is lower than the California average.\textsuperscript{79} Commute modes reported include personal vehicle (60 percent), carpool/vanpool (33 percent), walk (2.4 percent), bicycle (3.2 percent), public transportation (0.7 percent), and work at home (0.6 percent).\textsuperscript{80} The most commonly reported commute time for those living within Zip Code 93250 is 30 to 35 minutes.

Active Transportation: Youth mobility is dependent on Dial-A-Ride and addressed by school, friends and family, but many youth also walk from the eastern end of the city to the western portion where safety and access concerns exist crossing State Route 99. Two miles of new Class II bike lane were approved in McFarland as part of the 2012 Kern County Bike Master Plan.\textsuperscript{81}

Public Bus and Rail Services: Transit access is rated poor based on the low combination of trips per week and number of jobs accessible enabling few people to take transit to work.\textsuperscript{82} Transit connectivity is very low (0.8 out of 100 possible), based on most homes being located greater than one-half mile from a transit location. The City of McFarland offers a first-come, first-served Dial-A-Ride service within city limits and open to the general public with no eligibility requirements. This service is provided to nearly 16 percent of its residents at no cost.\textsuperscript{83}

Dial-A-Ride fleets utilize compressed natural gas-powered cut-away vehicles. The service is available Monday through Friday from 8:00 a.m. to 4:15 p.m. and fares are $1.00 for adults and $0.50 for children and seniors. Children under 16 must be accompanied by an adult. McFarland’s Transit Development Plan reported that Dial-A-Ride ridership is likely low because most employment opportunities are outside its service area which is the city limits.\textsuperscript{84} There is no fixed route bus service within the city. Kern Transit is a public operator providing weekday and weekend bus connections via its Route 110 from Bakersfield connecting McFarland to popular inter-city destinations. Delano Area Rapid Transit is a public operator connecting McFarland residents to Bakersfield and Delano on weekdays and weekends.


\footnotesize{KCOG, 2015}
\footnotesize{CNT, H+T Index, 2016}
\footnotesize{UC Davis, 2014}
\footnotesize{US Census Bureau, 2016}
\footnotesize{KCOG, 2015}
\footnotesize{CNT, H+T Index, 2016}
\footnotesize{KCOG, 2015}
\footnotesize{KCOG, 2015}

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**Ride Sharing:** Carpooling and vanpooling opportunities are available to McFarland residents through the California Vanpool Authority, and the Kern Council of Governments sponsors a ride matching website called “CommuteKern” for residents and employers wanting to reduce single-occupant vehicle trips.⁸⁵

**Clean Vehicle Incentives:** No State or local rebates for the purchase of new, electric or clean technology vehicles have been reported for the zip code ⁸⁶. One vehicle retirement, which included an incentivized purchase of a used, low-emission vehicle, was reported under the State’s Enhanced Fleet Modernization Program, ($4,500 for retirement and $2,500 toward clean replacement)⁸⁷.

**Transportation Barriers and Opportunities**
Transportation planning efforts undertaken by Kern County and McFarland have led to the identification of key challenges and opportunities associated with improving transportation access for low-income residents, including those that are transit-dependent.⁸⁸ Key findings include:

- Extend and enhance existing Dial-A-Ride services.
- Introduce a fixed-route bus service.
- Develop a vanpool service for agricultural workers.
- Develop a park and ride facility adjacent to regional travel transfer facilities and ridesharing locations.
- Increase transportation funding for bike, pedestrian, and transit facilities.
- Integrate land use and transportation in the county to double the number of homes within walking distance to quality transit.

Financial challenges were the largest barrier identified in meeting transportation needs. The county reported that projected population growth, employment travel demand, and multimodal transportation costs surpass projected revenues available from the gas tax, which is the county’s historic transportation funding source. The City of McFarland is struggling to balance service enhancements, rising operating costs and required farebox recovery ratios with passenger fares.⁸⁹

**Recommendations to Increase Clean Transportation Access**
Clean transportation access goals under SB 350 should enhance existing regional and local transportation strategies. State clean transportation funding to support McFarland’s efforts to reduce single driver vehicle trips might include:

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⁸⁶ CSE, 2016
⁸⁷ Data from Nicholas Nairn-Birch, CARB Project Lead for EFMP, 10 Aug. 2016
⁸⁸ KCOG, 2015, 2014
⁸⁹ KCOG, 2015
• Funding to purchase hybrid, plug-in hybrid or zero-emission passenger vans for agricultural workers and other worker vanpools.

• Funding to support implementation of a new fixed-route transit bus service in the McFarland city limits.

• Funding for a safe and accessible bike and pedestrian crossing over SR 99 and an increased number of designated bike lanes and pedestrian routes for youth.

