



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

BOARD OF DIRECTORS
MOBILE SOURCE COMMITTEE

COMMITTEE MEMBERS

DAVID CANEPA – CHAIR
MARGARET ABE-KOGA
DAVID HUDSON
DOUG KIM
RAFAEL MANDELMAN
KATIE RICE

PAULINE RUSSO CUTTER – VICE CHAIR
SCOTT HAGGERTY
TYRONE JUE
LIZ KNISS
KAREN MITCHOFF

THURSDAY
APRIL 25, 2019
9:30 A.M.

1ST FLOOR BOARD ROOM
375 BEALE STREET
SAN FRANCISCO, CA 94105

AGENDA

1. CALL TO ORDER - ROLL CALL

PLEDGE OF ALLEGIANCE

PUBLIC MEETING PROCEDURE

The Committee Chair shall call the meeting to order and the Clerk of the Boards shall take roll of the Committee members. The Committee Chair shall lead the Pledge of Allegiance.

This meeting will be webcast. To see the webcast, please visit www.baaqmd.gov/bodagendas at the time of the meeting. Closed captioning may contain errors and omissions, and are not certified for their content or form.

Public Comment on Agenda Items *The public may comment on each item on the agenda as the item is taken up. Public Comment Cards for items on the agenda must be submitted in person to the Clerk of the Boards at the location of the meeting and prior to the Board taking up the particular item. Where an item was moved from the Consent Calendar to an Action item, no speaker who has already spoken on that item will be entitled to speak to that item again.*

2. **PUBLIC COMMENT ON NON-AGENDA MATTERS**

Public Comment on Non-Agenda Items, Pursuant to Government Code Section 54954.3

For the first round of public comment on non-agenda matters at the beginning of the agenda, ten persons selected by a drawing by the Clerk of the Boards from among the Public Comment Cards indicating they wish to speak on matters not on the agenda for the meeting will have two minutes each to address the Board on matters not on the agenda. For this first round of public comments on non-agenda matters, all Public Comment Cards must be submitted in person to the Clerk of the Board at the location of the meeting and prior to commencement of the meeting.

Staff/Phone (415) 749-

3. **APPROVAL OF THE MINUTES OF MARCH 28, 2019**

Clerk of the Boards/5073

The Committee will consider approving the attached draft minutes of the Mobile Source Committee meeting of March 28, 2019.

4. **PROJECTS AND CONTRACTS WITH PROPOSED GRANT AWARDS OVER \$100,000**

K. Schkolnick/5070

kschkolnick@baaqmd.gov

The Committee will consider recommending the Board of Directors approve the Carl Moyer Program (CMP) and Transportation Fund for Clean Air (TFCA) projects grant funding in excess of \$100,000; a change to fiscal year ending (FYE) 2019 TFCA Regional Fund Policies and FYE 2020 TFCA County Program Manager Fund Policies to increase the cost-effectiveness limit for Pilot Trip Reduction projects; and authorization for the Executive Officer/APCO to execute grant agreements for the recommended projects.

5. **TRANSPORTATION FUND FOR CLEAN AIR (TFCA) FUNDING FOR SHUTTLE AND RIDESHARING PROJECTS**

K. Schkolnick/5070

kschkolnick@baaqmd.gov

The Committee will consider recommending the Board of Directors approve a total award of up to \$3,000,000 in TFCA funding for a three-year ridesharing project sponsored by the Metropolitan Transportation Commission (MTC); and authorization for the Executive Officer/APCO to enter into all necessary agreements with MTC for the recommended project. The Committee will also be provided historical background information for trip reduction projects and options for continued support for shuttle and ridesharing projects.

6. **FISCAL YEAR ENDING (FYE) 2020 TRANSPORTATION FUND FOR CLEAN AIR (TFCA) COUNTY PROGRAM MANAGER (CPM) EXPENDITURE PLANS AND A REQUEST FROM ALAMEDA COUNTY TRANSPORTATION COMMISSION (ACTC) FOR A CPM POLICY WAIVER**

K. Schkolnick/5070

kschkolnick@baaqmd.gov

The Committee will consider recommending the Board of Directors approve the Fiscal Year Ending (FYE) 2020 TFCA CPM Expenditure Plans and a request for a waiver to CPM policies from ACTC to use CPM Funds for a shuttle project for FYE 2019 and future years.

7. **ELECTRIC VEHICLE (EV) ECOSYSTEM UPDATE: EV INCENTIVES AND AWARENESS PROGRAMS AND APPROVAL OF CONTRACTS FOR EV SERVICES**

R. Chiang/8621

rchiang@baaqmd.gov

The Committee will receive the second part of the update on recent Bay Area trends for light-duty (passenger vehicle) electric vehicle (EV) adoption. This update will focus on EV incentives and awareness programs. The Committee will also consider recommending the Board of Directors approve and authorize the Executive Officer/APCO to execute a contract with Center for Sustainable Energy for an amount not to exceed \$115,000 and with Kearns and West in an amount not to exceed \$36,000.

8. **PUBLIC COMMENT ON NON-AGENDA MATTERS**

Speakers who did not have the opportunity to address the Committee in the first round of comments on non-agenda matters will be allowed two minutes each to address the Committee on non-agenda matters.

9. **COMMITTEE MEMBER COMMENTS**

Any member of the Board, or its staff, on his or her own initiative or in response to questions posed by the public, may: ask a question for clarification, make a brief announcement or report on his or her own activities, provide a reference to staff regarding factual information, request staff to report back at a subsequent meeting concerning any matter or take action to direct staff to place a matter of business on a future agenda. (Gov't Code § 54954.2)

10. **TIME AND PLACE OF NEXT MEETING**

Thursday, May 23, 2019, Bay Area Air Quality Management District Office, 375 Beale Street, San Francisco, California 94105 at 9:30 a.m.

11. **ADJOURNMENT**

The Committee meeting shall be adjourned by the Committee Chair.

CONTACT:

MANAGER, EXECUTIVE OPERATIONS
375 BEALE STREET, SAN FRANCISCO, CA 94105
vjohnson@baaqmd.gov

(415) 749-4941
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BAAQMD homepage:
www.baaqmd.gov

- To submit written comments on an agenda item in advance of the meeting. Please note that all correspondence must be addressed to the “Members of the Mobile Source Committee” and received at least 24 hours prior, excluding weekends and holidays, in order to be presented at that Committee meeting. Any correspondence received after that time will be presented to the Committee at the following meeting.
- To request, in advance of the meeting, to be placed on the list to testify on an agenda item.
- Any writing relating to an open session item on this Agenda that is distributed to all, or a majority of all, members of the body to which this Agenda relates shall be made available at the District’s offices at 375 Beale Street, Suite 600, San Francisco, CA 94105, at the time such writing is made available to all, or a majority of all, members of that body.

Accessibility and Non-Discrimination Policy

The Bay Area Air Quality Management District (Air District) does not discriminate on the basis of race, national origin, ethnic group identification, ancestry, religion, age, sex, sexual orientation, gender identity, gender expression, color, genetic information, medical condition, or mental or physical disability, or any other attribute or belief protected by law.

It is the Air District’s policy to provide fair and equal access to the benefits of a program or activity administered by Air District. The Air District will not tolerate discrimination against any person(s) seeking to participate in, or receive the benefits of, any program or activity offered or conducted by the Air District. Members of the public who believe they or others were unlawfully denied full and equal access to an Air District program or activity may file a discrimination complaint under this policy. This non-discrimination policy also applies to other people or entities affiliated with Air District, including contractors or grantees that the Air District utilizes to provide benefits and services to members of the public.

Auxiliary aids and services including, for example, qualified interpreters and/or listening devices, to individuals who are deaf or hard of hearing, and to other individuals as necessary to ensure effective communication or an equal opportunity to participate fully in the benefits, activities, programs and services will be provided by the Air District in a timely manner and in such a way as to protect the privacy and independence of the individual. Please contact the Non-Discrimination Coordinator identified below at least three days in advance of a meeting so that arrangements can be made accordingly.

If you believe discrimination has occurred with respect to an Air District program or activity, you may contact the Non-Discrimination Coordinator identified below or visit our website at www.baaqmd.gov/accessibility to learn how and where to file a complaint of discrimination.

Questions regarding this Policy should be directed to the Air District’s Non-Discrimination Coordinator, Rex Sanders, at (415) 749-4951 or by email at rsanders@baaqmd.gov

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

375 BEALE STREET, SAN FRANCISCO, CA 94105

FOR QUESTIONS PLEASE CALL (415) 749-4941

EXECUTIVE OFFICE:

MONTHLY CALENDAR OF AIR DISTRICT ANTICIPATED MEETINGS

APRIL 2019

<u>TYPE OF MEETING</u>	<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>ROOM</u>
Board of Directors Climate Protection Committee	Monday	22	9:30 a.m.	1 st Floor Board Room
Board of Directors Budget and Finance Committee	Monday	22	10:30 a.m.	1 st Floor, Board Room
Board of Directors Legislative Committee	Wednesday	24	9:30 a.m.	1 st Floor, Yerba Buena Room #109
Board of Directors Mobile Source Committee	Thursday	25	9:30 a.m.	1 st Floor Board Room
Board of Directors Stationary Source Committee	Monday	29	9:30 a.m.	1 st Floor Board Room

MAY 2019

<u>TYPE OF MEETING</u>	<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>ROOM</u>
Board of Directors Regular Meeting	Wednesday	1	9:30 a.m.	1 st Floor Board Room
Board of Directors Special Meeting Budget Hearing	Wednesday	15	9:30 a.m.	1 st Floor Board Room
Board of Directors Regular Meeting	Wednesday	15	10:00 a.m.	1 st Floor Board Room
Board of Directors Community and Public Health Committee	Monday	20	9:30 a.m.	1 st Floor, Board Room
Board of Directors Legislative Committee	Wednesday	22	9:30 a.m.	1 st Floor, Yerba Buena Room #109
Board of Directors Mobile Source Committee	Thursday	23	9:30 a.m.	1 st Floor Board Room

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairperson David Canepa and Members
of the Mobile Source Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: April 16, 2019

Re: Approval of the Minutes of March 28, 2019

RECOMMENDED ACTION

Approve the attached draft minutes of the Mobile Source Committee (Committee) meeting of March 28, 2019.

DISCUSSION

Attached for your review and approval are the draft minutes of the Committee meeting of March 28, 2019.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Marcy Hiratzka
Reviewed by: Vanessa Johnson

Attachment 3A: Draft Minutes of the Committee Meeting of March 28, 2019

AGENDA 3A – ATTACHMENT

Draft Minutes – Mobile Source Committee Meeting of March 28, 2019

Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
(415) 749-5073

DRAFT MINUTES

Summary of Board of Directors
Mobile Source Committee Meeting
Thursday, March 28, 2019

1. CALL TO ORDER – ROLL CALL

Mobile Source Committee (Committee) Chairperson, David Canepa, called the meeting to order at 9:31 a.m.

Present: Chairperson David Canepa; Vice Chairperson Pauline Russo Cutter; and Directors Scott Haggerty David Hudson, Tyrone Jue, Doug Kim, Karen Mitchoff, and Katie Rice.

Absent: Directors Margaret Abe-Koga and Liz Kniss.

Also Present: None.

2. PUBLIC COMMENT ON NON-AGENDA MATTERS

No requests received.

3. APPROVAL OF THE MINUTES OF JANUARY 24, 2019

Public Comments

No requests received.

Committee Comments

None.

Committee Action

Director Hudson made a motion, seconded by Director Mitchoff, to **approve** the Minutes of January 24, 2019; and the motion carried by the following vote of the Committee:

AYES: Canepa, Cutter, Haggerty, Hudson, Jue, Mitchoff, Rice.
NOES: None.
ABSTAIN: None.
ABSENT: Abe-Koga, Kim, Kniss.

4. PROJECTS AND CONTRACTS WITH PROPOSED GRANT AWARDS OVER \$100,000

Damian Breen, Deputy Air Pollution Control Officer of Technology, introduced Michael Neward, Staff Specialist, who gave the staff presentation *Projects and Contracts with Proposed Grant Awards Over \$100,000*, including: overview; Carl Moyer Program (CMP) and Mobile Source Incentive Fund (MSIF); Community Health Protection Grant Program (CHP); CMP/MSIF, and CHP project recommendations over \$100,000; projected grant revenues for Fiscal Year Ending (FYE) 2019; funds recommended and awarded by project category and by county since July 2018; status of incentive funding awarded since July 2018 by funding source; open solicitations and FYE 2019 funding; and recommendations.

Public Comments

No requests received.

Committee Comments

The Committee and staff discussed the need for the transition to pure zero-emissions vehicle fleets; the Bay Area Air Quality Management Air District’s (Air District) search for electric bus vendors, and whether electric bus manufacturers exist locally; the request for a projected timeline of when the Air District expects to cease offering incentives for natural, alternative, or renewable fuel projects, especially in medium and heavy-duty vehicles; which of the Air District’s existing grant programs fund electric vehicle (EV) charging infrastructure; and the number of commercial fishing vessel projects to which the Air District has awarded funding, how the Air District ensures that those vessels operate within the Air District’s jurisdiction, and the request for a five-year comprehensive report on Air District-funded marine vessel projects (with a presentation back to the Committee and that State audits of Air District Grant Programs be posted on the Air District’s website.)

NOTED PRESENT: Director Kim was noted present at 9:42 a.m.

Committee Action

Director Mitchoff made a motion, seconded by Vice Chair Cutter, to recommend that the Board **approve** staff recommendations; and the motion carried by the following vote of the Committee:

AYES: Canepa, Cutter, Haggerty, Hudson, Jue, Kim, Mitchoff, Rice.
NOES: None.
ABSTAIN: None.
ABSENT: Abe-Koga, Kniss.

5. 2019 GREENHOUSE GAS REDUCTION FUNDS (GGRF)

Karen Schkolnick, Strategic Incentives Division Director, introduced Anthony Fournier, Air Quality Program Manager, who gave the staff presentation *2019 Greenhouse Gas Reduction Funds*, including: overview; 2019 projected grant revenues from January to December 2019; Senate Bill (SB) 856 (2018); 2019 Community Health Protection Grant Program; 2019 Funding Agricultural Reduction Measures for Emission Reductions (FARMER) Program funding; and recommended action.

Public Comments

No requests received.

Committee Comments

The Committee and staff discussed how the Air District plans to meet the funding timeline requirements of SB 856; the allocation of SB 856’s added provision of \$245 million from the State for projects that primarily benefit Assembly Bill (AB) 617 communities, and ways in which those funds may be spent; and whether the Air District’s Spare the Air Program is eligible to receive Transportation Fund for Clean Air (TFCA) funding.

Committee Action

Director Rice made a motion, seconded by Vice Chair Cutter, to recommend that the Board **approve** staff recommendations; and the motion carried by the following vote of the Committee:

- AYES: Canepa, Cutter, Haggerty, Hudson, Jue, Mitchoff, Rice.
- NOES: None.
- ABSTAIN: None.
- ABSENT: Abe-Koga, Kim, Kniss.

6. FISCAL YEAR ENDING 2020 TRANSPORTATION FUND FOR CLEAN AIR (TFCA) PROGRAM FUNDING ALLOCATION

Ms. Schkolnick introduced Chengfeng Wang, Air Quality Program Manager, who gave the staff presentation *Fiscal Year Ending 2020 Transportation Fund for Clean Air Funding Allocation*, including: overview; TFCA; strategies to reduce on-road vehicle emissions; proposed FYE 2020 TFCA funding allocation; trip reduction; clean air vehicles; Air District-sponsored programs in new TFCA monies; proposed cost-effectiveness limits of Air District-sponsored programs; and recommended actions.

Public Comments

No requests received.

Committee Comments

The Committee and staff discussed the estimated carryover of TFCA funds for Clean Air Vehicle projects; whether mobile electric chargers/generators for charging EVs are eligible for TFCA funds; car-sharing/transportation network companies’ (TNC) demand for DC fast charging infrastructure, and how transitioning TNC vehicles to EVs could influence the public to drive EVs as well; potential challenges of designating EV charging stations for dedicated private fleets and other stations for public use; the suggestion of using airports as clean air shelters within the proposed Bay Area Clean Air Incentive Program; and ways in which the Air District can enhance outreach campaigns and education about EV options to the public.

Committee Action

Director Mitchoff made a motion, seconded by Director Hudson, to recommend that the Board **approve** staff recommendations; and the motion carried by the following vote of the Committee:

AYES: Canepa, Cutter, Haggerty, Hudson, Jue, Kim, Mitchoff, Rice.
NOES: None.
ABSTAIN: None.
ABSENT: Abe-Koga, Kniss.

7. ELECTRIC VEHICLE ECOSYSTEM UPDATE: STATUS OF LIGHT-DUTY ELECTRIC VEHICLE ADOPTION IN THE BAY AREA

Ranyee Chiang, Technology Implementation Officer, introduced Rebecca Fisher, Staff Specialist, who gave the staff presentation *Elective Vehicle Ecosystem Update: Status of Light-Duty Electric Vehicle Adoption in the Bay Area*, including: EV Ecosystem Update; 46 EV models are now available to Bay Area residents; incentives are still needed for EVs to be cost-competitive with traditional vehicles; Bay Area is a leading region for EV adoption in the United States; despite significant growth in last eight years, we need to accelerate to reach our goals; uneven adoption of EVs in the Bay Area; charging infrastructure in the Bay Area; current Bay Area EV charging infrastructure is lower than projected need; current and future priorities to accelerate the EV market; projected charging infrastructure needed is based on diverse transportation needs; consumers’ most commonly perceived and actual barriers to EV adoption; EV market research study; Bay Area EV Acceleration Plan; and current programs, policies, and incentives.

Public Comments

No requests received.

Committee Comments

The Committee and staff discussed how conventional hybrid electric vehicles are ceasing to be included under the umbrella term of “EV” (battery electric, hydrogen fuel cell, and plug-in hybrid electric vehicles); advantages of Level 2 EV chargers compared to those of DC fast chargers and the Air District’s projection for electric charging infrastructure needs; challenges presented by the

lack of a charging standard among the variety of existing EVs; the suggestion that the Air District looks to global leaders in EV adoption, such as Norway; the potential for the overbuilding of EV charging infrastructure to overwhelm electric grids; the suggestion that the Air District forms partnerships with bus manufacturers; the need for the Air District to help generate and educate about EV consumer demand; the suggestion of placing signage at EV chargers for those who do not yet use applications that map such infrastructure; and the advantages of leasing, versus purchasing, EVs.

Committee Action

None; receive and file.

8. PUBLIC COMMENT ON NON-AGENDA MATTERS

No requests received.

9. COMMITTEE MEMBER COMMENTS

None.

10. TIME AND PLACE OF NEXT MEETING

Thursday, April 25, 2019, Bay Area Air Quality Management District Office, 375 Beale Street, San Francisco, California 94105 at 9:30 a.m.

