



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
MARCH 28, 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 JANUARY 24, 2019**

Clerk of the Boards/5073

The Committee will consider approving the attached draft minutes of the Mobile Source Committee meeting of January 24, 2019.

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

K. Schkolnick/5070

kschkolnick@baaqmd.gov

The Committee will consider recommending Board of Directors' approval of Carl Moyer Program (CMP) projects requesting grant funding in excess of \$100,000 and authorization for the Executive Officer/APCO to execute grant agreements for the recommended projects.

5. **2019 GREENHOUSE GAS REDUCTION FUNDS (GGRF)**

K. Schkolnick/5070

kschkolnick@baaqmd.gov

The Committee will consider recommending the Board of Directors authorize the Bay Area Air Quality Management District (Air District) to accept, obligate, and expend new funding for the Funding Agricultural Reduction Measures for Emission Reductions (FARMER) Program and the Community Health Protection Grant Program, and approve corresponding authorizing resolutions.

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

K. Schkolnick/5070

kschkolnick@baaqmd.gov

The Committee will consider recommending the Board of Directors approve a recommendation for proposed funding allocation of new Transportation Fund for Clean Air (TFCA) revenues for Fiscal Year Ending (FYE) 2020 and cost-effectiveness limits for Air District-sponsored TFCA programs and projects.

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

K. Schkolnick/5070

kschkolnick@baaqmd.gov

The Committee will receive an update on recent Bay Area trends for light-duty (passenger vehicle) electric vehicle (EV) adoption, charging infrastructure, technology, and policies. This update will be the first part of a series of EV updates to the Committee, which will also include EV incentives and awareness programs, equity, and an update on the heavy-duty EV market.

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, 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 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
FAX: (415) 928-8560
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

MARCH 2019

<u>TYPE OF MEETING</u>	<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>ROOM</u>
Board of Directors Budget and Finance Committee	Friday	22	9:30 a.m.	1 st Floor, Board Room
Board of Directors Technology Implementation Office Steering Committee	Monday	25	9:30 a.m.	1 st Floor Board Room
Board of Directors Legislative Committee	Wednesday	27	9:30 a.m.	1 st Floor, Yerba Buena Room #109
Board of Directors Mobile Source Committee	Thursday	28	9:30 a.m.	1 st Floor Board Room

APRIL 2019

<u>TYPE OF MEETING</u>	<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>ROOM</u>
Board of Directors Ad Hoc Building Oversight Committee Meeting	Wednesday	3	9:00 a.m.	1 st Floor Board Room
Board of Directors Regular Meeting	Wednesday	3	9:30 a.m.	1 st Floor Board Room
Board of Directors Personnel Committee	Friday	5	9:30 a.m.	1 st Floor Board Room
Board of Directors Regular Meeting	Wednesday	17	9:30 a.m.	1 st Floor Board Room
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

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: March 14, 2019

Re: Approval of the Minutes of January 24, 2019

RECOMMENDED ACTION

Approve the attached draft minutes of the Mobile Source Committee (Committee) meeting of January 24, 2019.

DISCUSSION

Attached for your review and approval are the draft minutes of the Committee meeting of January 24, 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 January 24, 2019

AGENDA 3A – ATTACHMENT

Draft Minutes – Mobile Source Committee Meeting of January 24, 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, January 24, 2019

1. CALL TO ORDER – ROLL CALL

Mobile Source Committee (Committee) Chairperson, Scott Haggerty, called the meeting to order at 9:32 a.m.

Present: Chairperson Scott Haggerty; Vice Chair David Canepa; and Directors David Hudson, Tyrone Jue, Nate Miley, and Karen Mitchoff.

Absent: Directors Margaret Abe-Koga, Pauline Russo Cutter, Carole Groom, Doug Kim, and Jim Spering.

Also Present: None.

2. PUBLIC COMMENT ON NON-AGENDA MATTERS

No requests received.

3. AIR DISTRICT GRANT PROGRAMS OVERVIEW (OUT OF ORDER, ITEM 6)

Damian Breen, Deputy Air Pollution Control Officer of Technology, introduced Karen Schkolnick, Strategic Incentives Division Director, who gave the staff presentation *Air District Grant Programs Overview*, including: overview; sources of air pollution and grant funding; over \$97.2 million awarded in 2018 by funding source and project type; 2018 projects awarded (off-road, on-road, trip-reduction, other projects Transportation Fund for Clean Air (TFCA) and Carl Moyer Program (CMP); 2018 emissions reductions; \$96.5 million awarded in the Air District in 2018 by county; 2018 Diesel Free by '33; 2011-2018 zero-emissions projects; funding awarded between 2014-2018; grant funds awarded between 2011-2018; projected grant revenues for calendar year 2019; and 2019 grant program priorities.