• Funding to extend Class II bike lanes beyond the two miles within the City limits.

• Foster community ownership in clean public transportation options and supporting infrastructure. For example, McFarland participates in the Play Everywhere Survey Challenge, a national competition that promotes creative ways of making outdoor play easy, available, and fun for kids and families. Recently McFarland was selected as one of 200 finalists for their proposal to redesign the Veteran's Memorial Bus Stop. McFarland’s proposal includes promoting creativity, health, and safety for youth. This is an example of community involvement in improving transportation facilities that could be applied to other forms of transportation as well.

The following recommended actions as provided in Chapter 4 of the Guidance Document are intended to address some of the community recommendations:

• Recommendation 1 g: Continue funding programs that pay or reduce the cost of zero-emission and near zero-emission vehicles used in public transportation and school bus fleets.

• Recommendation 1 k: Continue funding programs that create or expand transformative clean transportation car sharing, ride sharing, bike sharing, vanpooling, micro-transit, and other mobility options.

• Recommendation 1l: Continue to pay for programs that direct funding toward increased availability of discounted or free transportation passes for public transportation, car sharing, bike sharing, micro-transit, and other transformative clean transportation and mobility options.

• Recommendation 1m: Continue to identify and implement policies that increase the frequency, reliability, and safety of clean public transportation options.

• Recommendation 1o: Continue to expand the implementation of pedestrian and bicycle infrastructure improvements, including for separated bikeways or cycle tracks (Class IV bikeways) and mobility hubs.

• Recommendation 1q: Continue to support new active transportation projects and policies that promote safety and increased pedestrian and bike facilities. Expand

90 See the City of McFarland’s website: http://www.mcfarlandcity.org/CivicAlerts.aspx?AID=21

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funding for current projects including the California Transportation Commission’s Active Transportation Program, Complete Streets, and Safe Routes to School.

**Oroville**

Oroville was selected for a literature review because it is one of the few Northern California communities included in CalEnviroScreen 2.0’s top 25 percent of communities most impacted by pollution. This literature review describes Butte County and provides a demographic and transportation profile for Oroville, including transportation needs and gaps identified through review of local planning documents, and identifies community-specific opportunities to increase clean transportation access in these communities.

**Regional Setting**

The City of Oroville (Oroville) is located in the middle of Butte County located off of the Highway 70, about 20 miles southeast of Chico and 70 miles north of Sacramento. Butte County, in Northern California’s Central Valley, is a primarily rural county of 1,165 square miles. At the time of the 2010 census, the county population was 220,000, with a population density of 189 people per square mile, less than the State average of 234. The Sacramento and Feather rivers running north to south through the county serve the agricultural lands in the west and central areas, with Lake Oroville and the Oroville Dam hydroelectric project lying in the county’s center. Elevations in the county climb from 50 feet above sea level in the west to foothills and the Sierra Nevada Mountain Range in the east with elevations over 7,000 feet.

US EPA designates Butte County as a nonattainment area for the federal 8-hour ozone standard, and the county’s lower elevation area as a nonattainment area for the PM2.5 standard. CARB designates the county as a moderate nonattainment area for the State 1-hour ozone standard and as a nonattainment area for the State 8-hour ozone, PM10, and PM2.5 standards. The county also ranks near the worst quartile of California counties for people living below the federal poverty level, and this population has grown from 18.5 percent in 2005-2009 to 21.8 percent in 2010-2014. The largest racial/ethnic groups in the county are White (74.2 percent) followed by Hispanic (14.9 percent). Residents rely upon vehicles for transportation; 74 percent commute to work alone and 13 percent by carpool. About 6 percent of residents bicycle or walk to work, while approximately 1 percent use public transit to get to work.

**Community Characteristics**

Oroville, with 15,546 residents, is the third largest city in the county. Residents are primarily White (75.2 percent), with the next largest groups Hispanic (12.5 percent),

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Asian (8 percent, of which Vietnamese Hmong represent 4.8 percent), Native American (3.7 percent), and African American (2.9 percent). Over 96 percent of workers commute by car, truck, or van, and less than 1 percent commute by public transit or bicycling, although 2.38 percent walk to work. CalEnviroScreen 2.0 ranks Oroville in the State’s top (worst) 25 percent of census tracts for exposure to pollution. The U.S. EPA reports 1 active superfund site and 2 delisted (cleaned-up) sites in the Oroville area. Oroville’s Air Quality Index in 2013 was 66.5, which was about the State’s average. The percentage of Oroville residents living in poverty in 2013, 23.3 percent, is higher than that of the county (21.5 percent), the State (16.8 percent), and the nation (15.7 percent).