11. ADJOURNMENT

The meeting adjourned at 11:19 a.m.

Marcy Hiratzka
Clerk of the Boards

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairperson David Canepa and Members
of the Mobile Source Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: April 16, 2019

Re: Projects and Contracts with Proposed Grant Awards Over \$100,000

RECOMMENDED ACTION

Recommend Board of Directors:

1. Approve recommended projects with proposed grant awards over \$100,000 as shown in Attachment 1;
2. Approve a change to fiscal year ending (FYE) 2019 Transportation Fund for Clean Air (TFCA) Regional Fund Policies and FYE 2020 TFCA County Program Manager Fund Policies to increase the cost-effectiveness limit for Pilot Trip Reduction projects; and
3. Authorize the Executive Officer/APCO to enter into all necessary agreements with applicants for the recommended projects.

BACKGROUND

The Bay Area Air Quality Management District (Air District) has participated in the Carl Moyer Program (CMP), in cooperation with the California Air Resources Board (CARB), since the program began in fiscal year 1998-1999. The CMP provides grants to public and private entities to reduce emissions of oxides of nitrogen (NOx), reactive organic gases (ROG) and particulate matter (PM) from existing heavy-duty engines by either replacing or retrofitting them. Eligible heavy-duty diesel engine applications include on-road trucks and buses, off-road equipment, marine vessels, locomotives, and stationary agricultural pump engines.

Assembly Bill (AB) 923 (AB 923 - Firebaugh), enacted in 2004 (codified as Health and Safety Code (HSC) Section 44225), authorized local air districts to increase their motor vehicle registration surcharge up to an additional \$2 per vehicle. The revenues from the additional \$2 surcharge are deposited in the Air District's Mobile Source Incentive Fund (MSIF). AB 923 stipulates that air districts may use the revenues generated by the additional \$2 surcharge for projects eligible under the CMP.

In 2017, AB 617 directed CARB, in conjunction with local air districts, to establish the Community Air Protection Program. AB 617 provides a new community-focused action framework to improve air quality and reduce exposure to criteria air pollutants and toxic air contaminants in communities most impacted by air pollution. In advance of the development of the Community Air Protection Program, the Governor and legislature established an early action component to AB 617 to use existing incentive programs to get immediate emission reductions in the communities most affected by air pollution. AB 134 (2017) appropriated \$250 million from the Greenhouse Gas Reduction Fund (GGRF) to reduce mobile source emissions including criteria pollutants, toxic air contaminants, and greenhouse gases in those communities. The Bay Area has been allocated \$50 million of these funds for emission reduction projects. These funds will be used to implement projects under the CMP, and optionally on-road truck replacements under the Proposition 1B Goods Movement Emission Reduction Program.

On February 21, 2018, the Air District's Board of Directors (Board) authorized Air District participation in Year 20 of the CMP, and authorized the Executive Officer/APCO to execute Grant Agreements and amendments for projects funded with CMP funds or MSIF revenues, with individual grant award amounts up to \$100,000.

In 1991, the California State Legislature authorized the Air District to impose a \$4 surcharge on motor vehicles registered within the nine-county Bay Area to fund projects that reduce on-road motor vehicle emissions within the Air District's jurisdiction. The statutory authority for the Transportation Fund for Clean Air (TFCA) and requirements of the program are set forth in the HSC Sections 44241 and 44242. Sixty percent of TFCA funds are awarded by the Air District to eligible projects and programs implemented directly by the Air District (e.g., Spare the Air, electric vehicle charging station program) and to a program referred to as the TFCA Regional Fund. Each year, the Board allocates funding and adopts policies and evaluation criteria that govern the expenditure of TFCA Regional Fund monies. The remaining forty percent of TFCA funds are pass-through funds to the designated County Program Manager (CPM) in each of the nine counties within the Air District's jurisdiction.

On May 2, 2018, the Board authorized funding allocations for use of the sixty percent of the TFCA revenue in Fiscal Year Ending (FYE) 2019, cost-effectiveness limits for Air District-sponsored FYE 2019 programs, and the Executive Officer/APCO to execute grant agreements and amendments for TFCA-revenue funded projects with individual grant award amounts up to \$100,000. On June 6, 2018, the Board adopted policies and evaluation criteria for the FYE 2019 TFCA Regional Fund program.

Projects with grant award amounts over \$100,000 are brought to the Mobile Source Committee for consideration at least on a quarterly basis. Staff reviews and evaluates grant applications based upon the respective governing policies and guidelines established by CARB and the Board.

DISCUSSION

Carl Moyer Program and Community Health Protection Grant Program:

For the CMP Year 20 cycle, the Air District had more than \$11 million available for eligible CMP and school bus projects from a combination of MSIF and CMP funds. The Air District started accepting project applications for the CMP Year 20 funding cycle on June 25, 2018 and applications are accepted and evaluated on a first-come, first-served basis. On December 20, 2017 the Board authorized the Air District to accept, obligate and expend \$50 million in AB 134 funds through the Community Health Protection Grant Program.

As of April 5, 2019, the Air District had received 206 project applications. Of the applications that have been evaluated between March 7, 2019 and April 5, 2019, eight eligible projects have proposed individual grant awards over \$100,000. These projects will replace 18 school buses, six (6) marine engines, one (1) locomotive, two (2) forklifts, and will reduce over 9.6 tons of NO_x, ROG and PM per year. Staff recommends the allocation of \$5,330,724 for these projects from a combination of CMP funds, MSIF revenues, and Community Health Protection Grant Program funds. Attachment 1, Table 1, provides additional information on these projects.

Attachment 2, lists all of the eligible projects that have been received by the Air District as of April 5, 2019, including information about the equipment category, award amounts, estimated emissions reductions, and county location. Approximately 63% of the funds have been awarded to projects that reduce emissions in highly impacted Bay Area communities. Attachment 4, Figures 4 and 5 summarize the cumulative allocation of CMP, MSIF, and Community Health Protection Grant Program funding since 2009 (more than \$268 million awarded to 1,154 projects).

Transportation Fund for Clean Air Program:

In FYE 2019, the Air District had approximately \$20 million in TFCA funds available for eligible projects. To date, the Air District has issued solicitations for existing shuttle & rideshare, pilot trip reduction, light- and medium-duty zero-emissions vehicle fleets, and electric vehicle charging station projects. The Air District has also provided TFCA funds as match to augment the funding from the Reformulated Gasoline Settlement Fund for on-road vehicle projects through the West Oakland Zero-Emission Grant Program.

As of April 5, 2019, the Air District had received 33 project applications. Of the applications that were evaluated between March 7, 2019 and April 5, 2019, three eligible Pilot Trip Reduction projects proposed an individual grant award over \$100,000. As part of this recommendation, staff is proposing an amendment to Policy #2 of the FYE 2019 TFCA Regional Fund Policies and of the FYE 2020 TFCA CPM Fund Policies to increase the cost-effectiveness limit for Pilot Trip Reduction projects from \$250,000 to \$500,000. This category was recently created and the application deadline for Pilot Trip Reduction funding closed in March 2019.

The Pilot Trip Reduction project category was developed to test and demonstrate the potential of new emerging technology-enabled solutions, such as microtransit services, as alternatives to fixed-route shuttle service to more conveniently and cost-effectively connect commuters to mass transit.

To be eligible for funding, a project must operate in an area where no similar service exists, or significantly expand an existing service, and must be in either be in an Air District's Community Air Risk Evaluation Area and/or Priority Development Area, and thus may require higher initial start-up costs than a traditional shuttle/ridesharing project. However, staff understand that successful pilots will likely continue with non-Air District sources of funding beyond the period funded with TFCA funding and may lead to an expansion to other regions of the Bay Area, resulting in additional air quality benefits beyond what can be captured with the existing cost-effectiveness evaluation methodology.

The three trip reduction projects that are recommended for awards over \$100,000 will reduce over 4 million vehicle miles traveled, and will reduce over 2.6 tons of NOx, ROG and PM per year. Staff recommends the allocation of \$2,368,345 in TFCA funds for these projects. Attachment 1, Table 2, provides additional information on these three projects.

Attachment 3 lists all eligible TFCA projects that were evaluated as of April 5, 2019, including information about the equipment category, award amounts, estimated emissions reductions, and county location. Approximately 31% of the funds have been awarded to projects that reduce emissions in highly impacted Bay Area communities.

At the Mobile Source Committee meeting, staff will be providing additional background information to support this proposed amendment to the cost-effectiveness threshold for Pilot Trip Reduction projects.

BUDGET CONSIDERATION / FINANCIAL IMPACT

None. The Air District distributes CMP, MSIF, Community Health Protection Grant Program, and TFCA funding to public agencies and private entities on a reimbursement basis. Funding for administrative costs is provided by each funding source.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Anthony Fournier, Linda Hui and Sean Newlin
Reviewed by: Karen Schkolnick and Chengfeng Wang

Attachment 1: Projects with grant awards greater than \$100,000
Attachment 2: CMP/MSIF, FARMER and Community Health Protection Grant Program approved projects
Attachment 3: TFCA approved and eligible projects
Attachment 4: Summary of funding awarded between 7/1/18 and 4/5/19

AGENDA 4 - ATTACHMENT 1

Table 1 - Carl Moyer Program/ Mobile Source Incentive Fund, FARMER, and Community Health Protection Grant Program projects with grant awards greater than \$100k (Evaluated between 3/7/19 and 4/5/19)

Project #	Applicant name	Equipment Category	Project Description	Proposed contract award	Total project cost	Emission Reductions (Tons per year)			County
						NOx	ROG	PM	
20SBP187	Ravenswood City School District	School bus	Replacement of seven school buses with Low-NOx CNG school buses	\$ 1,437,212.00	\$ 1,437,212.00	0.388	0.022	0.014	San Mateo
20MOY149	Napa Valley Wine Train, Inc.	Locomotive	Replacement of one passenger locomotive. Increase of \$155k from 2/6/19 approval.	\$ 1,550,000.00	\$ 1,925,000.00	4.855	0.159	0.110	Napa
20MOY182	Pacific Pescador LLC (Commercial fishing)	Marine	Replacement of two diesel marine propulsion engines	\$ 180,000.00	\$ 226,440.00	1.171	0.011	0.047	San Mateo
20MOY128	Coastside Lumber dba South City Lumber & Supply	Off-road	Replacement of one diesel and one CNG forklift	\$ 163,795.00	\$ 185,775.38	0.728	0.127	0.029	San Mateo
20MOY198	Amnav Maritime Corporation (Vessel: Sandra Hugh)	Marine	Replacement of two diesel marine auxiliary engines	\$ 134,000.00	\$ 150,068.00	0.599	0.054	0.016	Alameda
20MOY199	Amnav Maritime Corporation (Vessel: Revolution)	Marine	Replacement of two diesel marine auxiliary engines	\$ 134,000.00	\$ 150,068.00	0.599	0.054	0.016	Alameda
20SBP165	West County Transportation Agency	School bus	Replacement of four diesel school buses with two CNG Low-NOx school buses	\$ 379,500.00	\$ 420,022.00	0.140	0.006	0.000	Sonoma
20SBP186	Franklin-McKinley School District	School bus	Replacement of seven diesel school buses with electric school buses	\$ 1,352,217.00	\$ 2,375,995.00	0.461	0.030	0.003	Santa Clara
8 Projects				\$ 5,330,724	\$ 6,870,580	8.941	0.463	0.234	

Table 2 - Summary of Transportation Fund for Clean Air projects
with grant awards greater than \$100k (Evaluated between 3/7/19 and 4/5/19)

Project #	Applicant name	Project Category	Project Description	Est. Weighted C/E	Proposed Contract Award	Emission Reductions (Tons per year)			County
						NO _x	ROG	PM	
19R22	City of Union City - Union City Transit	Pilot Trip Reduction	Union City Transit microtransit pilot	\$ 493,849.00	\$ 663,229.00	0.182	0.212	0.304	Alameda
19R23	Livermore Amador Valley Transit Authority (LAVTA)	Pilot Trip Reduction	GoTriValley on-demand shared-ride service	\$ 239,949.00	\$ 257,000.00	0.135	0.135	0.228	Alameda
19R25	Bay Area Rapid Transit District (BART)	Pilot Trip Reduction	First- and last-mile services to Walnut Creek BART	\$ 460,481.00	\$ 1,448,116.00	0.395	0.398	0.669	Contra Costa
3 Projects					\$ 2,368,345	0.712	0.745	1.201	

ATTACHMENT 2

*CMP/MSIF, FARMER and Community Health Protection Grant Program approved projects
(between 7/6/18 and 4/5/19)*

Project #	Equipment category	Project type	# of engines	Proposed contract award	Applicant name	Emission Reductions (Tons per year)			Board approval date	County
						NOx	ROG	PM		
19MOY166	On-road	Equipment replacement	1	\$ 45,000.00	Deol Trans / Piara Singh	0.668	0.050	0.004	APCO	Contra Costa
19MOY168	Ag/ off-road	Equipment replacement	1	\$ 33,000.00	Rancho Las Juntas Vineyard	0.028	0.006	0.004	APCO	Contra Costa
19MOY163	Marine	Engine replacement	1	\$ 180,000.00	Bettencourt and Son (Commercial fishing)	0.647	0.009	0.021	10/17/2018	San Mateo
19MOY182	On-road	Equipment replacement	1	\$ 45,000.00	Thy Trucking	0.677	0.050	0.004	APCO	Alameda
19MOY185	On-road	Equipment replacement	1	\$ 60,000.00	Puerta Trucking	0.717	0.097	0.032	APCO	Merced
19MOY158	Ag/ off-road	Equipment replacement	1	\$ 117,000.00	Ocean Breeze Dairy	0.310	0.020	0.015	10/17/2018	Sonoma
19MOY159	Ag/ off-road	Equipment replacement	1	\$ 40,480.00	Trefethen Farming LLC	0.173	0.030	0.021	APCO	Napa
19MOY176	Ag/ off-road	Equipment replacement	1	\$ 60,930.00	Bazan Vineyard Management	0.198	0.033	0.025	APCO	Napa
19SBP12	School bus	Equipment replacement	4	\$ 512,170.00	Moreland School District	0.237	0.016	0.000	10/17/2018	Santa Clara
19MOY148	Off-road	Equipment replacement	2	\$ 197,278.00	The Lumber Baron, Inc.	0.178	0.044	0.008	10/17/2018	Alameda
19SBP97	School bus	Equipment replacement	8	\$ 1,635,693.00	Vallejo City Unified School District	0.826	0.065	0.000	10/17/2018	Solano
19MOY175	Off-road	Equipment replacement	1	\$ 75,680.00	Mt. Diablo Landscape Centers, LLC	0.189	0.031	0.023	APCO	Contra Costa
20MOY51	Ag/ off-road	Equipment replacement	5	\$ 467,856.00	Johnson and Neles Dairy	1.985	0.208	0.124	10/17/2018	Sonoma
20MOY52	On-road	Equipment replacement	1	\$ 60,000.00	James Marlowe Carson	0.904	0.068	0.005	APCO	Napa
19MOY181	Ag/ off-road	Equipment replacement	1	\$ 50,300.00	Jensen Ranch	0.122	0.019	0.011	APCO	Marin
19SBP140	School bus	Equipment replacement	18	\$ 4,076,369.00	Fremont Unified School District	1.717	0.139	0.034	10/17/2018	Alameda

AGENDA 4 - ATTACHMENT 2

Project #	Equipment category	Project type	# of engines	Proposed contract award	Applicant name	Emission Reductions (Tons per year)			Board approval date	County
						NOx	ROG	PM		
20SBP45	School bus	Equipment replacement	2	\$ 1,291,000.00	Campbell Union School District	0.104	0.006	0.000	10/17/2018	Santa Clara
19MOY180	On-road	Equipment replacement	26	\$ 492,100.00	Nestle Waters North America	1.061	0.046	0.003	11/7/2018	Alameda, Solano
20MOY36	On-road	Equipment replacement	1	\$ 60,000.00	ZQR Trucking	0.982	0.074	0.006	APCO	Alameda
20MOY48	Marine	Engine replacement	1	\$ 99,500.00	Michael Thomas Hudson (Commercial fishing)	0.257	0.006	0.010	APCO	Alameda
20MOY60	Ag/ off-road	Equipment replacement	1	\$ 46,355.00	Siqueira Vineyard Management	0.156	0.026	0.018	APCO	Napa
20MOY50	Marine	Engine replacement	2	\$ 159,000.00	Captain Joe's Sportfishing	0.367	0.009	0.017	11/7/2018	San Francisco
20MOY71	Ag/ off-road	Equipment replacement	6	\$ 258,796.00	Vina Management Services	0.865	0.124	0.084	11/7/2018	Sonoma
20MOY65	On-road	Equipment replacement	1	\$ 40,000.00	Zahniser Trucking	0.738	0.122	0.006	APCO	Contra Costa
20MOY29	Off-road	Equipment replacement	3	\$ 15,000.00	D. C. Metals, Inc.	0.126	0.034	0.001	APCO	Alameda
20MOY62	Ag/ off-road	Equipment replacement	1	\$ 60,190.00	Vezer Family Vineyards	0.048	0.012	0.010	APCO	Solano
20MOY46	On-road	Equipment replacement	1	\$ 49,000.00	Akal Sahai Truck Lines Inc.	1.446	0.217	0.000	APCO	Alameda
20MOY63	On-road	Equipment replacement	1	\$ 23,500.00	Always Express Transportation	0.179	0.011	0.001	APCO	Alameda
20MOY49	Marine	Engine replacement	1	\$ 148,000.00	F/V Rose Marie Inc.	0.597	-0.011	0.024	12/19/2018	San Francisco
20MOY94	Marine	Engine replacement	1	\$ 44,000.00	Jeffrey A Sylva (Commercial fishing)	0.116	0.001	0.004	APCO	Santa Clara
20MOY41	Ag/ off-road	Equipment replacement	1	\$ 29,500.00	Kehoe Dairy, Inc	0.049	0.002	0.003	APCO	Marin
20MOY66	Ag/ off-road	Equipment replacement	3	\$ 188,700.00	Pina Vineyard Management , LLC.	0.160	0.037	0.028	12/19/2018	Napa
20MOY64	On-road	Equipment replacement	1	\$ 60,000.00	Basra Trucking	1.570	0.239	0.083	APCO	Santa Clara