NOTED PRESENT: Director Jue was noted present at 9:35 a.m.; Director Miley was noted present at 9:48 a.m.

Public Comments

No requests received.

Committee Comments

The Committee and staff discussed the Mobile Source Incentive Fund (MSIF) allocation that the Air District is paying for the Caltrain electrification project, and funds paid to date; why there is no mention of electric vehicle (EV) charging station infrastructure in the Air District’s 2019 grant program priorities; the request for a chart of cumulative emissions reductions in the Bay Area, spanning decades; the amount of school bus compressed natural gas (CNG) retrofit projects that the Air District has funded, and a request for a record of school district participation within the Bay Area; non-air district recipients of Volkswagen mitigation funds and a request for a status update on the Air District’s involvement with the Volkswagen Environmental Mitigation Trust Beneficiary Plan as an administrator with South Coast Air Quality Management District and the San Joaquin Valley Air Pollution Control District.

Committee Action

None; receive and file.

4. APPROVAL OF THE MINUTES OF DECEMBER 17, 2018 (ITEM 3)

Public Comments

No requests received.

Committee Comments

None.

Committee Action

Director Mitchoff made a motion, seconded by Vice Chair Canepa, to **approve** the Minutes of December 17, 2018; and the motion carried by the following vote of the Committee:

AYES: Canepa, Haggerty, Hudson, Jue, Miley, Mitchoff.
NOES: None.
ABSTAIN: None.
ABSENT: Abe-Koga, Cutter, Groom, Kim, Spring.

5. PROJECTS AND CONTRACTS WITH PROPOSED GRANT AWARDS OVER \$100,000 (ITEM 4)

Mr. Breen introduced Madeleine Storelli, Staff Specialist, who gave the staff presentation *Projects and Contracts with Proposed Grant Awards Over \$100,000*, including: overview; CMP and 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 FYE 2019 incentive funding by source; open solicitations and FYE 2019 funding; and recommendations.

Public Comments

No requests received.

Committee Comments

The Committee and staff discussed factors that discourage particular sub-regions of the Bay Area from applying for various Air District grants; the request that written explanations as to why certain areas are allocated larger amounts of grant funds are added to “Funds Recommended and Awarded by County” charts, moving forward, and the request that a “through” date be added to the same chart, to clarify the period of time when funds were awarded; ways to alert residents that they live in a Community Air Risk Evaluation (CARE) area; the request that staff remind the rest of the Board members to publicize the Air District’s grant and incentive opportunities to their constituents; the request for a list of pending grant applications for the Board members’ use; and application submission trends.

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, Hudson, Jue, Miley, Mitchoff.
- NOES: None.
- ABSTAIN: None.
- ABSENT: Abe-Koga, Cutter, Groom, Haggerty, Kim, Spring.

6. PARTICIPATION IN YEAR 21 OF THE CARL MOYER PROGRAM AND APPROVAL OF THE 2019 CALTRAIN FUNDING PLAN (ITEM 5)

Ms. Schkolnick introduced Anthony Fournier, Air Quality Program Manager, who gave the staff presentation *Participation in the Year 21 of the Carl Moyer Program and 2019 Caltrain Funding Plan*, including: overview; funding sources; CMP year 21 funding; 2019 Caltrain funding plan; and recommendations.

Public Comments

No requests received.

Committee Comments

None.

Committee Action

Vice Chair Canepa made a motion, seconded by Director Hudson, to recommend that the Board **approve** a resolution authorizing the Air District’s participation in Year 21 of the Carl Moyer Program and the approval of the 2019 funding plan for the Caltrain Electrification project; and the motion carried by the following vote of the Committee:

AYES: Canepa, Haggerty, Hudson, Jue, Miley, Mitchoff.
NOES: None.
ABSTAIN: None.
ABSENT: Abe-Koga, Cutter, Groom, Kim, Spering.

7. PUBLIC COMMENT ON NON-AGENDA MATTERS

No requests received.

8. COMMITTEE MEMBER COMMENTS

Director Mitchoff asked if the City of Concord or the community of Bay Point have applied for any Air District grants. She also suggested that staff inform the rest of the Board members which communities within their jurisdictions are not applying for Air District grants.

The Committee members thanked Chair Haggerty for his service as Committee Chair, and Chair Haggerty thanked staff for their support.

9. TIME AND PLACE OF NEXT MEETING

Thursday, March 28, 2019, Bay Area Air Quality Management District Office, 375 Beale Street, San Francisco, California 94105 at 9:30 a.m.