The Housing and Transportation Affordability Index reports that in Oroville, transportation costs account for 29 percent of a household’s income expenditures, compared to a national average of 31 percent. Job access scores rank 7.5 on a scale of 10. A score of 1.4 out of 10, indicates limited access to high-frequency public transportation, and low walkability (score of 3.5 out of 10), due to low density neighborhoods. According to AllTransit indices, 95.8 percent of workers commute by car, truck, or van, 2.4 percent walk to work, and less than 1 percent commute by other sources.

Transportation Profile

The 2015 Butte County Association of Government Transit and Non-motorized Plan presents a long-range vision for encouraging alternate modes of transportation such as walking, biking, and transit, with priority projects for walking, bicycling, and increased access to transit. The Draft Butte County 2016 Regional Transportation Plan/Sustainable Communities Strategy identifies county transportation policies, projects, and programs for the next 24 years, including new policies to ensure that traditionally underrepresented groups are included in the planning process. The Plan includes strategies for assisting low-income and minority communities, as shown in Table 1.
Table 1: Effects of Butte County Regional Transportation Plan on Low-Income and Minority Communities

<table>
<thead>
<tr>
<th>Intended Population</th>
<th>Special Needs / Concerns</th>
<th>Transportation Modes</th>
<th>Potential Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-income / Homeless Population in the county</td>
<td>- Easy access to trip planning information</td>
<td>- Fixed-route transit</td>
<td>- Creative fare options for human services agencies</td>
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<tr>
<td></td>
<td>- Fare subsidies for tokens or passes (non-cash)</td>
<td>- Special purpose shuttles (work, training, special education, Headstart, recreation)</td>
<td>- Increased availability of bus passes</td>
</tr>
<tr>
<td></td>
<td>- Breaking down barriers to transportation</td>
<td>- Vanpools, ride sharing, car sharing</td>
<td>- Universal pass for services across county</td>
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<tr>
<td></td>
<td>- Barriers faces by mothers with multiple children</td>
<td></td>
<td>- Bus passes available for job search / job training</td>
</tr>
<tr>
<td></td>
<td>- Need to bring shopping carts</td>
<td></td>
<td>- Special shuttles for predictable patterns for this population</td>
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<tr>
<td></td>
<td>- Difficulties with transfers within and between systems; long trips</td>
<td></td>
<td>- Transit education to case workers</td>
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<td>- Better feedback to planners</td>
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<td>- More training for staff</td>
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<td></td>
<td></td>
<td></td>
<td>- Vanpool creation assistance</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>- Ride sharing connections</td>
</tr>
</tbody>
</table>


Active Transportation: The Butte County Association of Governments identifies the importance of non-motorized transportation to reduce dependence on vehicles, reduce emissions, and increased public health and recreation. Local planning includes a focus on improvements for connectivity and safety for walking or biking to better take advantage of Oroville’s relatively flat terrain for active transportation. Roads and crossings in urban areas increasingly have signage and shoulders that encourage walking and bicycling, but less so on rural roads. Oroville plans additional bike-lanes, new bike paths, and major access improvements along State Route 162 through the City.103

Public Bus and Rail Services: A full 50 percent of transit riders in Butte County are at or below the poverty line, which illustrates the importance of public transit for low-income residents.104 Despite AllTransit’s low ranking of Oroville for access to high-frequency transit, based on other measures Oroville and the county’s other population centers are relatively well served by the Butte Regional Transit (B-Line) bus system and Paratransit/Dial-a-Ride services. B-Line consistently exceeds Transit Development Act fare box recovery ratio requirements for its urban and rural routes, and ridership increased six percent from Fiscal Year 2008/09 through 2012/13. Paratransit use

103 BCAG, 2016b
104 BCAG 2015

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increased by 40 percent over that time. B-Line buses have bike racks, and the B-Line Tracker app provides real-time bus arrival texts. However, the current B-Line bus fleet is a mix of natural gas and diesel powered buses with no advanced clean technology buses.

_Ride Sharing:_ Ride sharing in the county’s urban areas consists of Uber, and B-Line’s Paratransit and Dial-a-Ride services.

_Clean Vehicle Incentives:_ Through August 2016, county residents have received 126 Clean Vehicle Rebate Project rebates worth $265,300 for purchases or leases of new plug-in hybrid or battery-electric vehicles. The county currently has 14 electric vehicle charging stations that include 1 Level I, 25 Level II, and 4 DC fast chargers. Of those, 8 Level II chargers located at Butte College in Oroville. In the 2015 Butte County Action Plan, the County supports increasing the number of charging stations to 40 by 2030.105

Proposition 1B funding, approved by voters in 2006, funded 12 replacement school buses and 54 diesel particulate filters in 2011 and 2012 in an effort to further reduce Butte County school children’s exposure to cancer-causing and smog-forming pollution.