AGENDA 4 - ATTACHMENT 2

Project #	Equipment category	Project type	# of engines	Proposed contract award	Applicant name	Emission Reductions (Tons per year)			Board approval date	County
						NOx	ROG	PM		
20SBP08	School bus	Equipment replacement	3	\$ 1,143,464.00	Antioch Unified School District	0.298	0.023	0.011	12/19/2018	Contra Costa
20MOY76	Ag/ off-road	Equipment replacement	4	\$ 169,400.00	FN Viticulture, LLC	0.514	0.057	0.048	12/19/2018	Napa
20MOY97	On-road	Equipment replacement	1	\$ 40,000.00	Gosal Trucking	0.835	0.138	0.047	APCO	Contra Costa
20MOY43	Marine	Engine replacement	2	\$ 458,000.00	Michael Peery (Commercial fishing)	1.409	0.009	0.059	12/19/2018	Solano
20MOY100	Ag/ off-road	Equipment replacement	3	\$ 136,520.00	Grand Crew Vineyard Management	0.211	0.077	0.033	12/19/2018	Napa
20MOY96	On-road	Equipment replacement	1	\$ 60,000.00	Reliable Express Transportation Inc.	0.586	0.043	0.003	APCO	Alameda
20MOY67	Marine	Engine replacement	4	\$ 1,613,500.00	Harley Marine Services, Inc. Vessel: Z-Three	4.801	-0.135	0.380	12/19/2018	Alameda
20MOY68	Marine	Engine replacement	4	\$ 1,613,500.00	Harley Marine Services, Inc. Vessel: Z-Four	4.801	-0.135	0.380	12/19/2018	Alameda
20MOY69	Marine	Engine replacement	4	\$ 1,613,500.00	Harley Marine Services, Inc. Vessel: Z-Five	4.801	-0.135	0.380	12/19/2018	Alameda
20MOY110	Off-road	Equipment replacement	3	\$ 928,500.00	Steven's Creek Quarry, Inc.	5.136	0.232	0.138	12/19/2018	Santa Clara
20MOY117	On-road	Hydrogen fueling infrastructure	1	\$ 1,750,000.00	Alameda-Contra Costa Transit District	0.718	0.011	0.004	12/19/2018	Alameda
20SBP1	School bus	Equipment replacement	2	\$ 320,000.00	Pittsburg Unified School District	0.199	0.164	0.001	12/19/2018	Contra Costa
20MOY95	Ag/ off-road	Equipment replacement	1	\$ 159,600.00	Stan Poncia dba Terrilinda Dairy	0.893	0.116	0.066	12/19/2018	Sonoma
20MOY99	Ag/ off-road	Equipment replacement	2	\$ 121,800.00	T and M Agricultural Services, LLC	0.359	0.047	0.032	12/19/2018	Napa
20SBP72	School bus	Equipment replacement	6	\$ 1,246,785.00	Milpitas Unified School District	0.318	0.019	0.007	12/19/2018	Santa Clara
20SBP73	School bus	Equipment replacement	8	\$ 1,659,507.00	Berkeley Unified School District	0.617	0.045	0.132	12/19/2018	Alameda
20MOY119	On-road	Equipment replacement	1	\$ 40,000.00	Francisco Aguilar dba Salazar Trucking	1.113	0.183	0.000	APCO	Contra Costa
20MOY15	On-road	Equipment replacement	1	\$ 10,500.00	RCS Enterprises Inc	0.172	0.019	0.009	APCO	Santa Clara

AGENDA 4 - ATTACHMENT 2

Project #	Equipment category	Project type	# of engines	Proposed contract award	Applicant name	Emission Reductions (Tons per year)			Board approval date	County
						NOx	ROG	PM		
20MOY120	On-road	Equipment replacement	1	\$ 40,000.00	Goga Trucking	1.066	0.175	0.000	APCO	Alameda
20MOY74	Ag/ off-road	Equipment replacement	1	\$ 57,766.00	Garvey Vineyard Management LLC	0.156	0.009	0.009	APCO	Napa
20MOY107	Marine	Equipment replacement	1	\$ 109,000.00	Argo Sportfishing	1.031	0.016	0.036	2/6/2019	San Francisco
20MOY132	Off-road	Equipment replacement	1	\$ 540,000.00	County Quarry Products, LLC	2.412	0.112	0.066	2/6/2019	Contra Costa
20MOY53	On-road	Equipment replacement	1	\$ 20,000.00	Pars Trucking	0.644	0.097	0.005	APCO	Solano
20MOY111	On-road	Equipment replacement	1	\$ 40,000.00	Jasvir Dosanjh	0.432	0.037	0.000	APCO	Placer
20MOY85	On-road	Equipment replacement	1	\$ 40,000.00	Gurchetan Johal	0.403	0.034	0.003	APCO	Placer
20MOY81	On-road	Equipment replacement	1	\$ 35,000.00	Bevin Thomas	0.366	0.031	0.002	APCO	Sacramento
20MOY92	On-road	Equipment replacement	1	\$ 50,000.00	Sukhvir Singh Tatlah	0.506	0.037	0.003	APCO	Alameda
20MOY87	On-road	Equipment replacement	1	\$ 30,000.00	Rajanpal Singh	0.329	0.028	0.002	APCO	Placer
20MOY108	On-road	Equipment replacement	1	\$ 40,000.00	Sukhdev Singh Johal	0.402	0.034	0.003	APCO	Sacramento
20MOY135	Ag/ off-road	Equipment replacement	1	\$ 29,208.00	Perry Kozlowski Ranch	0.117	0.015	0.010	APCO	Sonoma
20MOY134	Off-road	Engine replacement	8	\$ 1,901,000.00	DeSilva Gates Construction	6.636	0.358	0.190	2/6/2019	Alameda
20MOY141	Off-road	Engine replacement	1	\$ 111,000.00	Concord Iron Works, Inc.	0.308	0.034	0.021	2/6/2019	Contra Costa
20MOY126	Ag/ off-road	Equipment replacement	1	\$ 134,000.00	Kabeela, Inc.	0.229	0.024	0.014	2/6/2019	Santa Clara
20MOY144	Ag/ off-road	Equipment replacement	1	\$ 66,379.00	JPW Development Co., LLC	0.134	0.020	0.012	APCO	Solano
20MOY149	Locomotive	Locomotive replacement	1	\$ 1,550,000.00	Napa Valley Wine Train, Inc.	4.855	0.159	0.110	2/6/2019	Napa
20SBP140	School bus	Equipment replacement	5	\$ 751,061.00	Sunnyvale School District	0.235	0.013	0.005	2/6/2019	Santa Clara

AGENDA 4 - ATTACHMENT 2

Project #	Equipment category	Project type	# of engines	Proposed contract award	Applicant name	Emission Reductions (Tons per year)			Board approval date	County
						NOx	ROG	PM		
20MOY151	Ag/ off-road	Equipment replacement	1	\$ 68,475.00	Bianchini Inc.	0.165	0.020	0.011	APCO	Marin
20MOY147	On-road	Equipment replacement	1	\$ 40,000.00	Surjit Singh	1.162	0.241	0.000	APCO	Santa Clara
20MOY131	Ag/ off-road	Equipment replacement	1	\$ 25,117.00	E & M Deniz Dairy	0.153	0.024	0.014	APCO	Sonoma
20MOY136	Ag/ off-road	Equipment replacement	1	\$ 27,690.00	Hidden Gem Farms, LLC	0.024	0.023	0.006	APCO	Sonoma
20MOY125	Ag/ off-road	Equipment replacement	1	\$ 41,900.00	O'Brien Family Vineyard LLC	0.199	0.031	0.018	APCO	Napa
20MOY61	On-road	Equipment replacement	1	\$ 15,000.00	Lindsey Anderson Trucking Service	0.437	0.041	0.002	APCO	San Mateo
VBB FYE2019	VBB	Vehicle retirement program	tbd	\$ 7,000,000.00	Pick n Pull, and Environmental Engineering, Services	TBD	TBD	TBD	3/6/2019	Regional
VBB FYE2019	VBB	Vehicle retirement outreach	tbd	\$ 200,000.00	Direct Mail Center	TBD	TBD	TBD	3/6/2019	Regional
20MOY137	Ag/ off-road	Equipment replacement	1	\$ 58,320.00	Dotti Bros. LLC	0.198	0.033	0.025	APCO	Sonoma
20MOY157	Ag/ off-road	Equipment replacement	1	\$ 205,830.00	McClelland's Dairy	0.716	0.066	0.038	3/6/2019	Sonoma
20MOY159	Ag/ off-road	Equipment replacement	1	\$ 186,400.00	Petaluma Pumpkin Patch, LLC	0.341	0.031	0.017	3/6/2019	Sonoma
20MOY102	Ag/ off-road	Equipment replacement	1	\$ 18,420.00	Leonard Gianno (Farmer)	0.023	0.023	0.006	APCO	Solano
20MOY148	Marine	Engine replacement	1	\$ 196,500.00	John Henry Mellor (Commercial fishing)	0.460	0.008	0.017	3/6/2019	San Francisco
20MOY3	Marine	Engine replacement	2	\$ 97,000.00	Christopher Noel Smith, DBA, Captain Hook Sportfishing	0.947	-0.014	0.038	APCO	Alameda
20MOY90	Marine	Engine replacement	2	\$ 156,000.00	Riverview Equipment Company LLC	0.274	0.000	0.015	3/6/2019	Solano
20MOY70	Marine	Engine replacement	2	\$ 160,000.00	Bay Marine Services, LLC	1.490	0.029	0.047	3/6/2019	Solano
20SBP23	School bus	Equipment replacement	2	\$ 361,692.00	Sonoma Valley Unified School District	0.131	0.009	0.001	3/6/2019	Sonoma
20MOY175	Locomotive	Equipment replacement	2	\$ 7,400,000.00	California Department of Transportation	18.485	0.698	0.288	3/6/2019	Solano, Contra Costa, Alameda, Santa Clara

AGENDA 4 - ATTACHMENT 2

Project #	Equipment category	Project type	# of engines	Proposed contract award	Applicant name	Emission Reductions (Tons per year)			Board approval date	County
						NOx	ROG	PM		
20MOY91	Marine	Engine replacement	2	\$ 70,000.00	Riverview Equipment Company LLC	0.125	0.001	0.006	APCO	Solano
20MOY152	Marine	Engine replacement	1	\$ 39,000.00	Patrick Lazzari (Commercial fishing)	0.078	0.001	0.003	APCO	San Francisco
20MOY163	Ag/ off-road	Equipment replacement	1	\$ 32,920.00	Haire Management Co. LLC	0.130	0.023	0.013	APCO	Napa
20SBP75	School bus	Equipment replacement	4	\$ 787,704.00	Napa Valley Unified School District	0.373	0.032	0.000	4/3/2019	Napa
20MOY158	Ag/ off-road	Equipment replacement	1	\$ 58,900.00	Cortina Vineyard Management	0.105	0.007	0.007	APCO	Napa
20MOY156	Ag/ off-road	Equipment replacement	1	\$ 65,000.00	Robert Giacomini Dairy, Inc	0.107	0.011	0.006	APCO	Marin
20MOY171	On-road	Equipment replacement	1	\$ 25,000.00	ELG Trucking	0.715	0.094	0.004	APCO	Santa Clara
20MOY180	On-road	Equipment replacement	1	\$ 27,000.00	Salvador Uribe dba/ Don Luis	0.269	0.019	0.001	APCO	Santa Clara
20MOY179	On-road	Equipment replacement	1	\$ 13,000.00	Bayside Building Materials, Inc.	0.360	0.043	0.002	APCO	San Mateo
20MOY166	Ag/ off-road	Equipment replacement	5	\$ 236,560.00	Freixenet Sonoma Caves Inc.	1.028	0.155	0.119	4/3/2019	Sonoma
20SBP169	School bus	CNG Tank Replacement	3	\$ 60,000.00	West County Transportation Agency	0.000	0.000	0.000	APCO	Sonoma
20SBP187	School bus	Equipment replacement	7	\$ 1,437,212.00	Ravenswood City School District	0.388	0.022	0.014	TBD	San Mateo
20MOY181	On-road	Equipment replacement	3	\$ 55,000.00	Zepeda's Trucking	0.533	0.043	0.003	APCO	Alameda
20MOY37	Off-road	Equipment replacement	1	\$ 50,500.00	Sugar City Building Materials Company	0.134	0.020	0.012	APCO	Contra Costa
20MOY160	Ag/ off-road	Equipment replacement	2	\$ 99,000.00	San Antonio Creek Vineyards	0.179	0.027	0.018	APCO	Solano
20MOY182	Marine	Engine replacement	2	\$ 180,000.00	Pacific Pescador LLC (Commercial fishing)	1.171	0.011	0.047	TBD	San Mateo
20MOY168	On-road	Equipment replacement	1	\$ 45,000.00	Gurwinder Singh	1.214	0.182	0.009	APCO	Alameda

AGENDA 4 - ATTACHMENT 2

Project #	Equipment category	Project type	# of engines	Proposed contract award	Applicant name	Emission Reductions (Tons per year)			Board approval date	County
						NOx	ROG	PM		
20MOY128	Off-road	Equipment replacement	2	\$ 163,795.00	Coastside Lumber dba South City Lumber & Supply	0.728	0.127	0.029	TBD	San Mateo
20MOY198	Marine	Engine replacement	2	\$ 134,000.00	Amnav Maritime Corporation (Vessel: Sandra Hugh)	0.599	0.054	0.016	TBD	Alameda
20MOY199	Marine	Engine replacement	2	\$ 134,000.00	Amnav Maritime Corporation (Vessel: Revolution)	0.599	0.054	0.016	TBD	Alameda
20SBP165	School bus	Equipment replacement	2	\$ 379,500.00	West County Transportation Agency	0.140	0.006	0.000	TBD	Sonoma
20SBP186	School bus	Equipment replacement	7	\$ 1,352,217.00	Franklin-McKinley School District	0.461	0.030	0.003	TBD	Santa Clara
109 Projects			254	\$ 51,054,039.00		101.080	6.081	3.720		

AGENDA 4 - ATTACHMENT 3

Summary of all TFCA approved and eligible projects (evaluated between 7/1/18 and 4/5/19)

Project #	Project Category	Project Description	Award Amount	Applicant Name	Emission Reductions (Tons per year)			Board/APCO Approval Date	CARE Area	County
					NO _x	ROG	PM			
18EV029	LD Infrastructure	Install and operate 16 single-port Level 2 (high) charging stations at 1 workplace facility in Los Altos Hills	\$48,000	Creative Center of Los Altos	0.026	0.034	0.001	10/30/18	No	Santa Clara
18EV035	LD Infrastructure	Install and operate 2 dual-port Level 2 (high) charging stations at 1 destination facility in Greenbrae	\$8,000	Marin Rowing Association	0.004	0.006	0.000	7/31/18	No	Marin
18EV038	LD Infrastructure	Install and operate 1 single port Level 2 (high) and 1 25KW DC Fast charging stations with a 11,650 W solar array at 1 transportation corridor facility in Petaluma	\$25,900	Solar Action Network	0.01	0.01	0.00	11/30/18	No	Sonoma
18EV047	LD Infrastructure	Install and operate 4 single port Level 2 (high) charging stations at 1 destination facility in San Mateo	\$12,000	Nazareth Plaza Owners' Association	0.007	0.009	0.000	7/30/18	No	San Mateo
18EV049	LD Infrastructure	Install and operate 12 single-port Level 2 (high) charging stations at 6 destination facilities in San Mateo, Burlingame, San Bruno, and Millbrae	\$36,000	San Mateo Union High School District	0.020	0.025	0.000	7/5/18	No	San Mateo
18EV056	LD Infrastructure	Install and operate 3 dual-port Level 2 (high) charging stations at 3 destination facilities in Richmond and El Cerrito	\$12,000	West Contra Costa Unified School District	0.007	0.009	0.000	7/5/18	Yes	Contra Costa
19RFG06*	LD Infrastructure	Install and operate 43 dual port level 2 EV charging stations	\$266,000	Hayward Unified School District	0.054	0.071	0.001	10/17/18	Yes	Alameda
19R02	LD Vehicles	Vehicle Buy Back Program	\$150,000	BAAQMD	NA	NA	NA	NA	No	Regional
18R14	Bicycle Facilities	Install and maintain 3.62 miles of Class III bikeways in Petaluma	\$48,500	City of Petaluma	0.007	0.009	0.014	8/6/18	No	Sonoma
18R18	Bicycle Facilities	Install and maintain 0.09 miles of Class I and 0.28 miles of Class IV bikeways in Los Gatos	\$242,000	Town of Los Gatos	0.029	0.056	0.039	8/1/18	No	Santa Clara
18R20	Bicycle Facilities	Install and maintain 1.57 miles of Class II bikeways and 23 bike racks (2 bikes per rack)	\$38,000	City of Gilroy	0.008	0.010	0.013	8/22/18	No	Santa Clara
18R21	Bicycle Facilities	Install and maintain 40 electronic bicycle lockers in Danville	\$96,000	Town of Danville	0.014	0.018	0.026	8/7/18	No	Contra Costa
18R22	Bicycle Facilities	Install and maintain 16 electronic bicycle lockers in San Francisco	\$32,000	San Francisco Community College District	0.004	0.006	0.007	8/22/18	No	San Francisco
19R01	Trip Reduction	Enhanced Mobile Source & Commuter Benefits Enforcement	\$554,842	BAAQMD	0.722	0.806	1.171	NA	No	Regional
19R03	Trip Reduction	Spare The Air/Intermittent Control Programs	\$2,305,927	BAAQMD	42.952	50.253	67.862	NA	No	Regional
19R10	Trip Reduction	Pleasanton Connector Shuttles	\$80,000	San Joaquin Regional Rail Commission	0.234	0.387	0.647	10/18/18	Yes	Alameda
19R13	Trip Reduction	Juvenile Justice Center/ Fairmont Hospital Shuttle	\$29,700	County of Alameda	0.011	0.040	0.058	10/18/18	Yes	Alameda
19R14	Trip Reduction	PresidiGO Downtown Shuttle	\$100,000	Presidio Trust	0.252	0.352	0.471	11/7/2018	Yes	San Francisco
19R15	Trip Reduction	Caltrain Shuttle Program	\$652,600	Peninsula Corridor Joint Powers Board	2.64	3.66	5.14	11/7/2018	No	San Mateo/ Santa Clara
19R16	Trip Reduction	ACE Shuttle Bus Program	\$960,000	Santa Clara Valley Transportation Authority	2.43	2.60	4.29	11/7/2018	Yes	Santa Clara
19R17**	Trip Reduction	Carpool incentive, vanpool subsidy, Spare the Air messaging and advertising	\$3,000,000	Metropolitan Transportation Commission	NA	NA	NA	Pending	No	Regional
19R18	Trip Reduction	SJSU Ridesharing & Trip Reduction	\$139,500	Associated Students, San Jose State University	0.231	0.266	0.366	11/7/2018	No	Regional
19R22	Trip Reduction	Union City Transit Microtransit Pilot	\$663,229	City of Union City - Union City Transit	0.182	0.212	0.304	Pending	No	Alameda
19R23	Trip Reduction	GoTriValley On-Demand Shared-Ride Service	\$257,000	Livermore Amador Valley Transit Authority	0.135	0.135	0.228	Pending	Yes	Alameda
19R25	Trip Reduction	First- and last-mile services to Walnut Creek BART	\$1,448,116	Bay Area Rapid Transit District	0.395	0.398	0.669	Pending	Yes	Contra Costa
19RFG04*	Off-road (non-ag)	Purchase and operate 5 electric forklifts, 1 electric vacuum unit, and 1 electric terminal truck	\$221,000	Wyse Logistics	0.107	0.015	0.008	10/17/18	Yes	Alameda
26 Projects*			\$11,426,314		50.480	59.389	81.316			