10. ADJOURNMENT

The meeting adjourned at 10:34 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: March 12, 2019

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

RECOMMENDED ACTION

Recommend the Board of Directors:

1. Approve recommended projects with proposed grant awards over \$100,000 as shown in Attachment 1; and
2. 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 (NO_x), 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 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, Assembly Bill (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 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 funding.

On May 2, 2018, the Board authorized funding allocations for use of 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 March 7, 2019, the Air District had received 187 project applications. Of the applications that have been evaluated between February 15, 2019 and March 7, 2019, two eligible projects have proposed individual grant awards over \$100,000. These projects will replace five pieces of agricultural equipment and four school buses, and will reduce over 1.706 tons of NOx, ROG and PM per year. Staff recommends the allocation of \$1,024,264 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 March 7, 2019, including information about the equipment category, award amounts, estimated emissions reductions, and county location. Approximately 65% 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 \$269 million awarded to 1,143 projects).

Transportation Fund for Clean Air Program:

In FYE 2019, the Air District had more than \$20 million in TFCA monies to allocate to eligible projects. This includes more than \$13 million in new TFCA monies and \$7 million in carryover funds from previous cycles. 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 received through the West Oakland Zero-Emission Grant Program. As of March 7, 2019, the Air District had received 23 project applications. Of the applications that were evaluated between January 4, 2019, and March 7, 2019, none of the eligible projects proposed an individual grant award over \$100,000.

Attachment 3 lists all eligible TFCA projects that were evaluated as of March 7, 2019, including information about the equipment category, award amounts, estimated emissions reductions, and county location. Approximately 15% of the funds have been awarded to projects that reduce emissions in highly impacted Bay Area communities.

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 and Chengfeng Wang
Reviewed by: Karen Schkolnick

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 3/7/19

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 2/15/19 and 3/7/19)

Project #	Applicant name	Equipment category	Project description	Proposed contract award	Total project cost	Emission Reductions (Tons per year)			County
						NOx	ROG	PM	
20SBP75	Napa Valley Unified School District	School bus	Replacement of 4 CNG buses with Low-NOx buses	\$ 787,704.00	\$ 883,600.00	0.373	0.032	0.000	Napa
20MOY166	Freixenet Sonoma Caves Inc.	Ag/ off-road	Replacement of 5 diesel powered tractors/ loaders	\$ 236,560.00	\$ 295,761.00	1.028	0.155	0.119	Sonoma
2 Projects				\$ 1,024,264.00	\$ 1,179,361.00	1.401	0.187	0.119	

ATTACHMENT 2

*CMP/MSIF, FARMER and Community Health Protection Grant Program approved projects
(between 7/6/18 and 3/7/19)*

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	\$ 1,400,000.00	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	TBD	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
20MOY102	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	TBD	Sonoma
97 Projects			220	\$ 46,813,815.00		94.934	5.504	3.554		

AGENDA 4 - ATTACHMENT 3

Summary of all TFCA approved and eligible projects (evaluated between 7/1/18 and 3/7/19)

Project #	Project Category	Project Description	Award Amount	Applicant Name	Emission Reductions (Tons per year)			Board/APCO Approval Date	CAR E 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
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
19R02	LD Vehicles	Vehicle Buy Back Program	\$150,000	BAAQMD	NA	NA	NA	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
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
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
19RFG06*	LD Infrastructure	Install and operate 45 dual port level 2 EV charging stations	\$279,000	Hayward Unified School District	0.014	0.003	0.001	10/17/18	Yes	Alameda
22 Projects*			\$6,070,969		49.728	58.576	80.115			

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

AGENDA 4 - ATTACHMENT 4

Figures 1-3 shown below summarize funding awarded between 7/1/18 and 3/7/19 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