_Transportation Barriers and Opportunities_

**Active Transportation:**
- Many roads in Oroville and Butte County, especially in rural areas, lack improvements that make active transportation safe and attractive options. The County’s limited resources necessitate a primary focus on increasing access and vehicular traffic in road planning. The County’s 2015 Transit and Non-motorized Plan106 provides opportunities for policies and plans to address barriers residents who walk or bike experience.

**Public Bus and Rail Services:**
- In rural Butte County, more routes help would reduce access barriers to public transit. In urban areas such as Oroville that are comparatively well-served, barriers and opportunities primarily involve improving affordability, more service during off-peak hours and weekends, and increasing schedules to present attractive and appropriate trip times. Opportunities exist to green the bus fleet by converting buses to hybrid-electric, battery-electric, or fuel-cell battery electric buses.

**Clean Vehicle Incentives:**
- Butte County’s rural nature ensures that vehicle travel is the dominant mode transportation. Barriers to accessing advanced clean technology vehicles include lack of uptake for incentives and insufficient public charging stations. Opportunities

105 Butte County Action Plan, 2015: [https://www.buttecounty.net/Portals/28/6a_ActionPlan2015.pdf](https://www.buttecounty.net/Portals/28/6a_ActionPlan2015.pdf)
106 Butte County, 2015

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include increasing outreach and education efforts to the public to increase awareness and acceptance of advanced technology vehicles, with a focus on informing low-income residents. Low-income residents may also be better served by introducing new strategies such as financing assistance to help with purchases of used or new clean vehicles or scrap and replace programs such as employed in the San Joaquin Valley and South Coast air basin to assist acquisition of new or used clean vehicles. Creating new vanpools using advanced technology vans and encouraging car sharing and ride sharing using clean vehicles also represent opportunities. An agricultural worker vanpool system modeled after the CalVans system in the San Joaquin Valley could increase access for this low-income population.

Recommendations to Increase Clean Transportation Access

- The active transportation policies and improvement projects envisioned by the County’s Bicycle Plan, the Regional Transportation Plan/Sustainable Communities Plan, the Transit and Non-Motorized Plan, and the Unmet Transit Needs Assessment should be fully implemented.
- Butte County should follow the Regional Transportation Plan’s guidance for increasing services to low-income and minority communities, including increasing service to rural areas of the county, providing more off peak and weekends service, and introducing new advanced clean technology vanpools.
- B-Line should begin to transform its fleet to advanced clean technology buses.
- Incentive programs for advanced clean technology should provide more outreach and education to residents of areas like Oroville and Butte County that have shown low uptake, and pilot projects should look to expand services into these areas.
- To better support residents that choose clean vehicles, the region’s plans for installing public electric vehicle charging stations, especially for multifamily housing, need strengthening.
- Encourage public school district school bus transportation managers in Butte County to apply for CARB’s Fiscal Year 2016-17 Rural School Bus Pilot Project $10 million grant opportunity due for release in early 2017. This competitive grant award provides funding to replace a conventional-fueled school bus using renewable fuel, or to expand the school bus fleet with a zero-emission school bus. This Low Carbon Transportation Investments project is a statewide funding opportunity, with priority given to applicants in small and medium-sized air districts.

The following recommended actions as provided in Chapter 4 of the Guidance Document are intended to address some of the community barriers to clean transportation access:
• **Recommendation 1c**: Continue supporting and incentivizing charging infrastructure installation, including in existing multi-unit dwellings, for low-income residents. Track deployment of utility infrastructure investments in low-income and disadvantaged communities, with an emphasis on multi-unit dwellings, to identify impacts and potential to enable the market in these areas. This aligns with CEC’s recommendations in the Low-Income Barriers Study, Part A.

• **Recommendation 1l**: Continue to pay for programs that direct funding toward increased availability of discounted or free transportation passes for public transportation, car sharing, bike sharing, micro-transit, and other transformative clean transportation and mobility options.

• **Recommendation 1n**: Identify and direct funding toward increasing the availability of diverse payment options for low-income residents. Allow for cash loading options for payment cards.

• **Recommendation 1q**: Continue to support new active transportation projects and policies that promote safety and increased pedestrian and bike facilities. Expand funding for current projects including the California Transportation Commission’s Active Transportation Program, Complete Streets, and Safe Routes to School.

• **Recommendation 2a**: Continue to conduct or expand community-based needs assessments to better understand local barriers and opportunities for increasing access to clean transportation, especially in low-income and disadvantaged communities.