* The award amounts for these projects include a total of \$235,600 of RFG funds

** This proposed award will be presented as a separate item at the 4/25/2019 Mobile Source Committee meeting.

AGENDA 4 - ATTACHMENT 4

Figures 1-3 shown below summarize funding awarded between 7/1/18 and 4/5/19 from funding sources including:

- Carl Moyer Program (CMP)
- Community Health Protection Program (CHP)
- Funding Agricultural Replacement Measures for Emission Reductions (FARMER)
- Mobile Source Incentive Fund (MSIF)
- Transportation Fund for Clean Air (TFCA)
- Reformulated Gasoline Settlement Fund (RFG)

Figure 1. Status of FYE2019 funding by source

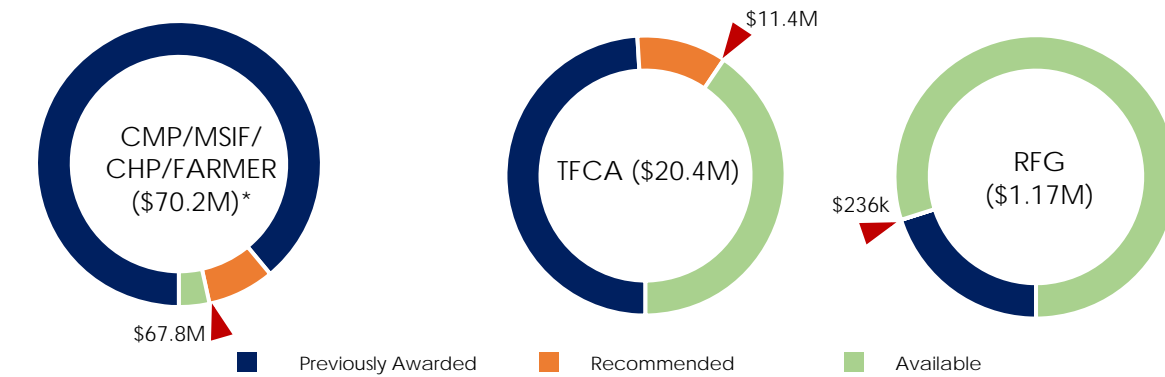


Figure 2. Funding awarded in FYE2019 by county

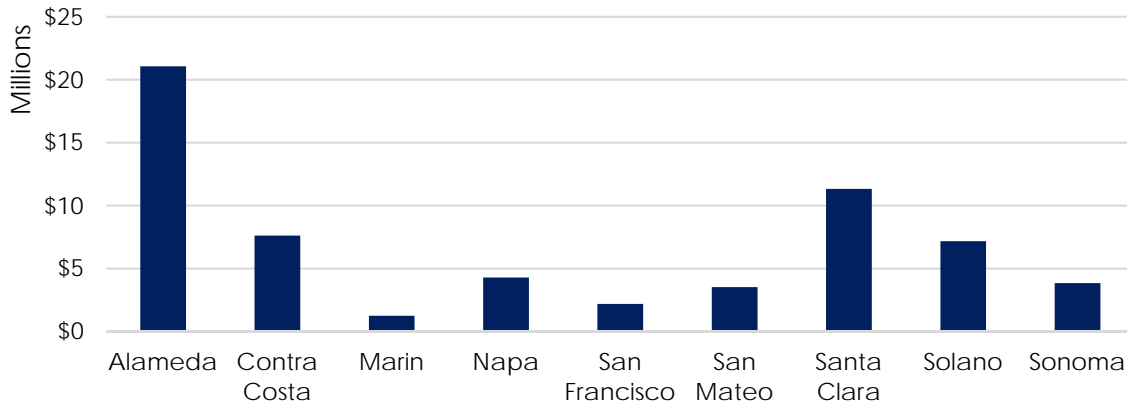
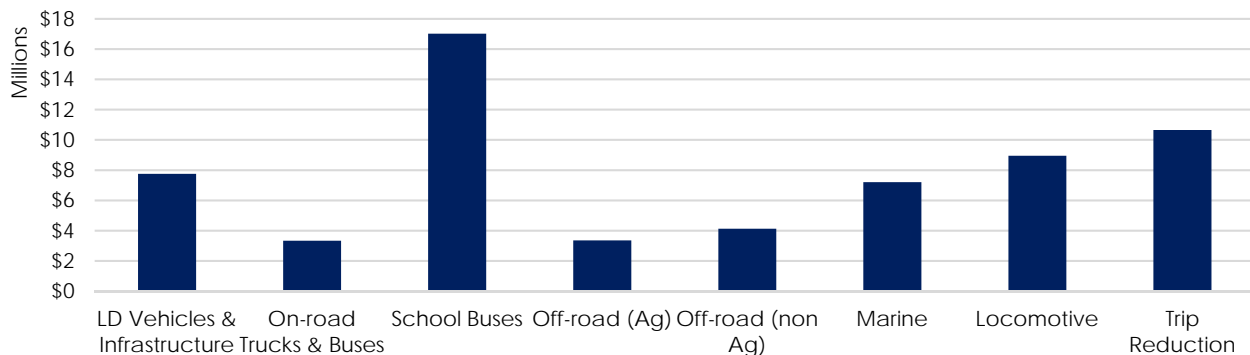


Figure 3. Funding awarded in FYE2019 by project category



AGENDA 4 - ATTACHMENT 4

Figure 4. CMP/MSIF/CHP/FARMER funding awarded since 2009 by county

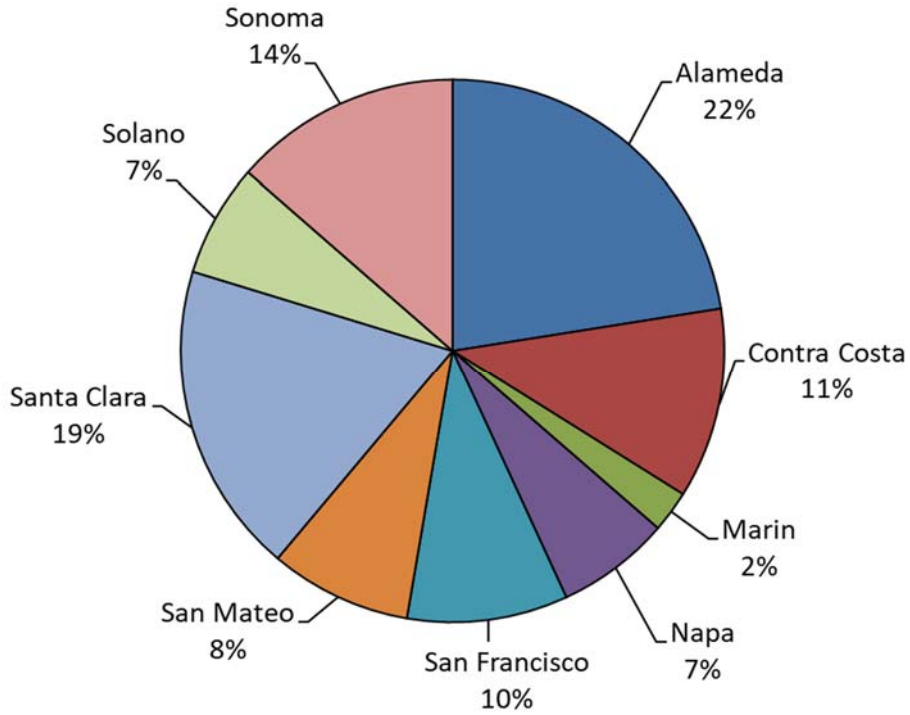
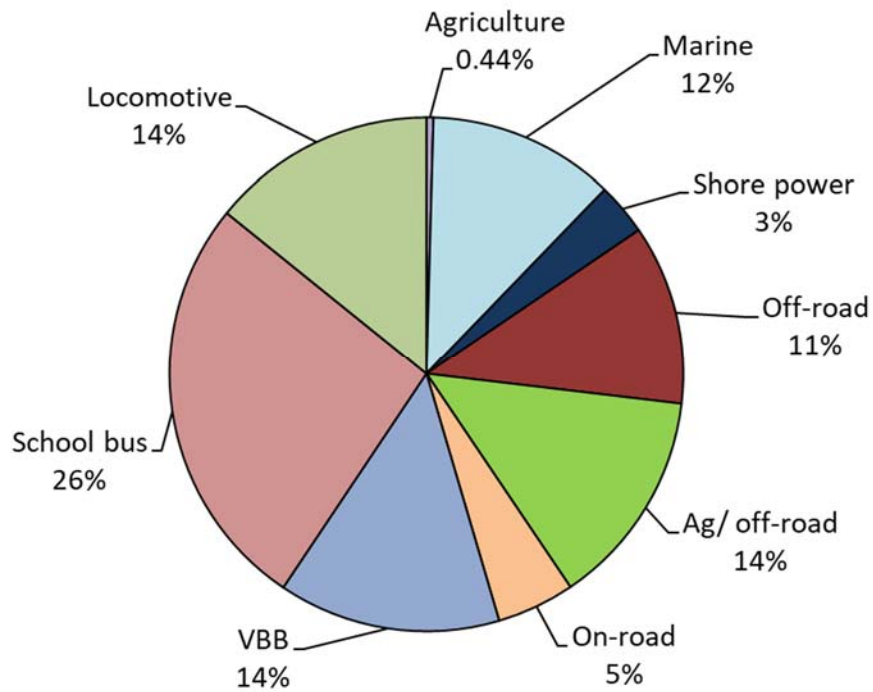


Figure 5. CMP/MSIF/CHP/FARMER funding awarded since 2009 by category



BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairperson David Canepa and Members
of the Mobile Source Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: April 16, 2019

Re: Transportation Fund for Clean Air (TFCA) Funding for Shuttle and Ridesharing
Projects

RECOMMENDED ACTION

Recommend Board of Directors:

1. Approve a total award of up to \$3,000,000 in TFCA funding for a three-year ridesharing project sponsored by the Metropolitan Transportation Commission (MTC); and
2. Authorize the Executive Officer/APCO to enter into all necessary agreements with MTC for the recommended project.

BACKGROUND

In 1991, the California State Legislature authorized the Bay Area Air Quality Management District (Air District) to impose a \$4 surcharge on motor vehicles registered within the nine-county Bay Area to fund projects that reduce on-road motor vehicle emissions within the Air District's jurisdiction. The statutory authority for the TFCA and requirements of the program are set forth in the California Health and Safety Code (HSC) Sections 44241 and 44242. Sixty percent of TFCA funds are awarded by the Air District to eligible projects and programs implemented directly by the Air District (e.g., Spare the Air, electric vehicle charging station program) and to a program referred to as the TFCA Regional Fund. Each year, the Air District's Board of Directors (Board) allocates funding and adopts policies and evaluation criteria that govern the expenditure of TFCA Regional Fund monies. The remaining forty percent of TFCA funds are pass-through funds to the designated County Program Manager (CPM) in each of the nine counties within the Air District's jurisdiction.

Reducing single occupancy motor vehicle trips is a key strategy to reducing on-road motor vehicle emissions. For more than 25 years, TFCA revenues have been used to fund trip reduction strategies such as shuttle/feeder bus and ridesharing services, which help shift Bay Area residents and commuters to mass transit, and bicycle facilities projects, which facilitate biking and walking as alternatives to driving for short first- and last-mile trips. However, over time it has become a challenge for the Air District to use TFCA revenues to fund projects, including trip reduction, as the region's passenger vehicle fleet becomes cleaner. This challenge is greater regarding shuttles

as the region's passenger vehicle fleet has become cleaner at a faster rate than the medium- and heavy-duty vehicles that are typically used to provide such services. Therefore, the emission reduction benefits associated with trip reduction projects have been declining, along with cost-effectiveness.

In response to this challenge, Air District staff has been working with stakeholders since 2010 to explore available options to continue supporting these projects, including:

- Conducting extensive outreach to solicit public input on opportunities for funding alternatives to fixed-route bus service;
- Refining the methodology used for evaluating projects' cost-effectiveness and recommending increases to the cost-effectiveness thresholds to be able to continue to provide similar funding levels to projects over time; and
- Developing new opportunities for testing new mobility options to support transportation. For example, the Air District recently created a Pilot Trip Reduction project category to test and demonstrate the potential of new emerging technology-enabled solutions, such as microtransit services, as alternatives to fixed-route shuttle service to more conveniently and cost-effectively connect commuters to mass transit.

DISCUSSION

MTC's Ridesharing Project

The Air District received an application to the FYE 2019 TFCA Regional Fund Existing Shuttle & Ridesharing Program from MTC to fund its ridesharing project, including a carpool incentive program and a vanpool subsidy program. The proposed carpool program would provide marketing, outreach, and incentives to encourage commuters to download carpooling apps, register for the 511-ride matching service, and/or sign up for carpooling via the 511 Carpool Program; and the proposed vanpool program will provide monthly subsidies to qualifying vanpools in the Bay Area to maintain and grow the region's vanpool fleet.

While the vanpool subsidy program can potentially result in emission reduction and congestion mitigation benefits by encouraging Bay Area residents to shift to vanpools for their work commute, it is a new program and does not have existing ridership data that are needed to evaluate the effect of the subsidy on vanpool ridership and reducing single occupancy vehicle trips that is needed to determine cost-effectiveness using the existing methodology.

While the MTC project cannot effectively be evaluated under the Shuttle and Rideshare Program evaluation criteria, both the carpool program and the vanpool subsidy program proposed by MTC align with and reinforce the goals and objectives of the Air District's Spare the Air Program. The Spare the Air program employs a variety of strategies to encourage the public to drive less and to choose alternative transportation methods that reduce air pollution from automobiles. Staff evaluates the cost-effectiveness of Spare the Air program as a whole, rather than individual parts or strategies. For this reason, staff believes that funding for MTC's project could be included in

the evaluation of future Spare the Air Programs and is recommending a total award of up to \$3,000,000 in TFCA funding for a three-year ridesharing project.

Options for Supporting Existing Shuttle and Ridesharing Project Sponsors

Staff will also provide historical background information for trip reduction projects and seek input from the Committee on options for continued support for shuttle and ridesharing projects.

BUDGET CONSIDERATION / FINANCIAL IMPACT

None. TFCA funds are generated from the Department of Motor Vehicle (DMV) registration fees and distributed to sponsors of eligible projects on a reimbursement basis. Funding for administrative costs is also provided by TFCA.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Chengfeng Wang and Ken Mak
Reviewed by: Karen Schkolnick

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson David Canepa and Members
of the Mobile Source Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: April 16, 2019

Re: Fiscal Year Ending (FYE) 2020 Transportation Fund for Clean Air (TFCA) County
Program Manager (CPM) Expenditure Plans and a Request from Alameda County
Transportation Commission (ACTC) for a CPM Policy Waiver

RECOMMENDED ACTION

Recommend Board of Directors:

1. Approve the allocation of new FYE 2020 TFCA CPM funds proposed in the Expenditure Plans, as listed in Table 1;
2. Authorize the Executive Officer/APCO to enter into funding agreements with the CPMs for the total funds to be programmed in FYE 2020, as listed in Table 1; and
3. Approve a policy waiver to allow ACTC to use TFCA CPM Funds for a shuttle project.

BACKGROUND

In 1991, the California State Legislature authorized the Bay Area Air Quality Management District (Air District) to impose a \$4 surcharge on motor vehicles registered within the nine-county Bay Area to fund projects that reduce on-road motor vehicle emissions. The legislative requirements that enable the use of the funds are codified in California Health and Safety Code (HSC) Sections 44241 and 44242. The Air District allocates and distributes these fee revenues through its TFCA program.

Forty percent (40%) of TFCA funds are pass-through funds to the designated CPM in each of the nine counties within the Air District's jurisdiction; these funds are distributed based on each county's proportionate share of vehicle registration fees paid. The remaining sixty percent (60%) of TFCA funds are allocated directly by the Air District to eligible programs and projects through the Air District's TFCA Regional Fund program.

For the expenditure of TFCA CPM funds, CPMs must submit an expenditure plan to the Air District specifying the TFCA CPM funding available for projects and program administration for the upcoming fiscal year. Pursuant to HSC Section 44241, CPMs must allocate TFCA funds to eligible projects within six months of the Air District Board of Directors' (Board) approval of the

CPM expenditure plans. The authorizing legislation allows CPMs to allocate up to 6.25% of new TFCA monies to cover program administration costs. The FYE 2020 CPM Fund policies and cost-effectiveness criteria, which were adopted by the Board on November 7, 2018, set the guidelines and requirements for expending the funds available in FYE 2020.

DISCUSSION

The Air District received proposed expenditure plans from all nine CPMs for FYE 2020. Table 1 shows the funds that are estimated to be available to CPMs in FYE 2020:

- **Column A** (highlighted in blue) shows for each county in FYE 2020 the amount of new TFCA funds (revenue monies) that are projected to be available. Funding estimates are based on previous years’ Department of Motor Vehicles (DMV) revenue and based on each county’s proportionate share of vehicle registration fees paid.
- **Column B** shows the amount of TFCA carry-over funds that were reported by CPMs in their expenditure plans and that are available for reprogramming. Carry-over funds refer to remaining prior-year funding derived from projects that were recently completed under budget or canceled, and new funding derived from interest earned on TFCA funds.
- **Column C** shows the sum of columns A and B, and is the total amount of funds that are estimated to be available to CPMs in FYE 2020, including new and carry-over funds.

Table 1: FYE 2020 TFCA Funding for County Program Managers

	A	B	C
County Program Manager	Estimated New TFCA Funds	TFCA Funds to be Reprogrammed	Total FYE 2020 Funds
Alameda County Transportation Commission	\$2,042,902	\$511,198	\$2,554,100
Contra Costa Transportation Authority	\$1,706,791	\$7,609	\$1,714,400
Transportation Authority of Marin	\$373,684	\$65,995	\$439,679
Napa Valley Transportation Authority	\$213,169	\$40,037	\$253,206
San Francisco County Transportation Authority	\$771,753	\$9,896	\$781,649
San Mateo City/County Association of Governments	\$1,246,764	\$67,315	\$1,314,079
Santa Clara Valley Transportation Agency	\$2,623,016	\$391,854	\$3,014,870
Solano Transportation Authority	\$361,193	\$7,376	\$368,569
Sonoma County Transportation Authority	\$657,588	\$13,847	\$671,435
TOTAL	\$9,996,860	\$1,115,127	\$11,111,987

Request for a Policy Waiver

TFCA CPM Fund Policy #3 allows CPMs to seek Board’s approval on a case-by-case basis for projects that are authorized by the HSC section 44241 and achieve Board-adopted TFCA cost-effectiveness, but otherwise do not meet all Board-adopted policies.