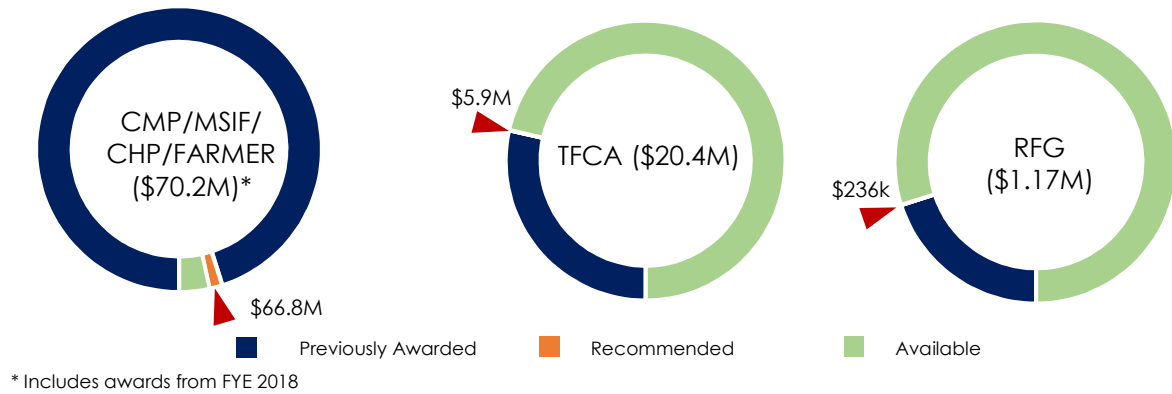


Figure 2. Funding awarded in FYE2019 by county

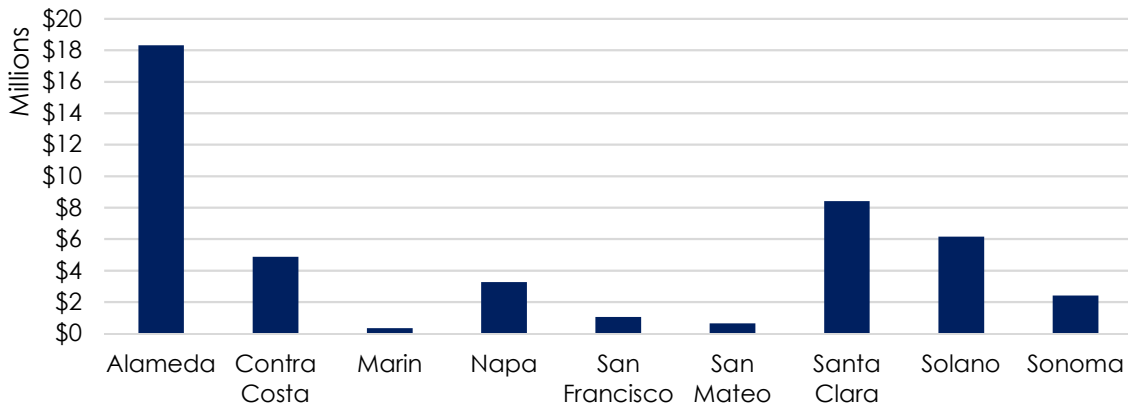
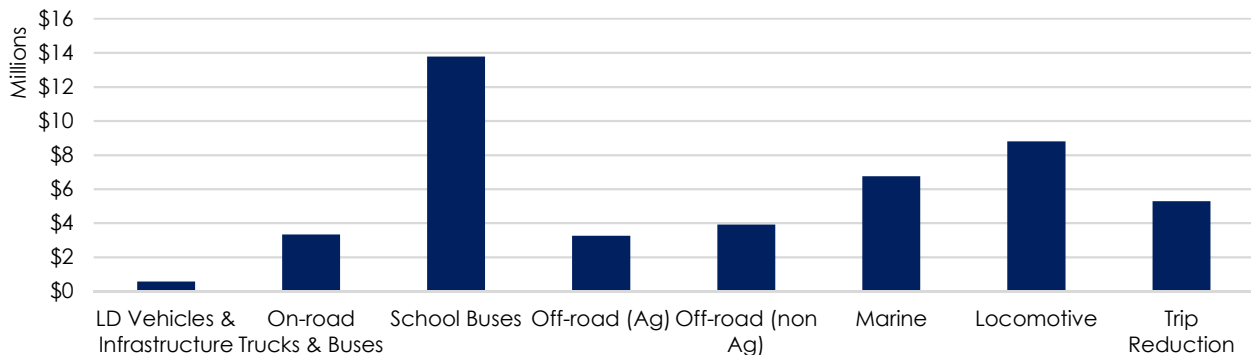