**Tipton and Woodville**

Tipton and Woodville are low-income census-designated places in Tulare County, located in the southern San Joaquin Valley. These communities were selected for review because a disproportionately high percentage of residents live in poverty, and the communities rank among the highest statewide for environmental burden. Residents here have a higher need for transportation services due to age, disability, and income status, yet many live outside of the incorporated cities in areas of limited services.107

**Regional Setting**

Tulare County encompasses 4,863 square miles in the southern portion of the San Joaquin Valley. The eastern half of the Tulare County is mountainous and unpopulated, while the fertile western half supports the majority of the 442,179 residents dispersed among small to medium-sized communities, separated by large expanses of cultivated lands.108 The population density averages 95 people per square mile, (compared to a statewide average of 234 people per square mile), and 23 percent of the county’s land area is dedicated to agriculture. The densest populations are concentrated east of

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107 TCAG, 2015a
108 US Census Bureau, American Fact Finder, 2016

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State Route 99 to the Sierra Nevada foothills. The climate is dry with an average of 10 inches of rain and 265 days of sun per year. In summer, temperatures run in the upper nineties, with winter lows in the mid-thirties.

Tulare County contains 11 percent of the San Joaquin Valley’s population, however, it has 18 percent of the valley’s disadvantaged unincorporated communities. Over 30 percent of the county’s population is considered low-income, and eight percent of households are without a vehicle.

**Community Characteristics**

Tipton and Woodville are within Census Tract 32. Tipton is bisected by California State Route 99 running north and south. Woodville is 9 miles to the east of Tipton. Tipton covers a one square mile land area (Zip Code 93272; Census Block Groups .001, .002, .003). Woodville is a CDP approximately 9 miles to the east of Tipton and covers a 4.3 square mile land area (Zip Code 93257; BG .003, .004, .005). The closest large towns are Porterville and Tulare. Populations for Tipton and Woodville were 2,543 and 1,740 as of the 2010 census, and the population for the entire census tract was 6,446.

Residents are predominantly Latino or Hispanic (>80 percent), with agriculture the prevailing industry (>60 percent). Disproportionately high percentages of residents live in poverty; the poverty rate in Tipton is 15 percent, while in Woodville it is considerably higher at 46 percent. Median household income is about $32,000 per year, and per capita income ranges between $9,400 and $11,000. These communities also rank among the highest statewide for environmental burden (91 to 95 percent, CalEnviroScreen Version 2.0, 2016), and had an unhealthy Air Quality Index in 2013 of 126 which is significantly higher than the US average of 75.

The median age of residents is 24 years for Tipton and 28 years for Woodville, which is younger than the California average of 37 years. The average family size is 4. Both CDPs have high percentages of youth, (between 35 and 40 percent of their populations are under 18), and Census Tract 32 ranks in the top ten of 78 census tracts in Tulare County for its percentage of youth, (40 percent compared to 24 percent statewide).

**Transportation Profiles**

Transportation costs average about 40 percent of the household income in Tipton and Woodville. Online transportation indices such as AllTransit and the Regional Opportunity Index report that Tipton and Woodville have limited transportation access,
connectivity, and walkability. Driving alone is the top mode of commute travel, (86 percent of Tipton residents and 58 percent of Woodville residents commute alone), followed by car or vanpooling, (12 to 30 percent). Public transportation is used less than two percent, and bicycling and walking are uncommon (less than two percent). The average number of autos per household is 2, and the annual vehicle miles traveled per household is between 28,000 and 31,000 miles. The average commute time to work is between 15 and 25 minutes.

Active Transportation: The lack of bikeways and bike connectivity has been recognized as a concern in these communities. The May 2016 Regional Active Transportation Plan for Tulare County includes a new, proposed Class I bike project near Tipton, and Class II project along Avenue 152 from Tipton to Poplar Center, leading becoming a proposed Class I bike lane.

Public Bus and Rail Services: Transit Connectivity, a measured of the number of bus routes and train stations within walking distance for houses in a block group scaled by the frequency of service, is rated extremely low for these communities (a rating of 3 for Tipton and 0.9 for Woodville, on a scale from 1 to 100). Fixed-route inter-city bus service is provided through Tulare County Area Transit (TCoT), while Porterville City Operated Local Transit (COLT) provides local circulators. Tipton is served by TCoT South County Route 20 (Monday through Sunday), while Woodville residents can access COLT lines #60 and #90. Porterville transit center links circulator routes and regional route 40. TCoT operates 13 compressed natural gas (CNG) buses and six CNG shuttles, and COLT has a mix of diesel, CNG and gasoline buses and vans. TCoT offers a T-Pass for $50 a month, which is a County-wide pass accepted on all fixed route transit services in the county (excluding Dial-A-Ride). A “Try-TCoT New Rider Discount Program” for unincorporated areas of Tulare County is also available.