The Broadway B, which is a free shuttle that is operated by the City of Oakland, runs along Broadway in downtown Oakland and its route is parallel to transit services provided by local bus and BART rail service. For this reason, the project conflicts with the policy that requires funds to be used for shuttle services that operate in areas that are under-served and lack other comparable service. In order for ACTC to continue to provide funding to this service for FYE 2019 and future years, they submitted a request to the Air District seeking a policy waiver for the Oakland Broadway B Shuttle. Air District staff has reviewed the request and determined that while this project does not meet Board-adopted FYE 2019 CPM Fund Policy #28.d., it does otherwise conform to the provisions of HSC section 44241 and Board-adopted TFCA cost-effectiveness. Therefore, staff is requesting that the Board consider ACTC’s request for FYE 2019 and future years, as allowed by Policy #3.

Table 2: Project Requiring Case-by-Case Approval

Project Name	Description	TFCA CPM Funds	Est. Total Project Cost
Oakland Broadway B Shuttle	Operate free shuttle between the Oakland Amtrak Station in Jack London and Grant Avenue on weekdays from 7 AM-10 PM in FY 2019-2020.	\$338,000	\$1,196,540

BUDGET CONSIDERATION / FINANCIAL IMPACT

None. TFCA funds are generated from DMV registration fees and 40% of the TFCA funds are passed through the Air District to the CPMs. Administrative costs for this program are provided by the new TFCA revenue.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Linda Hui and Betty Kwan
Reviewed by: Chengfeng Wang and Karen Schkolnick

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairperson David Canepa and Members
of the Mobile Source Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: April 16, 2019

Re: Electric Vehicle (EV) Ecosystem Update: EV Incentives and Awareness Programs and
Approval of Contracts for EV Services

RECOMMENDED ACTION

Recommend the Board of Directors:

1. Authorize the Executive Officer/APCO to execute a contract with the Center for Sustainable Energy (CSE) in an amount not to exceed \$115,000 for services performed in Fiscal Year Ending (FYE) 2019 and FYE 2020 for EV market research services; and
2. Authorize the Executive Officer/APCO to execute a contract with Kearns and West in an amount not to exceed \$36,000 for services performed in FYE 2019 and FYE 2020 for meeting and stakeholder facilitation for the Bay Area EV Coordinating Council.

BACKGROUND

As part of its deliberations, the Mobile Source Committee (Committee) received several presentations in 2018 on the light- and heavy-duty EV ecosystem in the Bay Area. In order to expand upon and disseminate the information in those presentations, the Committee requested that staff prepare a comprehensive written report on the status of EVs in the Bay Area.

To reach the EV adoption goals outlined in the 2017 Clean Air Plan, significant acceleration in the market is required, especially to move beyond early adopters and beyond regions where EVs are currently concentrated. The Air District aims to focus future outreach and incentive programs on majority adopters, communities that have historically had lower EV adoption, and market actors that influence EV adoption, which requires market research data and stakeholder engagement with Bay Area partners.

DISCUSSION

The Air District has invested significant resources to reduce transportation emissions through the deployment of EVs. In this memo, electric vehicles are defined as battery electric vehicles (BEVs), hydrogen fuel cell vehicles (FCEVs), and plug-in hybrid electric vehicles (PHEVs). Attachment 1 is a comprehensive report on light-duty EV adoption trends, infrastructure, barriers, and Air District programs to increase EV awareness, equity, and adoption. Across multiple Mobile Source Committee meetings in 2019, staff are providing an overview of the topics covered in this report, including:

- Status of Light-Duty EV Adoption in the Bay Area (March 28, 2019)
- **EV Programs: Incentives and Awareness** (current meeting)
- EV Programs: EV Equity (May 27, 2019)

This report will be the basis for additional stakeholder review and input in order to develop an update to 2013 Bay Area EV Readiness Plan: the “Bay Area EV Acceleration Plan.” At a future Committee meeting, staff will also provide a similar update on the market for heavy duty EVs and zero-emissions vehicles.

EV Market Research Services

In order to update outreach messages and strategies for communities that have historically had lower EV adoption and market actors that influence EV adoption, the Air District issued a Request for Proposals (RFP) for Electric Vehicle and Charging Infrastructure Survey and Research Services in December 2018. The scope of this RFP was to develop and implement a methodology to collect feedback from Bay Area residents and business owners on EV adoption and EV charging infrastructure (Attachment 2). The resulting data and recommendations will be used to support more widespread utilization and greater effectiveness of Air District EV incentives and outreach programs.

The Air District received ten proposals which were evaluated by five reviewers. Based on the review process and scores (Attachment 2), staff is recommending CSE for a contract not to exceed \$115,000 for EV and Charging Infrastructure Survey and Research Services.

Facilitation and Meeting Coordination for the Bay Area EV Coordinating Council

The Air District has sponsored the Bay Area EV Coordinating Council (EV Council) since 2011. In September 2014, the Air District released an RFP for Facilitation and Meeting Coordination for the Bay Area EV Coordinating Council. Kearns and West was selected after the proposal review. Through their work that began in 2015, the Kearns and West team have established relationships with EV Council members, which has been critical to effectively facilitating the EV Council’s discussions and coordinated actions. Kearns and West’s current contract ends in June 2019 and staff are recommending Kearns and West for an additional 1-year contract not to exceed \$36,000 for meeting and stakeholder facilitation for the EV Council.

Typically, contracts of this size do not require approval from the Board of Directors. However, Kearns and West was recently awarded a contract (not to exceed \$540,000) to develop an air quality technical assistance center for the Bay Area. Because the total contracts for Kearns and West are over \$100,000 in FYE 2019, staff are providing this update and requesting approval for this contract from the Board of Directors. Staff plans to release another RFP this year for any future contracts for meeting and stakeholder facilitation for the EV Council.

BUDGET CONSIDERATION / FINANCIAL IMPACT

Funding for these contracts comes from a grant from the Federal Highway Administration and California Department of Transportation, through the Congestion Mitigation and Air Quality Improvement (CMAQ) Program.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Rebecca Fisher, Mark Tang
Reviewed by: Ranyee Chiang

- Attachment 1: Bay Area Electric Vehicle Ecosystem: 2019 Update for the BAAQMD Board of Directors
- Attachment 2: Electric Vehicle and Charging Infrastructure Survey and Research Services Request for Proposals and Review

Attachment 1: Bay Area Electric Vehicle Ecosystem: 2019 Update for the BAAQMD Board of Directors

Table of contents

DEFINITIONS..... 1

BACKGROUND 2

CURRENT BAY AREA EV ECOSYSTEM 2

 Environmental Benefits 2

 Available Vehicles 3

 Adoption and Sales..... 6

 Charging Infrastructure..... 10

 Consumer Sentiments 13

POLICIES, PROGRAMS, AND INCENTIVES..... 14

AIR DISTRICT PROGRAMS..... 16

 Planning 17

 Incentives 17

 Outreach and Partnerships 21

OPPORTUNITIES TO ACCELERATE THE MARKET 21

 Market research on consumers and EV market actors 22

 Updated Bay Area EV Acceleration Plan..... 22

 Move beyond early adopters and achieve equitable access to EVs 22

 Expand and fill in gaps in charging infrastructure 23

 Action oriented and effective partnerships 24

DEFINITIONS

Vehicle Types:

BEV – battery electric vehicle

EV – electric vehicle, including BEV, PHEV, and FCEV

FCEV – hydrogen fuel cell electric vehicle

ICE – internal combustion engine

PHEV – plug-in hybrid electric vehicle

ZEV – zero-emissions vehicle

Organizations:

CARB – California Air Resources Board

CEC – California Energy Commission

PG&E – Pacific Gas and Electric

Relevant Terms:

GHG – greenhouse gases

MSRP – manufacturer's suggested retail price

TCO – a vehicle's total cost of ownership, including purchase cost, repairs, fuel, maintenance, taxes, insurance, finance, incentives, and depreciation

TFCFA – Transportation Fund for Clean Air

BACKGROUND

The nine-county Bay Area is home to approximately 7.6 million people¹ and 5.3 million light duty vehicles², with an additional 600,000 vehicles passing daily through the region from adjacent areas.³ Three-quarters of Bay Area residents drive to work (64% drive alone and 10% carpool) and 12% take transit to work.⁴ Tailpipe emissions from these light duty vehicles account for approximately 28% of greenhouse gas (GHG) emissions (CO₂e) and a significant portion of other pollutants (31% of carbon monoxide and 12% of nitrogen oxide) in the Bay Area.

In addition to alternative transit modes that include walking, biking, mass transit, and shared transportation, wide-scale adoption of electric vehicles (EVs) and electrification of all types of transportation are essential to achieving local, State, and Federal emission reduction targets for greenhouse gases and criteria pollutants. California has set a goal of 5 million EVs sold by 2030, and the Bay Area has set a target of 90% of vehicles in the Bay Area being zero emissions by 2050. The Bay Area and California also share the goal to cut greenhouse gas emissions to 80% below 1990 levels by 2050. Rapid growth in the EV market, especially for BEVs, will be a significant part of achieving these goals.

With the first introduction of commercially available light-duty EVs in 2010, the Air District began programs to monitor the EV market and increase EV adoption in the Bay Area. The Air District's efforts have included development and implementation of region-wide EV plans, outreach and awareness activities, and direct financial incentives. This report includes an update of the EV ecosystem, ongoing Air District programs, and future areas of focus to further accelerate EV adoption.

CURRENT BAY AREA EV ECOSYSTEM

Environmental Benefits

Compared to internal combustion engine (ICE) vehicles, battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs) emit fewer greenhouse gas emissions (Figure 1). All BEVs and fuel-cell vehicles produce zero direct GHG emissions, while PHEVs produce direct emissions when operating on gasoline. The lifecycle emissions of a BEV depend on the energy mix of the region's grid. For example, the U.S. average emissions from charging a Chevy Bolt is 1.7 times higher than charging in the Bay Area, due to California's high fraction of renewable energy versus coal and natural gas. In recent years, GHG emissions associated with BEVs and PHEVs have decreased because of increased renewable energy generation on the grid (which reduces lifecycle

¹ *United States Census Bureau, American Community Survey, Demographic and Housing Estimates, 2017*

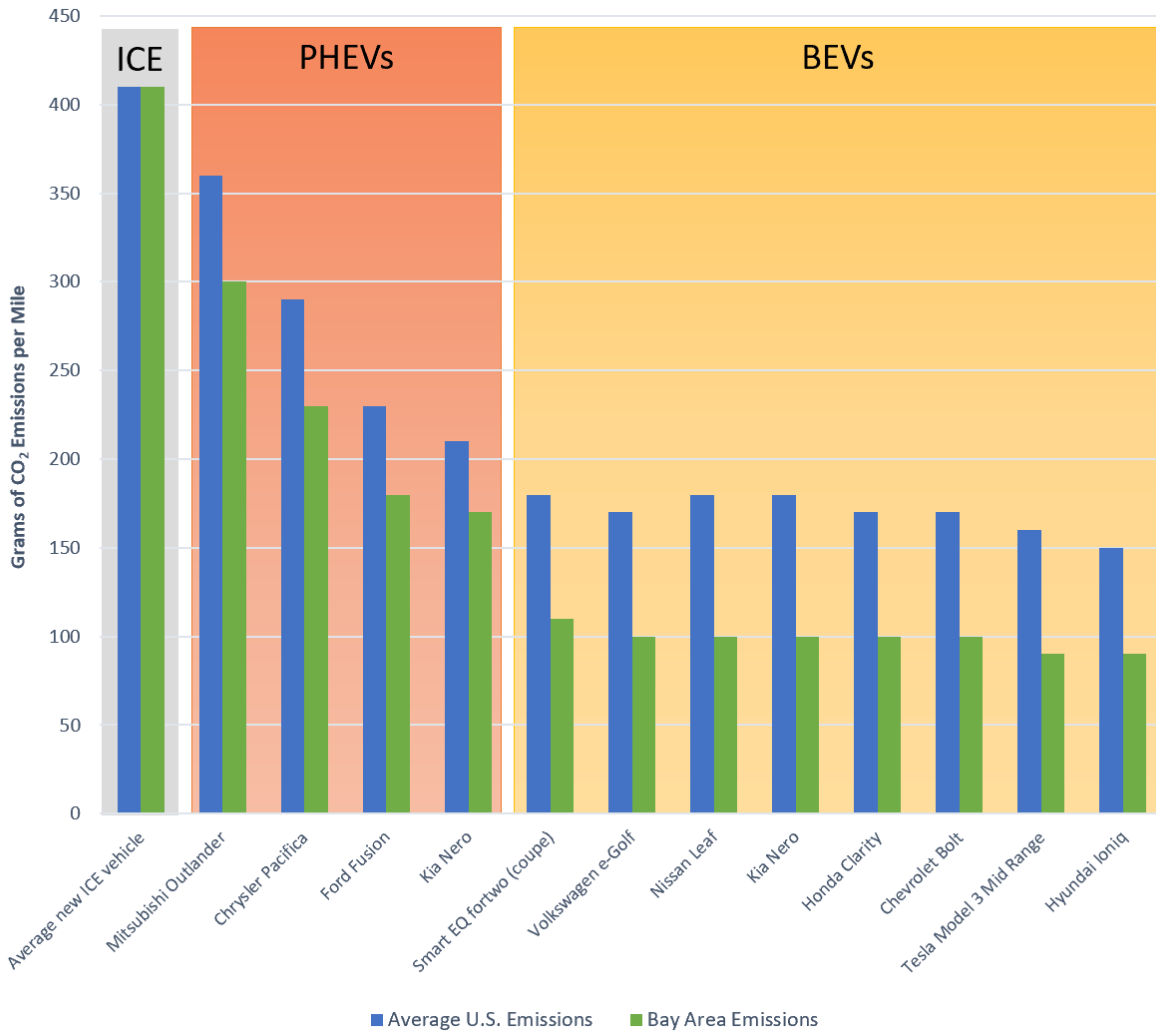
² *California Department of Transportation: Estimated Vehicles Registered by County, 2017*

³ *California Department of Transportation: Annual Traffic Volume Reports (1992-2015)*

⁴ *United States Census Bureau, American Community Survey, 2016*

emissions), as well as improvements in vehicle technology (which reduces direct emissions). Further emissions benefits will be realized over time as more of the region’s power grid shifts to renewable energy sources⁵ and as battery technologies improve.

Figure 1: Example Vehicle Emissions for EVs in the Bay Area compared to the U.S. Average



Source: FuelEconomy.gov, 2019 emissions and models. Bay Area charging emissions data is from Oakland, CA, which is used as a representative city in the Bay Area. The calculator can be used for other Bay Area cities as well.

Available Vehicles

Until a few years ago, the availability of EV models was a major hurdle for interested consumers. However, following the implementation of the California’s Zero Emission Vehicle (ZEV) Program, the market grew significantly. The ZEV program required auto manufacturers to offer a

⁵ Environmental Assessment of a Full Electric Transportation Portfolio, Electric Power Research Institute/National Resources Defense Council, September 2015.

specific number of EVs in the state and thereby provided drivers more options compared to other states. This requirement, combined with incentives, rebates, and carpool lane access, has made California a leader in the EV automotive market. In 2015, California drivers could choose from 20 different EV models⁶; that number has climbed to 43 EV models in 2019, which includes 20 BEVs and 3 FCEV.

The manufacturer's suggested retail price (MSRP) and battery range of BEVs available in California vary widely (Table 1). While the average MSRP of BEVs has decreased over the past few years, EVs are still priced higher than conventional vehicles, on average. The average BEV MSRP in the U.S. is \$58,000, which is still above the average transaction price for all new light duty vehicles, which is \$37,149.⁷ The price differential between conventional vehicles and EVs is seen as a key barrier to EV adoption, particularly for low- and moderate-income households.

Table 1: Availability, Cost, and Range of BEVs sold in the U.S.

Type of Vehicle	BEVs Available in CA	MSRP	Range
City 2-door	3	\$24,000-\$45,000	84-114 miles
Compact	6	\$29,000-\$38,000	89-238 miles
Sedan	7	\$34,000-\$135,000	111-335 miles
SUV	4	\$37,000-\$140,000	64-100 miles
Pick-up Truck		<i>Expected in 2020</i>	
Minivan		<i>Expected in 2020</i>	

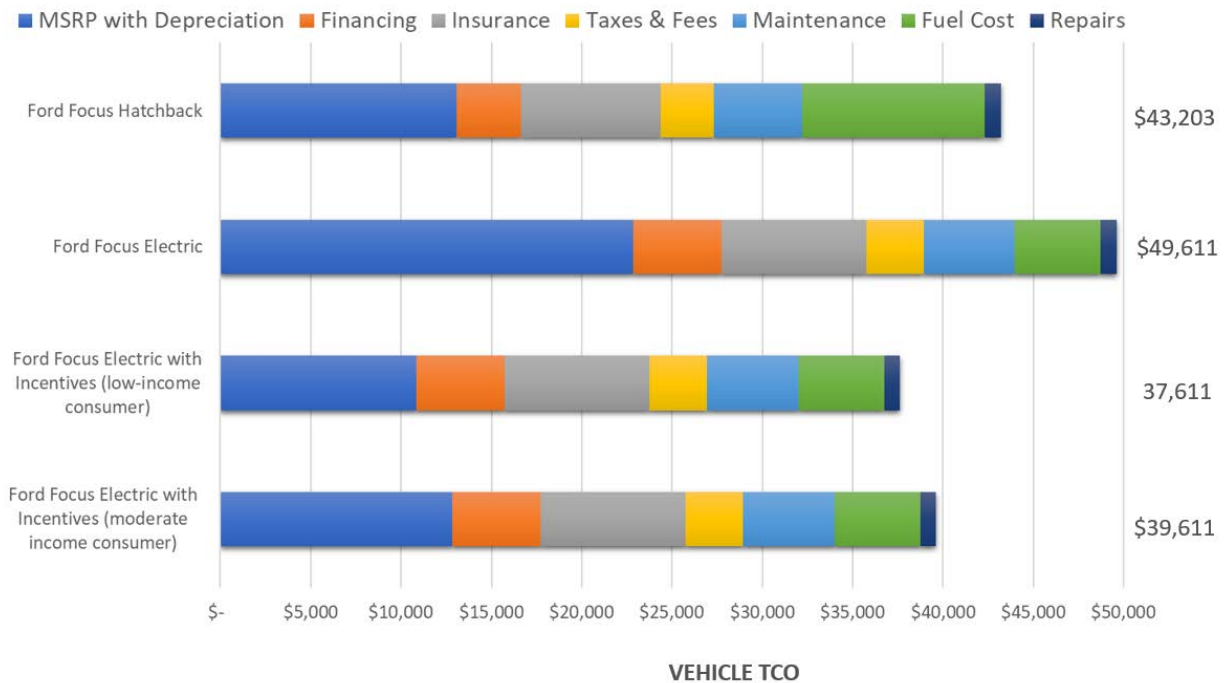
While BEVs have higher MSRPs than conventional vehicles, the difference in purchase price is typically offset by savings on fuel and maintenance, as well as financial incentives. A useful metric to compare the costs of BEVs to conventional vehicles is total cost of ownership (TCO). TCO includes costs incurred by vehicle owners throughout a car's lifecycle, such as repairs, fuel, maintenance, taxes, insurance, finance, and depreciation (Figure 2). BEV's total cost of ownership is lower compared to other vehicle categories (including PHEV) because of less wear on the brakes, fewer moving parts, and availability of incentives.⁸ Uncertainty in how battery range and performance degrades over time is a factor in TCO. However, because of high demand for used EVs in California, the depreciation rate of BEVs has been less than EVs sold in other markets.