Figure 3. Funding awarded in FYE2019 by project category



AGENDA 4 - ATTACHMENT 4

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

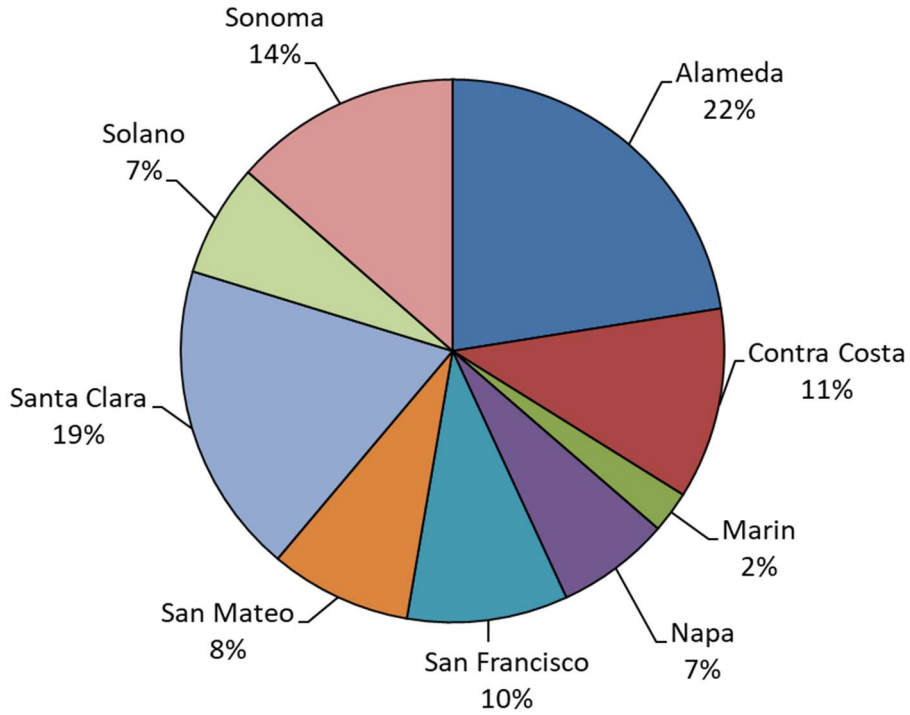
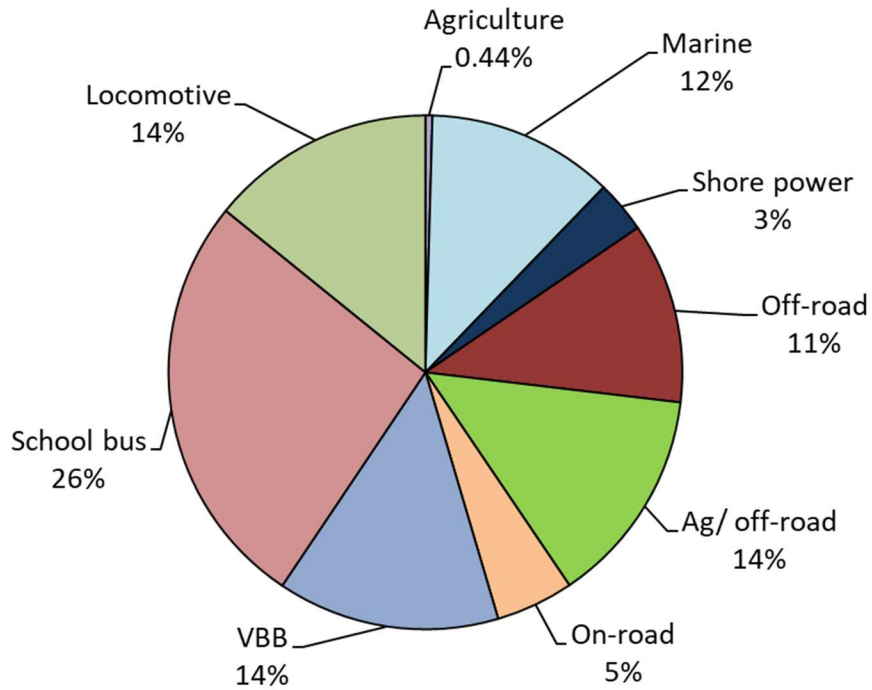


Figure 5. CMP/MSIF/CHP/FARMER funding awarded since 2009 by category



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: March 12, 2019

Re: 2019 Greenhouse Gas Reduction Funds (GGRF)

RECOMMENDED ACTION

Recommend the Board of Directors:

1. Authorize the Bay Area Air Quality Management District (Air District) to accept, obligate, and expend new funding for the Funding Agricultural Reduction Measures for Emission Reductions (FARMER) Program and the Community Air Protection Grant Program, and approve corresponding authorizing resolutions.

BACKGROUND

In 2017, Assembly Bill (AB) 617 directed the California Air Resources Board (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. AB 617 seeks to: improve air pollution data collection and reporting; expedite pollution control retrofit of large stationary sources; increase penalties for air pollution violations; require enhanced air pollution monitoring; adopt a statewide emissions reduction strategy targeting pollution-burdened communities; and require CARB and air districts to implement community emissions reduction programs.

Prior to 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. In 2017 AB 134 provided \$50 million from the Greenhouse Gas Reduction Fund (GGRF) for Bay Area emissions reduction projects, and in 2018 Senate Bill (SB) 856 continued funding support for Community Air Protection grant projects.