Demand-response service is provided through both public and private providers (e.g., COLT and Porterville Sheltered Workshop), and also by private purchasers (Tulare County Health and Human Services Agency, Kings/Tulare Area Agency on Aging, Tulare Department of Mental Health). In several cases, eligibility is restricted to senior or disabled residents, or for specific travel to health services or schools. Tulare WORKS offers transportation services for CalWORKS participants.

Ride Sharing: California Vanpool Authority (CalVans) operates across multiple counties. In Tulare, the majority of vans run from Visalia, and 70 percent of the vans currently serve employees working at correctional institutions. Tulare County partnered with Fresno County to create the carpooling website “ValleyRides” (www.valleyrides.com) which allows residents to find carpool partners and incentivizes

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114 CNT, H+T Index, 2016; CNT, AllTransit, 2016, UC Davis, 2014; TCAG, 2015a, 2015b

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carpooling and vanpooling ($600 per month for eligible vanpool, and monthly cash prizes for carpool).

**Clean Vehicle Incentives:** Electric vehicle ownership is low based on State and local rebate data. Since 2010, 12 rebates for new clean vehicle purchase were issued for Woodville residents; none are reported for Tipton. One payment was issued to a Tipton resident for retirement of a high-emitting vehicle under the State’s EFMP program, and 7 were issued to Woodville residents, of which 6 received additional incentive to replace scrapped vehicle with a cleaner model. One voucher was issued to a Woodville resident under the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project for $23,000.

**Transportation Barriers and Opportunities**

The Tulare County Association of Governments completed a needs assessment of transit resources, using input from residents and public and private transit providers to evaluate the existing system and develop a coordinated transportation plan. The transportation needs of residents with disabilities, older adults, and persons of low-income were prioritized because of their transit dependence. Many of the residents in Tipton and Woodville fall into one or more of these groups. Areas in Tulare County with noted transportation gaps included Tipton and Woodville. Transportation needs, including active transportation, related to spatial and temporal gaps, transportation costs, and service awareness. Primary barriers include:

- Lack of commuter-oriented transportation service to and from outlying county areas into the four largest cities (Dinuba, Porterville, Tulare, and Visalia). This was the top need expressed by stakeholders.
- Lack of alternatives to transit service, such as ride-sharing or volunteer-driver programs for residents wanting to live independently but not qualifying for or suited to use existing dial-a-ride services.
- Lack of safety, connectivity, and access to biking and walking routes. Residents want safe routes for walking and biking. Fast traffic, lack of crosswalks and bike lanes, and lack of traffic signals are barriers, as is a lack of secure bicycle infrastructure.

**Recommendations to Increase Clean Transportation Access**

- Clean transportation access goals for the SB 350 effort should maintain compatibility with, and support where appropriate, the existing strategies adopted in Tulare

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116 CNT, H+T Index, 2016
117 TCAG, 2015a, 2015b
118 TCAG, 2015b
County’s regional transportation plans related to improving active transportation through on-street and off-street infrastructure investments.119

- Support long-range fixed route and demand-response service enhancements, while also promoting the use of clean technology vehicles. Increase access and availability of State incentive funding for regional and local transit providers serving low-income and disadvantaged communities for the purchase of new, clean technology shuttles, vans and buses in public fleets. A recent example of State support is the $9,516,422 grant awarded to Porterville Transit through State Low Carbon Transportation funding. The grant helps fund transit electrification for 10 Greenpower battery electric buses and a solar depot charging station.

- Provide funding for and formalize vanpooling to make it more broadly available to residents.

- Continue incentive funding and low-interest financing for new and pre-owned light-duty clean vehicles incentive targeted to low-income residents. Single occupancy vehicles are shown to be the most common mode of commuting in Tipton and Woodville. For low-income residents with relatively short commutes or, less commonly, access to workplace charging, zero-emission vehicles may be an attractive, cost-effective option. Tipton and Woodville residents are eligible for both State and local incentives for the purchase of advanced technology vehicles (for example, a battery electric vehicle has up to a $3,000 local rebate incentives, a $2,500 State incentive, plus an additional $1,500 for low-income household, and carpool lane access). Based on a resident’s income qualifications, other incentives for vehicle and or equipment purchase, repair or installation may apply.

- Outreach on clean transportation rebates and incentive programs should be community-based, interactive, and inclusive on all aspects of clean vehicle ownership.

The following recommended actions as provided in Chapter 4 of the Guidance Document are intended to address some of the community recommendations:

- **Recommendation 1a:** Continue developing and implementing used and new light-duty vehicles ownership programs, including creative financing mechanisms, such as point-of-sale incentives and low-cost loans, available to low-income consumers, and make modifications as necessary to minimize barriers to low-income residents.

- **Recommendation 1h:** Continue funding programs that pay or reduce the cost of zero-emission and near zero-emission vehicles used in public transportation and school bus fleets.