⁶ *Electrifying the Vehicle Market (2016)*, Union of Concerned Scientists, August 2016.

⁷ *Average New-Car Prices Up More Than 4 Percent Year-Over-Year for January 2019*, Kelly Blue Book, February 2019.

⁸ *Total cost of ownership and market share for hybrid and electric vehicles in the UK, US and Japan*, Applied Energy, January 2018.

Figure 2: Example 5-year Total Cost of Ownership, 2019 ICE vehicle (Ford Focus) and BEV (Ford Focus EV)



Source: Edmunds True Cost to Own calculator

The example presented above shows how federal tax credits (\$7,500) and California rebates (\$4,500 for low-income, \$2,500 for moderate income) together make the electric version of the Ford Focus cost competitive compared to the ICE version of the Ford Focus. The federal tax credit is phased out after each manufacturer sells 200,000 vehicles of their electric models. Tesla and General Motors have hit the phase out limit. Other car manufacturers are expected to reach the phase out limit within the next seven years, if current sales trends continue.⁹ Around this time frame, Bloomberg New Energy Finance (BNEF) is projecting that EVs will become cost-competitive on an unsubsidized basis.¹⁰ Starting in 2024 and by 2029, most EV models will reach parity with ICE vehicles as battery prices continue to fall (due to economies of scale associated with the increase in mass manufacturing of lithium-ion batteries).

The following automakers have pledged to support the large-scale transition from internal combustion engine vehicles to electric vehicles (Table 2).¹¹ The commitments include electrifying their entire lineups, increasing the number of EV models available, emissions reduction targets, and phasing out internal combustion engine vehicles.

⁹ Federal EV Tax Credit Phase Out Tracker by Automaker, EVAdoption.com, November 2018.

¹⁰ Electric Vehicle Outlook 2018, Bloomberg New Energy Finance, 2017.

¹¹ What does automakers commitments to EVs entail, Clean Technica, October 2018.

Table 2: Auto Manufacturer EV Commitments

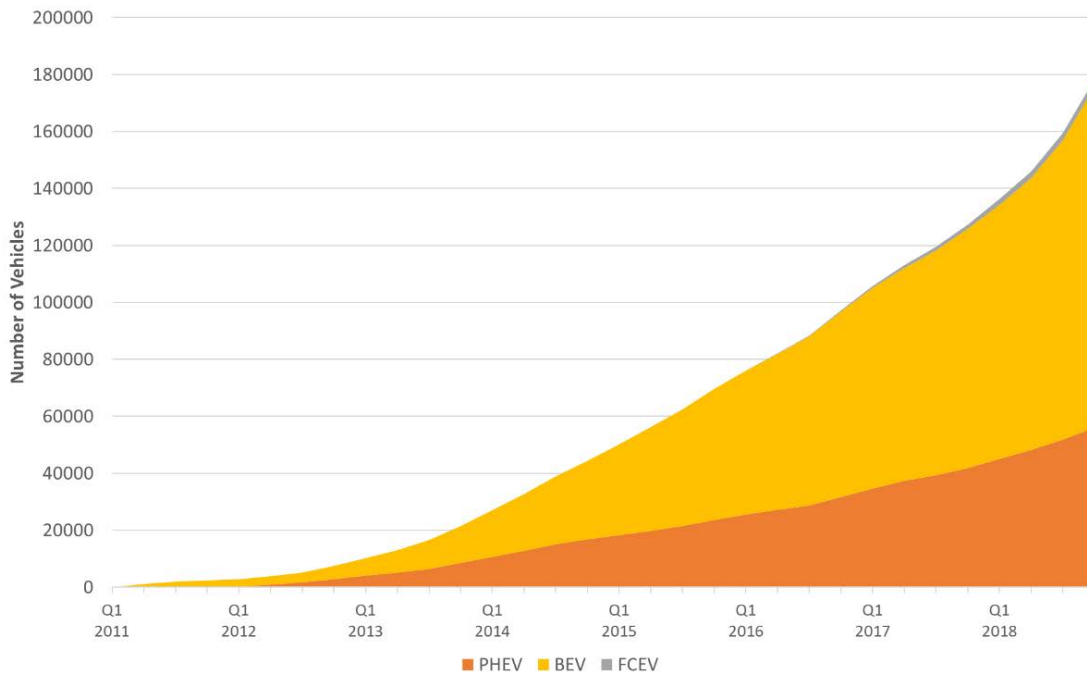
Automaker	Year	Commitment
Volvo	2019	Sell an electrified version of each of its models
Jaguar Land Rover	2020	Sell an electrified version of each of its models
Daimler (Mercedes-Benz)	2022	Sell an electrified version of each of its models and add 10+ BEVs to market
Fiat Chrysler Automobiles	2022	Sell 12 battery-electric, plug-in, and hybrid versions across 30 different lines of vehicles
Ford Motor Company	2022	Sell 40 hybrid and fully electric vehicles
Nissan Motor Company	2022	Sell 12 new zero-emission vehicles through their partnership with Mitsubishi and Renault
General Motors	2023	Sell 20+ battery electric models and committed to an “all-electric future”
Toyota Motor Company	2025	Sell an electrified version of each of its models
Honda Motor Company	2030	Sell an electrified version of 2/3 of its models
Volkswagen Group	2030	Sell an electrified version of each of its models
Toyota Motor Company	2050	Eliminate almost all CO ₂ emissions from new Toyota vehicles

Adoption and Sales

Using a conservative estimate from data from the CVRP program, at the end of 2018, the Bay Area had more than 180,000 EVs, representing 3% of the region’s fleet.¹² The Bay Area has generally had about 50% of EVs in California and one quarter of the EVs in the US. The Bay Area market saw a massive increase in EV sales, growing 68% from 2017 to 2018. (Figure 3).

¹² Program Statistics, Clean Vehicle Rebate Program, January 2019

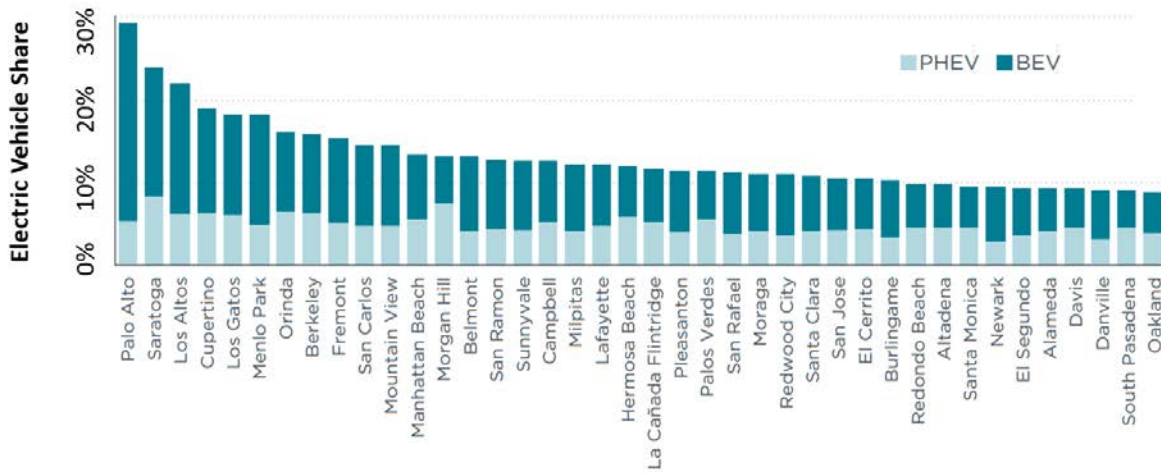
Figure 3: EVs (PHEV, BEV, and FCEV) in the Bay Area



Source: Clean Vehicle Rebate Program (January 2019)

The San Francisco and San Jose metropolitan areas, ranked among the top four markets nationally in terms of electric vehicle sales share in 2017, and accounted for 13% and 7% of sales in the national EV light-duty market, respectively.¹³ During 2017, 30 of the top 40 California cities for EV sales were in the Bay Area, ranging from 9% to 29% of market share (Figure 4). Cities that have percentages of electric vehicles sold also tended to have a much higher proportion of BEVs.¹³

Figure 4: Top California Cities for New EV Market Share in 2017

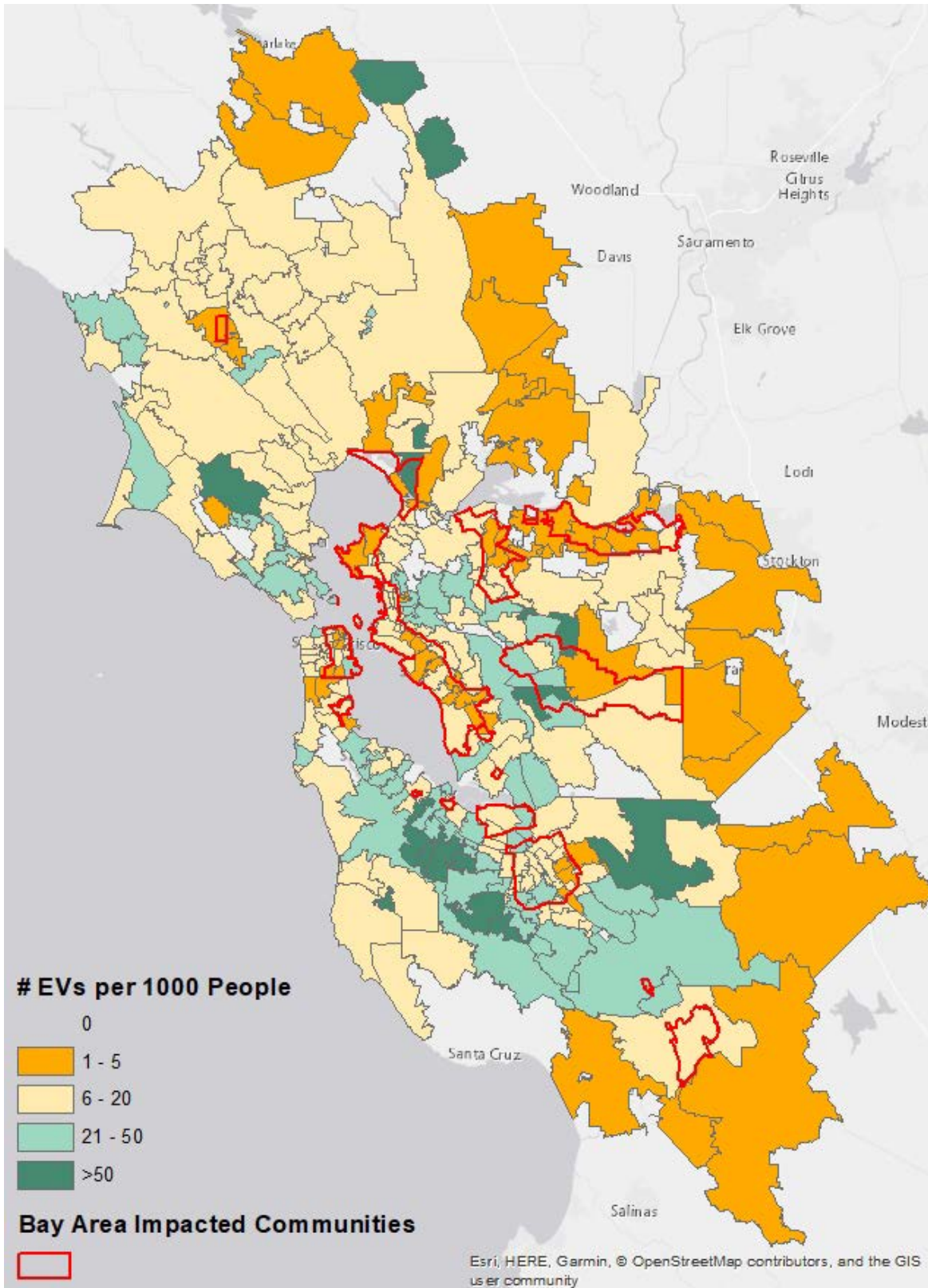


Source: ICCT, Vehicle registrations from IHS Automotive

Other areas in the Bay Area have significantly lower rates of EV adoption (Figure 5). Expanding EVs beyond early adopters and to all geographies and demographics is critical to achieve the Bay Area and California’s goals for reductions in greenhouse gas emission. EVs also offer savings on fuel and maintenance as well as an improved driving experience, which can benefit all Bay Area residents.

¹³ *California’s continued electric vehicle market development*, The International Council on Clean Transportation, May 2018.

Figure 5: Bay Area EV Adoption Map, with Impacted Community Boundaries Highlighted



Source: DMV Registration Data (2017), Air District Community Air Risk Evaluation, CalEnviroScreen 3.0

Charging Infrastructure

The availability of charging infrastructure is a critical factor influencing the number of people who switch to EVs. Publicly accessible EV chargers are needed to support the growing number of EV drivers, especially for long-distance trips and for drivers that do not have access to private home chargers. Determining the correct charger types for charging locations is also an important decision to maximize efficiency, cost-effectiveness and provide the convenience that EV drivers want and need. In many instances, a mix of charger types will be appropriate.

Charging stations are categorized by the power output into Level 1, Level 2, DC Fast, and DC Ultra-Fast (Table 3). Level 1 and Level 2 chargers are appropriate for locations where users dwell for longer periods of time, such as at workplaces, and destinations such as parks and transit park-and-ride lots. DC fast chargers can quickly charge EVs within an hour and are best suited for drivers that are making longer trips, or for situations in which a quick charge is required to resume work such as for taxis, transportation network companies, or fleets. Recently, higher powered DC Ultra-Fast chargers have been deployed, although to date, only a few vehicles can accept these higher power outputs. It is anticipated as EV battery technology advances improving EV ranges, higher powered chargers will be helpful to support future EV technology.

Table 3: Types of EV Chargers

	Level 1	Level 2	DC Fast	DC Ultra-Fast
Electric Output (kW)	1.4	6.2+	50+	80+
Ideal charging locations	<i>Home, Long-term Parking Lots, Overnight</i>	<i>Workplace and Destination such as parks</i>	<i>Quicker charging at grocery stores & near highways</i>	<i>Extremely quick charging at grocery stores & near highways</i>
Approximate time to fully charge*	8+ hours	3-8 hours	20 minutes-1 hour	20 minutes-1 hour

* Charging times vary based on the size of batteries. As newer EVs increase battery sizes to support longer ranges, charging times may increase.

In addition to power outputs, charging stations can also appear with multiple ports so one charger may connect to multiple vehicles for charging. Depending on site design and anticipated utilization, single versus dual-port chargers are a consideration.

There are currently 1,600+ charging locations with 7,500+ publicly available ports in the Bay Area (Figure 6). Of those publicly available ports, the vast majority are L2 charging ports (87%). A smaller portion (11%) are DC Fast charging ports (Figure 7).

Figure 6: Publicly Accessible EV Charging Stations in the Bay Area

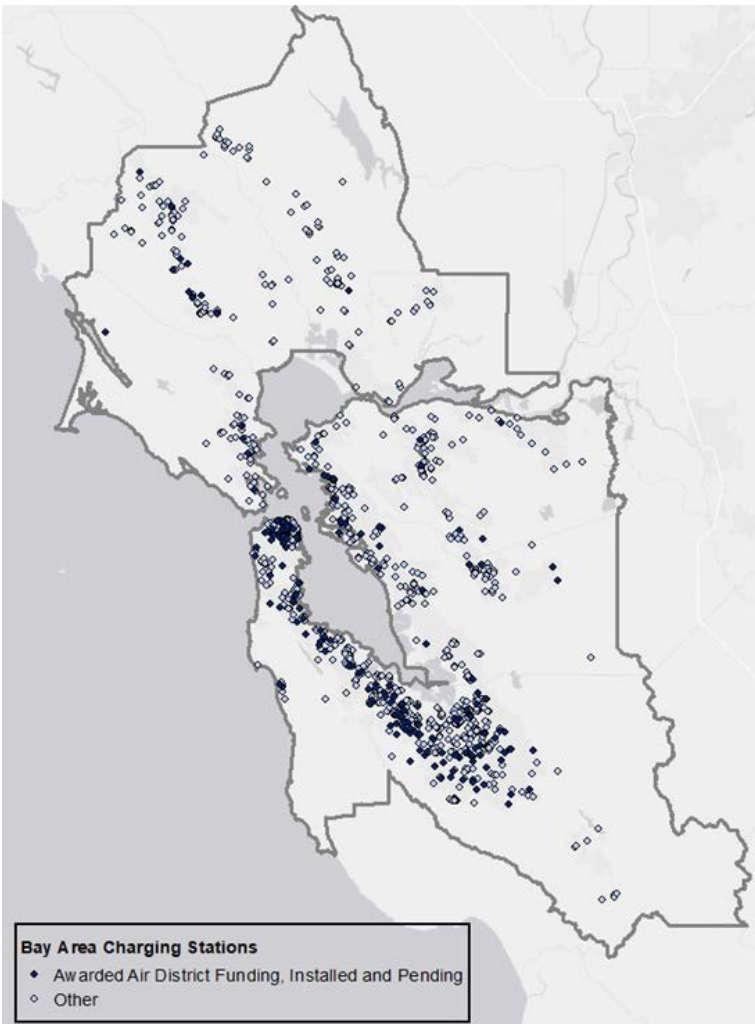
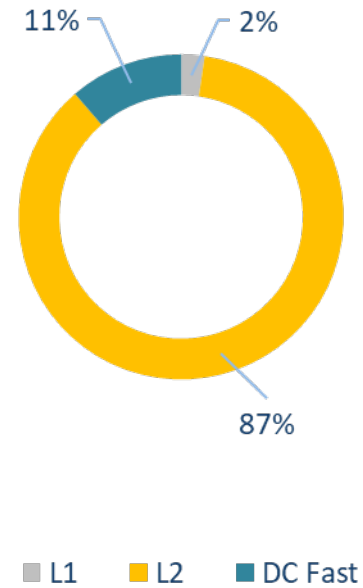