On June 27, 2018, SB 856 was signed into law adding provisions to the 2018 California State Budget Act related to its GGRF expenditure plan. SB 856 appropriated \$245 million in GGRF funds to reduce emissions including criteria pollutants, toxic air contaminants, and greenhouse gases in those communities. SB 856 also appropriated \$132 million from the State Budget for Fiscal Year 2018-19 to CARB for the reduction of criteria, toxic, and greenhouse gas emissions from the agricultural sector through the FARMER Program.

FARMER and Community Health Protection grant program projects with 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 Air District Board of Directors (Board).

DISCUSSION

2019 Community Health Protection Grant Program

Through SB 856, the Bay Area is expected to receive approximately \$40 million in GGRF funds for Community Health Protection Grant Program emission reduction projects. Up to 6.25% of the funds received may be used for Air District administrative costs. Project funds can be expended under the state-adopted guidelines for:

- **Mobile sources:** Eligible for funding under following existing incentive programs:
 - *Carl Moyer Program (CMP):* The CMP provides grants to public and private entities to reduce emissions of oxides of nitrogen (NO_x), 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.
 - *California Goods Movement Bond Program (GMB):* Similar to the CMP, this program provides grant funding to private entities to reduce emissions of NO_x, ROG, and PM from heavy-duty engines engaged in goods movement by either replacing or retrofitting them. SB 856 funding has been limited by the Legislature to use for GMB truck projects only.
- **Stationary sources:** Grant funding may be available to owners of stationary sources for replacement of equipment with technologies that will reduce emissions of toxic air contaminants and criteria air pollution, including zero-emission technologies.
- **Other projects:** Grant funding may be used for a program developed by the Air District with community input through a public process so long as the program is consistent with the actions identified in the applicable community emission reduction program pursuant to Section 44391.2 of the CA Health and Safety Code.

These programs are subject to an aggressive implementation schedule. SB 856 funding needs to be encumbered by June 30, 2020, and fully liquidated by June 30, 2022.

2019 FARMER Program

SB 856 appropriated \$132 million from the State Budget for Fiscal Year 2018-19 to CARB to reduce criteria, toxic, and greenhouse gas emissions from the agricultural sector. CARB developed the FARMER Program to meet the Legislature's objectives and help meet the State's criteria, toxic and greenhouse gas emission reduction goals. In March 2019, the Air District submitted an application to CARB requesting \$5 million for the FARMER program in the Bay Area. Up to 6.25% of the funds received may be used for administrative costs to administer the program.

BUDGET CONSIDERATION / FINANCIAL IMPACT

None. Through the FARMER and Community Health Protection Grant programs, the Air District distributes "pass-through" funds to public agencies and private entities on a reimbursement basis. Administrative costs for these programs are provided by each funding source.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Anthony Fournier
Reviewed by: Karen Schkolnick

Attachment 1: FARMER Board Resolution
Attachment 2: Community Air Protection Grant Program Board Resolution

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

RESOLUTION No. 2019 -

**Resolution Accepting FARMER Incentive Funding
From the California Air Resources Board**

WHEREAS, in 2018 SB 856 appropriated \$132 million from the State Budget for Fiscal Year Ending (FYE) 2018-19 to the California Air Resources Board (CARB) for the reduction of criteria, toxic, and greenhouse gas emissions from the agricultural sector;

WHEREAS, CARB developed the Funding Agricultural Replacement Measures for Emission Reductions (FARMER) Program to meet the Legislature’s objectives and help meet the State’s criteria, toxic and greenhouse gas emission reduction goals;

WHEREAS, the funding for the FARMER program comes from the following sources: Greenhouse Gas Reduction Fund (GGRF), and the California Tire Recycling Management Fund;

WHEREAS, the Bay Area Air Quality Management District (Air District) submitted an application to ARB requesting \$5 million in FARMER funds to implement projects pursuant to the FARMER Program guidelines;

WHEREAS, the Air District may use up to 6.25 percent of the funds it receives to pay the reasonable costs of implementing the incentive program;

WHEREAS, there are specific legislative requirements (e.g., expenditure records, quantification methodology, annual reporting, and disadvantaged/low income community investments) of the cap and trade proceeds that the Air District will need to adhere to;

NOW, THEREFORE, BE IT RESOLVED, the Board of Directors hereby approves the District’s acceptance of the FARMER funds to be awarded to eligible projects in accordance with the legislative and applicable program requirements.

BE IT FURTHER RESOLVED, the Executive Officer/Air Pollution Control Officer is hereby authorized and empowered to execute on behalf of the District grant agreements with CARB and all other necessary documents to implement and carry out the purposes of this resolution.