119 TCAG, 2015b; TCAG, 2016
• **Recommendation 1q:** Continue to support new active transportation projects and policies that promote safety and increased pedestrian and bike facilities. Expand funding for current projects including the California Transportation Commission’s Active Transportation Program, Complete Streets, and Safe Routes to School.
Appendix C: Research Projects

The supplemental information presented below supports Chapter 3: Current Actions to Address Barriers section of the Guidance Document. Within and external to CARB, many current and ongoing activities in research, commercial deployments, and vehicle demonstrations have potential application to SB 350 goals and priorities. Inversely, the SB 350 study effort is providing CARB and others with insights that will improve and expand existing clean transportation programs and activities for the benefit of low-income residents, and help target those factors necessary to improve clean transportation access. The CARB-sponsored research projects described below have direct application to SB 350 goals. The information gained from completion of these research efforts will help to inform ongoing efforts on the Guidance Document.

Developing a New Methodology for Analyzing Potential Displacement
Research Collaborator: University of California, Berkeley

Research Timeline: The final report will be published in spring 2017.

Information gained from this research summary will inform the Guidance Document actionable steps to carefully plan clean transportation projects and investments in ways that minimize displacement of low-income residents. In California, Metropolitan Planning Organizations (MPOs) are required through SB 375 to develop a Sustainable Communities Strategy as part of their federally mandated Regional Transportation Plan. The strategy must demonstrate how, largely through reducing travel demand and vehicle miles traveled, MPOs will attain regional greenhouse gas reduction targets for passenger vehicle established by CARB. As California regions plan more compact, transit-oriented developments to meet these targets, there is increasing concern that new transit investment and development may lead to displacement of existing, low-income residents, preventing low-income communities from sharing in the benefits of this type of development. Project investigators will examine the relationship between transit-oriented development, displacement, and travel behavior in California. Partnering with two MPOs, CARB and the University of California, Berkeley will develop a set of tools to examine likely outcomes around transit-oriented development in planning processes, and analyze the impact of policies designed to minimize displacement. Further information on this research is available at: https://www.arb.ca.gov/research/single-project.php?row_id=65188. The technical proposal is available at: http://iurd.berkeley.edu/research/ARB2765-276-social-equity-and-TOD.pdf
Assessing the Travel Demand and Co-Benefit Impacts of Affordable Transit-Oriented Developments Research Summary
Research Collaborator: University of California, Berkeley

Research Timeline: Contract execution is expected in summer 2017; final results are expected in January 2019.

The lack of affordable housing can contribute to barriers preventing low-income residents from accessing clean transportation. Promoting affordable housing in transportation planning is an actionable step in this guidance document, along with supporting investments that integrate multiple clean options in support of SB 375. This research summary is a companion effort that investigates the travel demand and co-benefit impact of affordable transit-oriented developments. SB 375 requires MPOs in California to develop a Sustainable Communities Strategy as part of their federally mandated Regional Transportation Plan. The strategy must demonstrate how, largely through reducing travel demand and vehicle miles traveled, MPOs will attain regional greenhouse gas reduction targets for passenger vehicle established by CARB. Affordable housing in transit-oriented developments is recognized as a potential travel demand reduction strategy; however, empirical, peer-reviewed research is lacking. The objectives of this project are to evaluate the impact that preserving and building affordable housing in transit-oriented areas has on travel demand and vehicle miles traveled (VMT), and to assess the economic, health, and well-being impacts on the associated residents. Further information on this research is available at: https://www.arb.ca.gov/research/single-project.php?row_id=65273. The research proposal is available at: https://www.arb.ca.gov/board/books/2015/072315/prores1528.pdf.

Vehicle Retirement and Replacement Incentives Research Summary
Research Collaborator: University of California, Los Angeles

Research Timeline: Case studies expected by spring 2017; results by fall 2018.

While advanced, clean vehicle pricing continues on a trend toward greater affordability, the upfront cost associated with clean vehicle purchase continues to present a barrier to clean transportation access for low-income residents. In order to meet air quality and climate change goals in California, transformation of the light-duty vehicle fleet is necessary. Clean vehicle incentives play an important role by accelerating the retirement and replacement of older, high-polluting vehicles, and by motivating consumers to purchase advanced clean vehicles that may otherwise not be considered. This research project objective is to gain insight into vehicle retirement and replacement motivations and patterns specific to low and moderate income households. The project will include assessing the effectiveness and cost-effectiveness of different policies and financial incentive program structures for optimizing adoption of advanced technology vehicles or other travel options, (e.g., fixed-route transit, car- or ride-sharing), particularly among low and moderate income households. Research results will be
used to evaluate the light-duty vehicle market and inform CARB decision makers about the potential options for modifying CARB's vehicle incentive programs to ensure they maximize limited State resources and benefit currently underserved populations and disadvantaged communities. Further information on this research is available at: https://www.arb.ca.gov/research/single-project.php?row_id=65259. The research proposal is available at: https://www.arb.ca.gov/board/books/2015/072315/prores1526.pdf

Plug-in Electric Vehicles in the Secondary Market Research Summary
Research Collaborator: University of California, Davis

Research Timeline: Early results expected spring 2017; final results by year's end.