Figure 7: Publicly Accessible EV Charging Ports by Type

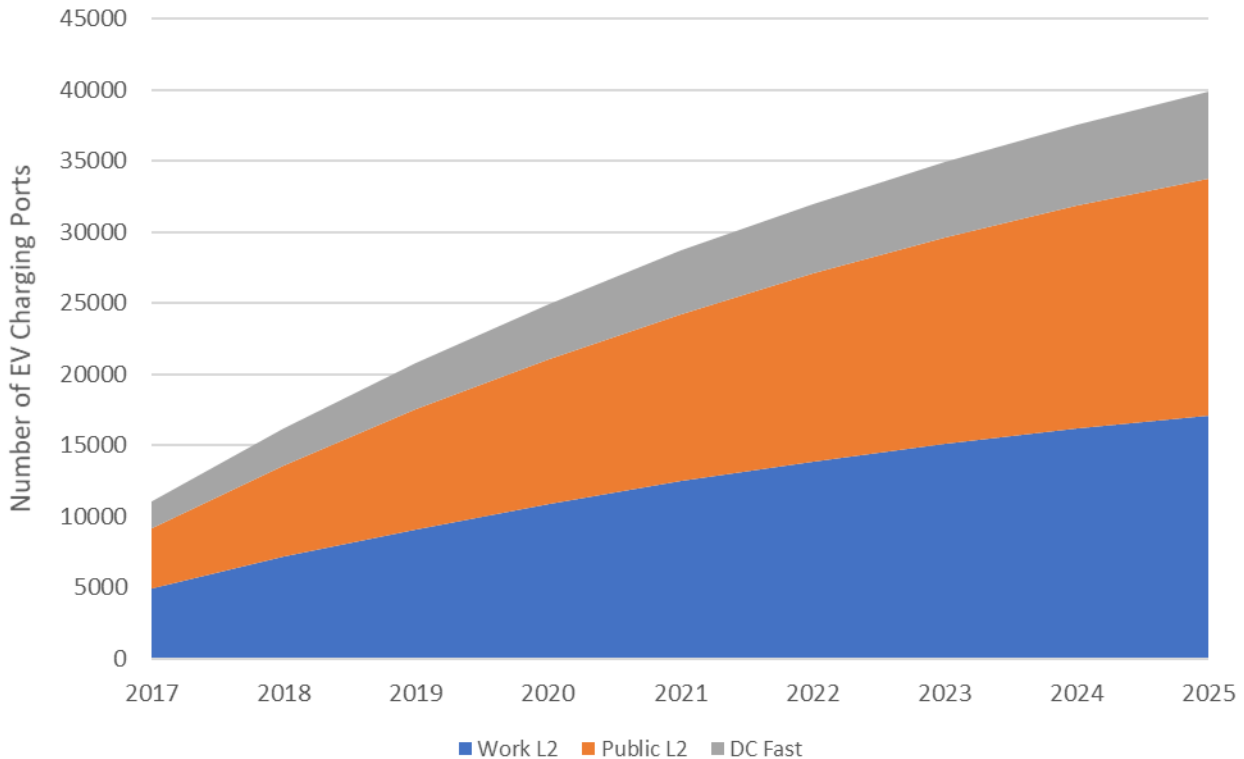


Source: Alternative Fuels Data Center and Charge! Program (BAAQMD)

Additional charging stations will be needed to accommodate future growth in the EV market, especially to achieve the ambitious Bay Area goals and to accommodate a wider range of Bay Area residents. There have also been anecdotal reports that current charging stations are often full, which indicates that additional charging station capacity is needed even for the current number of EV drivers. The National Renewable Energy Laboratory (NREL) and California Energy Commission (CEC) developed a computer simulation tool, Electric Vehicle Infrastructure Projection (EVI-Pro), which uses the results of a state-wide transportation habits survey to quantify the charging infrastructure needed to ensure that future EV drivers can meet their transportation needs. This analysis accounts for projections for vehicle and charger technologies, user demographics and market adoption conditions, the shared-use of chargers, and travel and charging

preferences.¹⁴ Over 20,000 public charging ports are estimated to be needed in 2019 (9,100 workplace L2, 8,400 public L2, and 3,300 DC Fast) (Figure 8). To stay on track with our goals, by 2025, the Bay Area is estimated to need about 40,000 public charging ports (17,000 workplace L2, 17,000 public L2, and 6,000 DC Fast).

Figure 8: Projected Need for PHEV and BEV Charging Infrastructure in the Bay Area



Source: National Renewable Energy Laboratory, CEC EV Infrastructure Projection Tool (EVI-Pro)

Widespread charging infrastructure will be key to overcoming current and future barriers to electric vehicle adoption. An individual or household’s need for public charging infrastructure is related to home type, with drivers in single-family homes being much more likely to have home charging than those in apartments or multi-unit dwellings. Electric vehicle owners so far tend to live in single-family homes.¹⁵ To extend the EV market beyond those living in single-family homes, we will have to expand charging available at multi-unit dwellings and public charging

¹⁴ *California Plug-In Electric Vehicle Infrastructure Projections: 2017-2025*, California Energy Commission, March 2018

¹⁵ *Quantifying the electric vehicle charging infrastructure gap across U.S. markets*, the International Council on Clean Transportation, January 2019.

infrastructure. In the Bay Area, over one-third (36%) of housing units are in multi-unit dwellings.¹⁶ Installing charging infrastructure has been more challenging for multi-family housing, requiring away-from-home charging options for a significant portion of the Bay Area population. The need for drivers to take longer-distance trips and with a wide range of transportation patterns also requires public charging.

Consumer Sentiments

Based on recent studies and surveys, as well as anecdotes from our partners, Air District staff is highlighting three concerns that significantly influence consumer sentiment (or lack of knowledge) related to EVs: cost, range anxiety, and awareness of vehicles and infrastructure.

As mentioned above, the upfront cost (MSRP) for most EVs is higher than similar conventional vehicles, and only slightly competitive when incentives and total cost of ownership are considered. The higher upfront cost of EVs turns off many cost-sensitive consumers who may have originally considered an EV. While luxury brands like Tesla have increased the visibility and “cool factor” of EVs, they have also contributed to a perception that EVs are for the wealthy, and therefore must be expensive. Many consumers don’t initially see EVs as a smart economic decision.

For consumers who are not EV drivers, range anxiety is one of the most common concerns, particularly for consumers without charging options at or near their home. Consumers often overestimate the range they need in a vehicle and are therefore cautious when considering fully electric models. While the average Californian travels less than 30 miles a day, survey data shows that consumers think they need upwards of 300 miles of range.¹⁷ Increases in battery range and the number of charging stations will help address range anxiety, but to truly shift consumer sentiment, more EV education, understanding actual transportation needs, and charging station signage are needed.

The previous concerns are seen among individuals who have at least some awareness of EVs. A recent study of Californian consumers found that despite a near doubling in the number of EV models in California between 2014 and 2017, *fewer* survey respondents were able to name an EV for sale in 2017 than in 2014.¹⁸ Consumers who were aware of EVs thought of them as small compact cars, that might not fit their lifestyle the way a crossover, SUV, or minivan would. Additionally, consumers’ awareness of public charging stations barely shifted from 2014 to 2017, even though public EV chargers in California jumped from 5,700 in 2014 to more than 11,500 by 2017. The study concluded that Californians are not actively avoiding EVs, they are simply unaware of EVs, which speaks to the importance of increased EV marketing and outreach.

¹⁶ *American Fact Finder*, United States Census Bureau, January 2019.

¹⁷ *The Barriers to Acceptance of Plug-in Electric Vehicles: 2017 Update*, National Renewable Energy Laboratory, 2017.

¹⁸ *Automakers and Policymakers May Be on a Path to Electric Vehicles; Consumers Aren’t*, UC Davis, 2017.

POLICIES, PROGRAMS, AND INCENTIVES

Federal, state, regional, and local governments have taken important steps to address key barriers to EV adoption and infrastructure. Government actions to accelerate EV adoption include goals for EV adoption, financial and nonfinancial incentives, supporting public charging infrastructure, marketing materials and campaigns, public ride-and-drive events, and building codes and other policies. These policies and programs seek to overcome perceived and actual consumer barriers related to higher upfront costs, electric range, and awareness and understanding. Data collected by the International Council on Clean Transportation showed that these local and state governments and utilities programs have been generally successful.¹⁹

The following tables list the key state, regional, and local targets, plans, standards, campaigns and incentives relevant to the Air District’s jurisdiction (Tables 4 - 8). There are many EV efforts in place or under development within the Bay Area that help the EV market grow, but this proliferation of programs has also increased the need for coordination among EV-focused agencies and organizations.

Table 4: Bay Area and California Targets Relevant to EVs

<i>Bay Area</i>	Reduce GHG emissions 80% below 1990 levels by 2050 (Air District 2017 Clean Air Plan)
	90% of Bay Area vehicles are zero-emissions by 2050 (Air District 2017 Clean Air Plan)
<i>California</i>	Reduce GHG emissions to 40% below 1990 levels by 2030 and 80% below 1990 levels by 2050 (AB32/SB32)
	Zero Emission Vehicle Program, requires auto manufacturers to sell electric cars, tied to the auto manufacturer’s overall sales within the state
	Low Carbon Fuel Standard, requires the carbon content of fuels to decrease 10% from 2010 levels by 2020
	5 million ZEV’s on road by 2030 (Executive Order B-48-18)
	Install 250,000 EV chargers and 200 hydrogen refueling stations by 2025 (Executive Order B-48-18)

Table 5: Bay Area and California Plans Relevant to the EV Market

<i>Bay Area</i>	Bay Area Plug-in EV Readiness Plan (2013)
	Plan Bay Area 2040
<i>California</i>	2016 ZEV Action Plan
	2018 ZEV Action Plan – Priorities Update
	SB 375/Sustainable Communities Strategies

¹⁹ *Expanding the Electric Vehicle Market in U.S. Cities*, the International Council on Clean Transportation, 2017.

Table 6: Building Code Requirements for EV Infrastructure (California Green Building Standards (CALGreen) and Bay Area Jurisdictions with Additional Requirements)

	Multi-Family	Single Family	Non-Residential
CALGreen Code Requirements for EV Capable Parking	10% of parking spaces	100% of attached private garages	6% of parking spaces
City			
Berkeley	✓		
Burlingame	✓	✓	
Contra Costa County	✓		✓
Cupertino	✓	✓	✓
Emeryville	✓		
Fremont	✓	✓	✓
Marin County	✓	✓	✓
Menlo Park	✓		✓
Mountain View	✓		✓
Oakland	✓		✓
Palo Alto	✓	✓	✓
San Mateo	✓		✓
San Francisco	✓		✓
San Rafael	✓	✓	✓
Santa Clara County	✓	✓	✓
Santa Rosa	✓		
Sunnyvale	✓	✓	

Source: ChargePoint (2018), "EV Capable" requires raceway and panel capacity.

Table 7: S Currently Available EV Rebates and Incentives Available in the Bay Area

<i>Electric Vehicle</i>	California Clean Vehicle Rebate (CSE and CARB)
	Clean Cars for All (Air District and CARB)
	Clean Vehicle Assistance Program (Beneficial State Foundation and CARB)
	DriveEV (Sonoma Clean Power)
	Federal tax credit
	MCEv Program (Marin Clean Energy)
<i>Charging Infrastructure</i>	CALeVIP (CSE and CEC)
	Charge! (Air District)
	Clean Fuel Rebate (PG&E)
	EV Charge Network (PG&E)
<i>Other</i>	California Air Vehicle Decals – HOV Lane Usage (DMV)
	Charge Now (BMW))
	No Charge to Charge (Nissan)

Table 8: EV Awareness Campaigns and Initiatives

<i>Bay Area</i>	Center for Sustainable Energy (Experience Electric – The Better Ride)
<i>California</i>	Charge Across Town
	Plug in America
	Veloz (Electric for All, Best.Drive.Ever)
<i>National</i>	Electrify America
	Plug in America

AIR DISTRICT PROGRAMS

Since EVs first came onto the market, the Air District has been focused on monitoring the market, developing plans, conducting outreach, and offering incentives to build up the charging infrastructure and support early EV adopters. The initial Air District programs were designed to complement other ongoing EV efforts, develop understanding and prepare for a new market, address the lack of public EV charging infrastructure, offset the higher initial costs, and support Bay Area residents, local governments, and businesses to test out new technologies.

Table 9: Air District EV Programs

2013 Bay Area EV Readiness Plan	www.baaqmd.gov/plans-and-climate/bay-area-pev-program/bay-area-pev-ready
Bay Area EV Council	www.baaqmd.gov/plans-and-climate/bay-area-pev-program
Charge!	www.baaqmd.gov/charge
Clean Fleets	www.baaqmd.gov/cleanfleets
Clean Cars for All (new)	www.baaqmd.gov/cleancarsforall

Planning

In 2013, the Air District partnered with the Metropolitan Transportation Commission (MTC) and other electric vehicle stakeholders to develop and publish the Bay Area Plug-In Electric Vehicle Readiness Plan. Based on research, analysis, and public input, the 2013 plan included:

- Projections for EV ownership and deployment; barriers to EV ownership, deployment, and recommendations to eliminate barriers in private and public fleets, including recommendations for future incentive programs;
- Key strategic zones/areas for deployment and types of charging stations for regional EV charging infrastructure;
- Best practice recommendations for local government regarding their EV readiness and friendliness with respect to regional coordination, permitting and inspection practices, zoning and parking rules, local ordinances, and building codes;
- Integration of the Regional PEV Plan into the Bay Area’s Sustainable Communities Strategy (SCS) plan (Plan Bay Area 2040).

Based on this plan, the Air District developed incentives and coordination activities to help get the Bay Area ready for the introduction of new EV technologies and demonstrate the viability of EVs.

Incentives

Since 2010, the Air District’s Board of Directors has awarded over \$19 million through incentive programs to target the identified barriers to EV adoption. Many of these incentives have leveraged additional investments from other organizations such as PG&E’s Charge Network, Marin Clean Energy’s MCEv Charging Program, California’s Clean Vehicle Rebate Program, and the federal EV tax credit. Air District staff continue to identify other opportunities to leverage other incentive programs to reduce the costs for Bay Area residents, businesses, and local government. To date, the Air District has awarded projects that support the installation of more than: 1,500 passenger electric vehicles, 4,400 publicly available Level 2 and DC Fast chargers (Figure 7), and over 1,400 residential chargers.

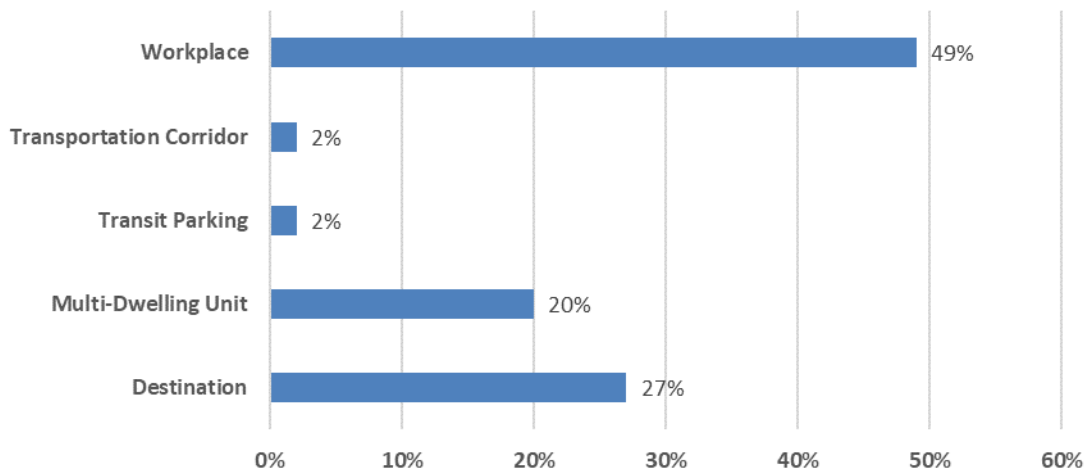
Since 2016, the Air District has administered the Charge! Program, which provides funding for the purchase and installation of publicly accessible charging stations in the Bay Area. This Program is open to organizations including government entities, non-profits, and businesses. The

Charge! Program provides fixed award amounts per each charging unit installed. For example, a Level 2 charging station is eligible for up to \$3,000 in funding and a DC fast charging station is eligible for up to \$18,000. Additional “plus-up” funding is available to promote ancillary benefits and reduce costs at project locations where there are higher barriers to implementation. These plus-up categories have included co-locating renewal energy generation such as wind or solar or installing charging at multi-unit dwellings.

The Clean Fleets Program opened in August 2018. This program provides funding to purchase or lease new zero-emission vehicles such as EVs (including electric motorcycles) and fuel cell vehicles. Similar to the Charge! Program, the Clean Fleets Program is open to government entities, non-profits, and businesses. Up to \$2,500 is available in incentive funds per vehicle and up to \$5,000 per motorcycle because emissions from conventional motorcycles are high.

Both the Charge! and Clean Fleets Programs are supported by funding from the Transportation Fund for Clean Air (TFCA), a \$4 surcharge on California Department of Motor Vehicle registrations in the Bay Area. Since 2016, over \$7.6 million has been awarded to Charge! Program projects to support the installation of over 2,900 publicly accessible charging stations in the Bay Area. Most chargers funded through the Charge! Program were installed or planned at workplace facilities, with other projects at transportation corridors, transit parking and multi-unit facilities (Figure 9). Future iterations of the Charge! Program may include additional incentives to increase EV charging station installations at underrepresented facility types or in impacted communities.

Figure 9: Awarded Charge! Projects by Facility Type from 2016-2018



Source: Bay Area Air Quality Management District (February 2019)

As the Charge! Program has grown, the utilization of Air District-funded stations has increased (Figure 10 and Figure 11). By the end of 2018, Air District-funded stations delivered over 1.6 GWh of electricity to EVs per year and is equivalent to reducing gasoline use by over 128,000

gallons or reducing ICE vehicle travel by 2.8 million miles.²⁰ In addition, the annual energy delivered per charger increased between 2016 and 2018. This is likely due to higher EV adoption, as well as the presence of additional charging stations. To maximize cost effectiveness of the Charge! Program, the energy delivered per charge will need to continue to increase. Because the Charge! projects are monitored for at least three years and the first projects were only awarded in 2016, usage data will continue to be collected for current and future projects. The initial trends in the usage data indicate we are on track to achieve higher usage levels. These trends also confirm the high and growing demand for publicly accessible chargers.