AGENDA 5 – ATTACHMENT 1

The foregoing resolution was duly and regularly introduced, passed and adopted at a regular meeting of the Board of Directors of the Bay Area Air Quality Management District on the Motion of Director _____, seconded by Director _____, on the ____ day of _____, 2019, by the following vote of the Board:

AYES:

NOES:

ABSENT:

Katie Rice
Chairperson of the Board of Directors

ATTEST:

Cindy Chavez
Secretary of the Board of Directors

DRAFT

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

RESOLUTION No. 2019 -

**Resolution Accepting SB 856 Community Air Protection Grant Funding
From the California Air Resources Board**

WHEREAS, SB 856 adds provisions to the 2018 Budget Act related to the 2019 Greenhouse Gas Expenditure Plan, which appropriates Greenhouse Gas Reduction Fund revenue to the California Air Resources Board (CARB) for an array of programs, including \$245 million for the Community Air Protection grant program;

WHEREAS, a portion of the \$245 million in funding shall be distributed to the Bay Area Air Quality Management District (Air District) to implement emission reduction projects pursuant to the ARB guidelines for the: Community Air Protection Fund Supplement to the Carl Moyer Memorial Air Quality Attainment program, Proposition 1B truck program, stationary source projects, and community programs;

WHEREAS, the Air District may use up to 6.25 percent of the funds it receives to pay the reasonable costs of administering the incentive programs;

WHEREAS, the goal of the funding is to provide near-term targeted deployment within impacted communities and focus on reducing emissions from mobile sources, stationary sources, and equipment that spend a substantial amount of time within impacted communities;

WHEREAS, the Air District shall allocate funding to projects consistent with priorities identified by the affected communities in a transparent, meaningful public process;

WHEREAS, the predominant emission reductions from the funded projects occurring in the most impacted communities will reduce emissions in excess of those otherwise required by law or regulation, and will also contribute to progress on meeting regional clean air standards;

WHEREAS, there are specific legislative requirements (e.g., expenditure record, quantification methodology, annual reporting, and disadvantaged/low income community investments) of the cap and trade proceeds that the District will need to adhere to;

NOW, THEREFORE, BE IT RESOLVED, the Board of Directors hereby approves the District's acceptance of the SB 856 funds to be awarded to eligible projects in accordance with the legislative and applicable program requirements.

BE IT FURTHER RESOLVED, the Air District will commit to working with the environmental justice community on recommended spending priorities within its region.

AGENDA 5 – ATTACHMENT 2

BE IT FURTHER RESOLVED, the Executive Officer/Air Pollution Control Officer is hereby authorized and empowered to execute on behalf of the District grant agreements with CARB and all other necessary documents to implement and carry out the purposes of this resolution.

The foregoing resolution was duly and regularly introduced, passed and adopted at a regular meeting of the Board of Directors of the Bay Area Air Quality Management District on the Motion of Director _____, seconded by Director _____, on the ____ day of _____, 2019, by the following vote of the Board:

AYES:

NOES:

ABSENT:

Katie Rice
Chairperson of the Board of Directors

ATTEST:

Cindy Chavez
Secretary of the Board of Directors

DRAFT

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: March 14, 2019

Re: Fiscal Year Ending (FYE) 2020 Transportation Fund for Clean Air (TFCA) Program
Funding Allocation

RECOMMENDED ACTION

Recommend the Board of Directors:

1. Approve the proposed allocation of \$14 million in new Transportation Fund for Clean Air (TFCA), monies to the programs and projects listed in Table 1;
2. Authorize the proposed cost-effectiveness limits for the Bay Area Air Quality Management District (Air District) -sponsored programs and projects listed in Table 2; and
3. Authorize the Executive Officer/APCO to enter into funding agreements and contracts up to \$100,000 for projects and programs listed in Table 1.

BACKGROUND

On-road motor vehicles, including cars, trucks, and buses, constitute the most significant sources of air pollution, including unhealthful levels of ozone (summertime "smog") and particulate matter (PM), in the Bay Area. With nearly 6 million on-road motor vehicles in the region, tailpipe emissions account for more than 40% of criteria air pollutants and about 36% of greenhouse gases (GHG) generated in the Bay Area^{1,2}. For this reason, emission reductions from the on-road transportation sector are essential to attaining state and federal ambient air quality standards and to meeting the region's GHG reduction commitments.

In 1991, the California State Legislature authorized the Air District to impose a \$4 surcharge on motor vehicles registered in 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 California Health and Safety Code Sections 44241 and 44242. Each year, the Air District's Board of Directors (Board) allocates funding and adopts

¹ BAAQMD, [Bay Area Emissions Inventory Summary Report: Criteria Air Pollutants Base Year 2011](#), May 2014.