Plug-in electric vehicles are expected to play a major role in achieving the greenhouse gas and criteria pollutant reductions required by California's Low Emission Vehicle program, the California Global Warming Solutions Act of 2006 (AB 32), and increasingly stringent National Ambient Air Quality Standards. This project will characterize the dynamics of the secondary market for plug-in electric vehicles (PEVs) in California to improve estimates of the emission benefits of PEVs and projections of the overall emissions from the light-duty fleet. Researchers will employ surveys, and an economic model to evaluate the impact of factors such as battery life, energy prices, infrastructure availability, attributes and prices of new vehicle offerings, and economic conditions, on the demand and prices of used PEVs and on their usage. Results will inform future decisions by CARB policymakers on the treatment of PEVs by various CARB programs, such as incentives, durability requirements, or vehicle crediting. Further information on this research is available at: https://www.arb.ca.gov/research/single-project.php?row_id=65236. The research proposal is available at: https://arb.ca.gov/board/res/2015/res15-26.pdf.

Affordable Housing Transportation Survey
Research Collaborator: University of California, Davis, Institute of Transportation Studies

Research Timeline: Results expected in spring 2017; continued coordination into 2017 with potential to extend.

This survey is intended to inform CARB on the effectiveness of its incentives programs, and stimulate adaptive program changes and an improved understanding of the barriers facing low-income residents in accessing clean transportation options.

Residents of affordable housing offer important insights into barriers to clean transportation access, and developers of affordable housing have tremendous influence in creating the vision for future development, (such as one that promotes clean transportation and plans for necessary infrastructure). This research project involves conducting a transportation survey of affordable housing residents in the San Joaquin...
Valley. With collaborative support from Self-Help Enterprises, an affordable housing developer in the San Joaquin Valley, the survey will be administered early in 2017 to 1,300 families residing in low-income housing throughout the Valley. Results are expected in spring of 2017. Survey questions will be designed to better understand parameters such as the following:

- Number and types of vehicles driven
- Typical travel patterns
- Unmet travel needs and barriers to using alternative transportation
- Awareness of clean vehicle incentives and programs.

**Future Mobility Research Program**

Research Collaborator: Metropolitan Transportation Commission (MTC)

The Metropolitan Transportation Commission (MTC) is a public agency responsible for leading the Bay Area’s transportation future. MTC has partnered with the Sacramento Area Council of Governments, San Diego Association of Governments, and Southern California Association of Governments in a joint procurement for this research. The primary tasks include identifying appropriate roles for the State’s largest MPOs, and examining key policy issues in which transportation/mobility option companies and trends may be present, assessing the potential impacts of their activities. MTC is actively involved in the clean transportation sector, and contributes proactively at the federal, state and regional level on emerging technologies and trends. The transportation space is a constantly evolving landscape, and private-sector companies are capitalizing on newly evolving markets associated with technology advancement and expansion. Emerging technologies will influence every transportation mode and be a catalyst for public policy development and the creation of more sophisticated tools for planning and analysis. Further information is available at: [http://bids.mtc.ca.gov/procurements/226](http://bids.mtc.ca.gov/procurements/226).

**Vehicle Miles Traveled, Household Vehicle Ownership, Greenhouse Gas, and Policy Implications of Ridesourcing, Ridesharing, and Connected and Autonomous Vehicles; Developing and Quantifying Successful Sustainable Communities Strategies**

Research Collaborator: Susan Shaheen, University of California at Berkeley

Timeline: March 1, 2017 until April 19, 2019.

The objective of this project is to help Metropolitan Planning Organizations (MPOs) and local agencies develop successful Sustainable Communities Strategies (per SB 375) related to ridesourcing, ridesharing, and connected and autonomous vehicles (CAVs); and to quantify the vehicle miles traveled (VMT), household vehicle ownership, and greenhouse gas (GHG) emissions implications of those policies. The project will summarize existing research, modeling efforts, and identify data gaps as well as...
develop a quantification methodology for MPOs and local jurisdictions to measure impacts of these innovative strategies. Researchers will also develop policy recommendations for local, regional, and State consideration related to ridesourcing, ridesharing, and connected and automated vehicles to maximize VMT reductions and improvements to economic prosperity, livability, and equity.
Appendix D: References


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