Figure 10: Total Annual Energy Dispensed (kWh) from Charge! Projects Installed

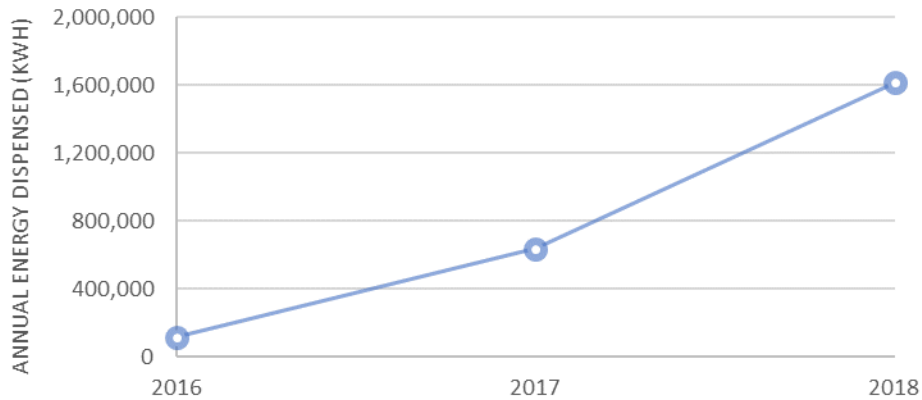


Table 10: Total Reduced Gasoline and Vehicle Miles Traveled from Charge! Projects Installed

Year	2016	2017	2018
Gallons of Gas Equivalent	9,052	50,722	128,481
Vehicle Miles Travelled Equivalent	196,692	1,102,122	2,791,703

²⁰ *Greenhouse Gas Equivalencies Calculator*, U.S. Environmental Protection Agency, December 2018.

Figure 11: Average Annual Energy Dispersed (kWh) Per Charger from Charge! Projects Installed

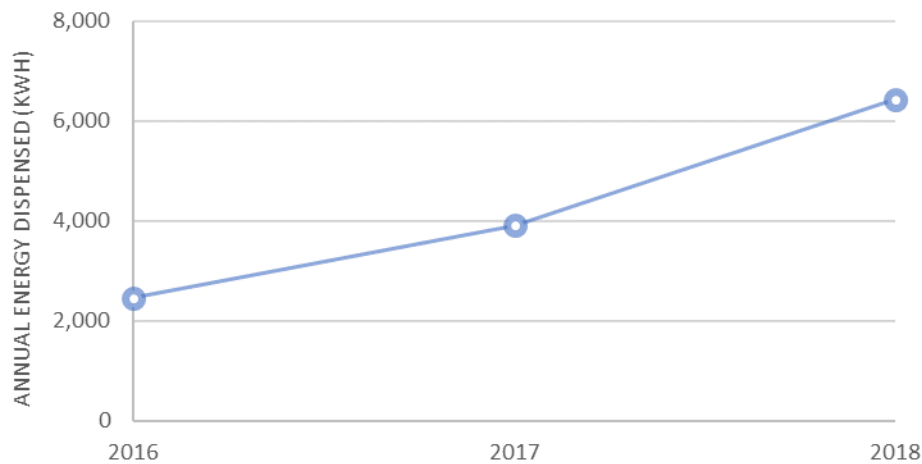


Table 11: Average Reduced Gasoline and Vehicle Miles Traveled Per Charger from Charge! Projects Installed

Year	2016	2017	2018
Gallons of Gas Equivalent	196	311	513
Vehicle Miles Traveled Equivalent	4,260	6,751	11,138

In addition to TFCA-funded programs, from 2015-2017, the Air District awarded projects through funding that resulted from a judgement issued in Reformulated Gasoline Antitrust and Patent Litigation. A total of 19 facilities were awarded which included 129 Level 2 charging stations and 11 DC fast charging stations and placed into service by September 2017. A report on the program’s results identified 5 key project implementation and utilization barriers,²¹ including:

- **Variability in costs:** Construction costs varied depending the scale of the project (number of chargers that were installed), especially on the existing electrical capacity of facilities and how many upgrades were needed.
- **Project delays:** On average, projects took 236 days to complete and most delays were attributed to electrical upgrades and interconnectivity issues with the grid.
- **Availability of chargers:** Facilities that limited accessibility only during business hours suffered from reduced utilization.
- **Pricing structure:** Higher fee structures disincentivized usage of the chargers.
- **Utilization of charging assets:** Charging station utilization could be increased by installing signage, designating parking stalls for EV charging, encouraging users to move their vehicles upon reaching enough charge and installing enough chargers to match to the size and dwell times of the parking facility.

²¹ *EV Charging Demonstration Program*, Bay Area Air Quality Management District, April 2018.

These lessons about barriers to installing and using charging stations have been included in subsequent iterations of the Charge! Program.

Outreach and Partnerships

Since 2011, the Air District, in partnership with MTC, has sponsored the Bay Area EV Coordinating Council (EV Council), a collaboration forum for EV stakeholders including local and state governments, businesses, research institutions and non-profits. The EV Council is convened quarterly and addresses topics such as new vehicle and charging technologies, and EV-friendly ordinances adopted by local agencies, equity, and grant opportunities. The EV Council also is an ongoing platform to discuss emerging trends, share best practices, and facilitate innovation to address barriers to EV adoption.

The Air District also sponsors local events and staff attend and share information at regional conferences and meetings with local associations and government agencies (e.g. transportation, environment, public works, school districts, chambers of commerce).

OPPORTUNITIES TO ACCELERATE THE MARKET

The programs and policies to date from the Air District and partner organizations have been focused on getting the Bay Area EV market started. Indeed, the EV market in the Bay Area has seen a massive expansion in recent years, with significant growth in EV sales, infrastructure, and the availability and awareness of EV options for consumers. At the same time, our EV and GHG emissions reduction goals are ambitious, growing from 4% of vehicles to 90% of vehicles driven by Bay Area residents. Using a common framework to describe innovation adoption cycle (innovators, early adopters, early majority, late majority, and laggards), we are in the early adopter phase, which tends to include more socially forward users and have more financial fluidity. The early majority, late majority, and laggards, which typically represent most of consumers, include individuals with more skepticism, stronger resistance to change, or less financial fluidity. With the diversity of geographies, socioeconomics, and transportation needs across the Bay Area, we also need to be sure that technology transitions address the needs and concerns of all Bay Area residents.

Therefore, current and future priorities include actions that accelerate the market, focusing on influencing the large proportions of the population that may be more resistant to change, not just early adopters. These priorities will include understanding and addressing barriers to adoption in communities that have been slower to adopt EVs, updating the region's EV plans to reflect current technologies and trends, broadening the utilization of incentives to cover more communities, and ensuring effective coordination among EV programs to maximize impact (Figure 12).

Figure 12: Air District Priorities in 2019 to Accelerate EV Market

1	Market research on consumers and EV market actors
2	Updated Bay Area EV Acceleration Plan
3	Move beyond early adopters and achieve equitable access to EVs
4	Expand and fill in gaps for charging infrastructure
5	Action-oriented and effective partnerships

Market research on consumers and EV market actors

Cost, range, and awareness are not the only considerations for consumers and businesses. To better understand the underlying sentiments that form barriers to EV adoption, and identify the best solutions to addressing those barriers, the Air District is starting work to survey consumers and businesses in the Bay Area. Currently, Air District staff have evaluated existing studies and collected anecdotal information on barriers to EV adoption and charging infrastructure. This effort will help us fill in gaps and collect thorough data sets across a diversity of EV market actors (e.g. low-income consumers, property owners, ride-hailing drivers, dealerships, fleet managers, etc.). This work will help improve incentive programs and develop new and better outreach programs and materials. The survey and research will also help inform the Air Districts current and future funding programs to ensure they are addressing appropriate barriers and economic levers.

Updated Bay Area EV Acceleration Plan

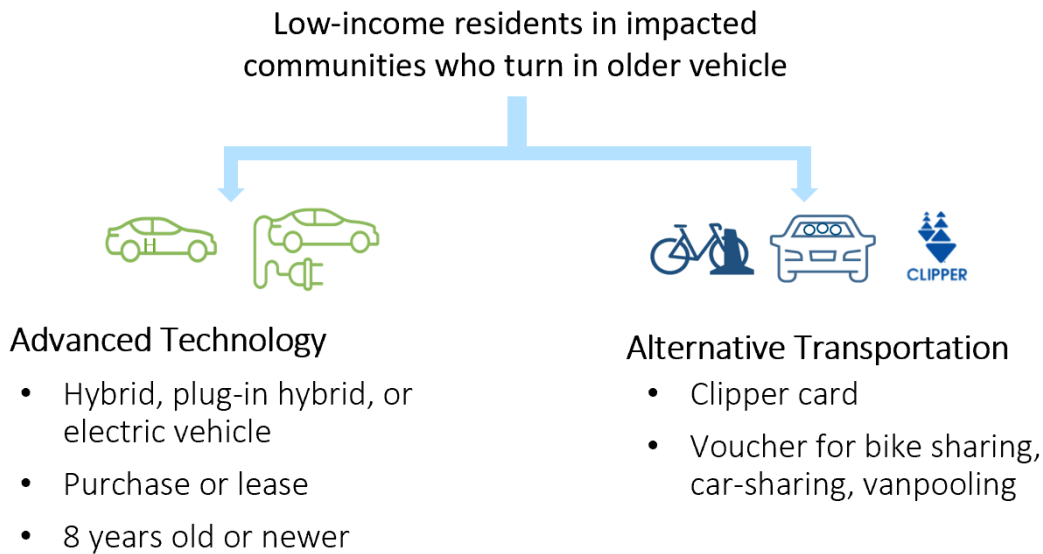
Since the Air District released the Bay Area EV Readiness Plan in 2013, by most measures, EV readiness has been realized in the Bay Area. It is time to focus on the rest of the potential EV market and for this reason, the Air District has started work on an update to the 2013 Plan, with a new “Bay Area EV Acceleration Plan”. The Acceleration Plan will be data driven, including survey and research data on consumer, business, property owner, fleet manager, and transportation network company driver sentiments. Based on input on what would support Bay Area stakeholders, the new plan will include a specific outreach and coordination actions. These actions may include improved messaging and materials for consumers and EV market actors, targeted outreach that complements incentive programs, or coordinating the timeline of incentives and regulations. The Acceleration Plan will be informed by geographically diverse outreach and coordination with the EV Council.

Move beyond early adopters and achieve equitable access to EVs

Effectively reducing emissions from light duty vehicle will require wide-scale EV adoption in which all Bay Area residents participate regardless of income, ethnicity, or geographical area. Equitable access to EVs ensures that all Bay Area residents can benefit from lower fuel and maintenance costs as well an improved driving experience. This is the goal of the Air District’s new Clean Cars for All Program, which provides qualifying low-income residents up to \$11,500 for scrapping and older vehicle and switching to a clean transportation option (Figure 13). Participants will have the option to purchase or lease new and used hybrid vehicles, PHEVs, BEVs,

or receive a transportation card for transit or car-sharing. The incentive funding is based on participants' income level and which clean transportation or vehicle option they select. This program is currently in a soft launch to test the program's systems and processes and will fully launch in Spring 2019. The incentive program will include stakeholder engagement and outreach to impacted communities, case managers to support participants through the application process, and partnerships with dealers, vehicle scrappers, and community organizations around the Bay Area.

Figure 13: Overview of Clean Cars for All Program



Increasing opportunities for the public to interact with EVs can improve their perception of accessibility and availability and encourage them to consider an EV for their next vehicle purchase or lease. The Air District has offered incentives for vehicle fleets such as municipal jurisdictions, taxi companies, transportation network companies (TNC), and car sharing businesses and will be increasing outreach for these programs. These programs result in emissions reductions benefits by transitioning those fleets to cleaner vehicles while also increasing the number of EVs that the public may encounter in their daily lives, increasing public awareness of EVs and associated benefits.

Expand and fill in gaps in charging infrastructure

Recognizing that charging patterns and needs are shifting due to the increasing availability of longer range (200+ miles) EV models, the Air District will be expanding its focus to install fast chargers along major transportation corridors, which will also expand the network to support long-distance trips. These Ultra-fast (150+ kW) and DC Fast Chargers would be installed in “plazas” and will more operate like gasoline refueling stations. EV uptake among residents of multi-unit dwellings has lagged due to the lack of dedicated parking and the challenge of installing charging infrastructure in shared parking structures. In addition to incentivizing charging in multi-unit dwelling, the Air District will also continue to target workplace charging. By focusing on a combination of multi-unit dwellings, workplace charging, and ultra-fast charging plazas, we can

increase charging accessibility for many potential EV consumers, especially those who do not live in single-family homes. A more visible and thorough EV charging network can reassure potential EV consumers who are concerned about range anxiety. The Charge! Program was created with the ability to evolve with market conditions, especially to focus on gaps in charging infrastructure that can support low-income residents and geographies that have had low EV adoption so far.

Action oriented and effective partnerships

The Air District's investments and efforts have, and will continue to, play a significant role in catalyzing the Bay Area's shift towards zero emission transportation. In recent years, other organizations have also expanded programs to support the EV market. To meet the region's aggressive EV adoption goals, these regulatory, incentive, and outreach programs are all important and these efforts need to be coordinated to have maximum impact on driving EV adoption. For example, the EV Council will be the opportunity to leverage funding while also ensuring that incentives and awareness programs are impacting as many communities as possible. Another coordination challenge will be to time and integrate regulations and incentives so that both can be maximally effective. The Air District and MTC are updating the EV Council, from a mechanism to share best practices and network, to a group of organizations who are tackling specific and shared challenges.

Air District staff will continue to update the Mobile Source Committee and Board of Directors on progress for these ongoing programs and priorities. When the Bay Area EV Acceleration Plan is drafted after the stakeholder engagement process, that will also be another opportunity for further discussion and input.

AGENDA: 7 – ATTACHMENT 2

Attachment 2: Electric Vehicle and Charging Infrastructure Survey and Research Services Request for Proposals and Review

GOAL

The Air District seeks qualitative and quantitative data on consumer and business sentiments regarding barriers to electric vehicle (EV) adoption and the installation of EV charging infrastructure, to complement existing consumer surveys on EVs conducted by other organizations. This data will help us tailor and strengthen our outreach messages, educational materials, and incentive programs to increase EV adoption in the Bay Area.

SCOPE OF WORK

The Request for Proposals (RFP) was published on December 18, 2018 for Electric Vehicle and Charging Infrastructure Survey and Research Services. The selected contractor will develop and implement a methodology for collecting feedback from Bay Area residents and market actors on EV adoption and EV charging infrastructure. This work will include residents representing socioeconomic and geographic diversity, as well as with different levels of knowledge and interest in new technologies. The market actors will include property owners, fleet managers, dealerships, and taxi and ride-hailing drivers. The methodology for collecting this input includes interviews, focus groups, and surveys.

Following a kick off meeting, the contractor will prepare a final work plan for Air District staff review and approval, which includes project milestones, staffing resources, and timelines. The contractor will finalize the survey and research methodology within three weeks of contract signature and begin implementation shortly thereafter. Following the completion of the research and survey tasks, the contractor will prepare a draft report for Air District review, including an evaluation of the methodology used, limitations of the results, recommendations on outreach (messages and channels) and incentives to better reach these audiences. The contractor will provide the Air District with bi-weekly reports summarizing the work completed and budget expended. The contractor will prepare a final report based on review comments within six months of contract signature.

APPLICATION AND REVIEW PROCESS

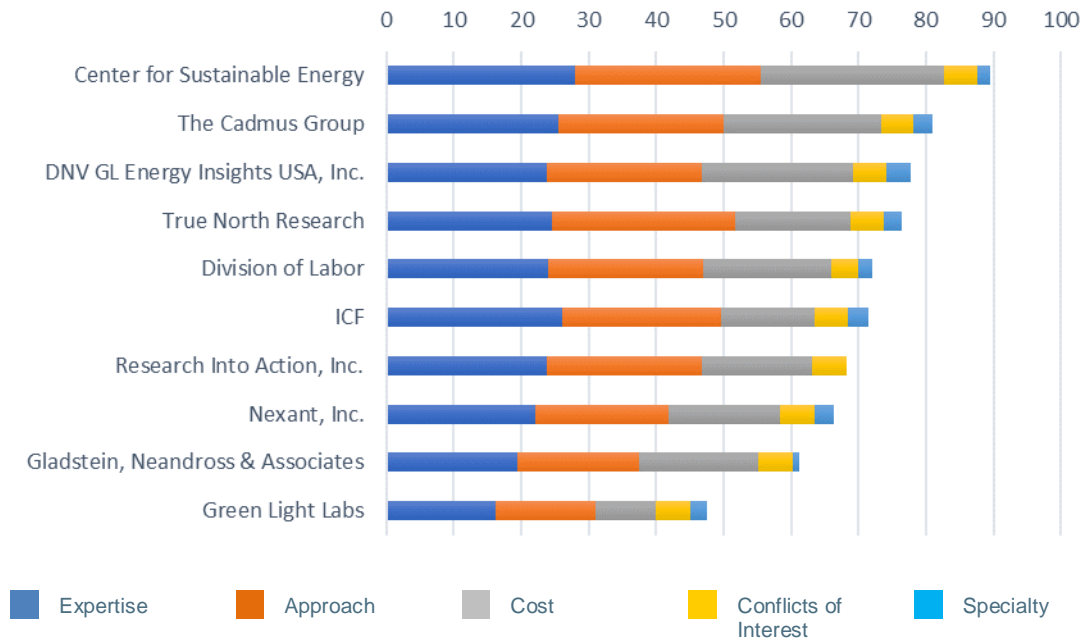
Ten organizations submitted proposals by the application deadline (February 1, 2019). A panel of five Air District staff and one staff member from the Metropolitan Transportation Commission performed a thorough evaluation of proposals based on the following criteria:

- Expertise – Expertise and experience of the organization and personnel assigned to RFP tasks; organization’s ability to perform and complete the work in a professional and timely manner (30 points)
- Approach – Responsiveness of the proposal, based upon a clear understanding of the work to be performed, related challenges, and plans to mitigate those challenges (30 points)
- Cost – Cost or cost effectiveness and resource allocation strategy, including completeness and level of detail in budget, percent of administrative and overhead costs, and whether there is cost-share (30 points)
- Conflicts of Interest – Conflicts of interest are addressed (5 points)

- Organization’s Specialty Focus Area – Local organizations headquartered in the Air District’s jurisdiction and those that are certified as green businesses by a local government agency or independent private rating organization. (5 points)

The panelists average scores are summarized in Figure 1 below.

Figure 1. Average Scores for Submitted Proposals



The Center for Sustainable Energy (CSE) received the highest average score of 89.6 for their proposal and had one of the lowest cost and most cost-effective proposed budgets. Because CSE has worked extensively with EV consumers and incentive programs, this scope or work will build from their extensive knowledge and data.

CSE is a 501(c)(3) non-profit, that has designed and successfully implemented dozens of innovative sustainable energy market development programs in support of our goal to transform the market for clean transportation and sustainable energy. CSE designs and executes research to help clients understand distributed energy and transportation markets, the impacts of their programs on those markets, and opportunities to use data to inform program design and operations. Their research services include all phases of design, execution and analysis; surveys, focus groups and interviews; market assessments; program evaluation and reports and presentations.