² BAAQMD, [Bay Area Emissions Inventory Summary Report: Greenhouse Gases Base Year 2011](#), January 2015.

cost-effectiveness criteria that govern expenditure of TFCA funding and maximize emissions reductions and public health benefits.

TFCA provides financial incentives to Bay Area residents and businesses to help offset a portion of the cost to implement eligible projects that reduce emissions from on-road motor vehicles. 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, Charge! Program) and to a program referred to as the TFCA Regional Fund. The remaining forty percent of TFCA funds are passed-through to the County Program Manager Fund based on each county's proportionate share of vehicle registration fees paid and awarded by the nine designated agencies within the Air District's jurisdiction.

This report discusses the proposed allocation of the new TFCA monies that will accrue and be available for distribution in FYE 2020 by the Air District and the proposed updates to cost-effectiveness limits for the FYE 2020 Air District-sponsored TFCA-funded programs and projects.

DISCUSSION

In developing this recommendation, staff considered input received from stakeholders and assessed eligible incentive program options to determine which are the most effective at reducing criteria emissions in the region to help achieve the criteria and GHG emissions reduction goals outlined in both the Air District's 2017 Clean Air Plan and Diesel Free by '33 initiative.

For FYE 2020, approximately \$14 million in new TFCA monies will be available for distribution by the Air District for programs and projects. Staff is recommending that these new monies be allocated to the program categories listed below in Table 1. The estimate for new revenue, shown in column A, was developed based on the amount of Department of Motor Vehicles (DMV) revenue received in 2018 and 2017. Column B in Table 1 shows the approximate \$18.30 million in carryover funds that are available to augment the new revenues and the proposed allocation by program category in FYE 2020. Carryover funds are unobligated TFCA funds from prior years and from projects that were recently completed under budget or canceled. In addition, an estimated \$1.62 million is available for administrative and audit related costs.

Table 1 - Proposed Programs and TFCA Funding Allocation for FYE 2020 (in Millions)

Program Categories	(A) Estimated New TFCA Monies	(B) Estimated Carryover	(C) Estimated Total Funds Available in FYE 2020
Trip Reduction	\$5.96	\$3.00	\$8.96
Clean Air Vehicles	\$5.50	\$15.30	\$20.80
Spare the Air	\$2.31	\$0.00	\$2.31
Enhanced Mobile Source & Commuter Benefits Enforcement	\$0.08	\$0.00	\$0.08
Vehicle Buy Back	\$0.15	\$0.00	\$0.15
Total Funding Available for Projects and Programs:	\$14.00	\$18.30	\$32.30
Admin & Audit	\$1.62	\$0.00	\$1.62

The following narrative provides additional information on the proposed FYE 2020 Regional Fund and Air District-sponsored programs and projects listed in Table 1.

- ***Trip Reduction***

Reducing single occupancy motor vehicle trips is a key strategy to reducing mobile source 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 active transportation facilities, which facilitate biking and walking as alternatives to driving for short first- and last-mile trips. However, the emission reduction benefits of trip reduction projects have been declining over time as the region’s fleet of passenger vehicles has become significantly cleaner, and at a faster rate than medium- and heavy-duty vehicles that are typically used to provide shuttle services.

Air District staff has been working to address this challenge by refining the methodology used for evaluating projects’ cost-effectiveness to ensure that air quality benefits are better captured and by gathering input from stakeholders to identify cost-effective alternatives to fixed-route bus service so that TFCA funds can continue to be used to support trip reduction programs.

For FYE 2020, staff is recommending TFCA funds be allocated to support the following project categories that support trip reduction:

- ***Existing Shuttle and Ridesharing:*** To support existing shuttle/feeder-bus and ridesharing service projects to reduce single-occupancy commuter vehicle trips.

- **Active Transportation Facilities:** To support bikeways and secure bicycle parking projects, such as bicycle racks and lockers, that encourage the increased use of active modes of transportation such as walking, biking, and mode shift away from the use of motor vehicles for short first- and last- mile connection to mass transit.

- **Clean Air Vehicles**

Accelerating the adoption of zero-emission vehicles is the other key strategy to reducing on-road motor vehicle emissions, improving air quality, and reducing reliance on fossil fuels. Electrification of all sectors of transportation, including both light-duty passenger cars and heavy-duty trucks and buses, is essential to reaching these targets and helping the region achieve local, state, and federal criteria pollutants and GHG emissions reduction targets.

Since 2010, more than \$19 million in TFCA funds have been awarded by the Air District to support the deployment of on-road electric passenger cars, trucks and buses, and charging infrastructure. To date, this investment will result in the deployment of more than 1,500 passenger electric vehicles, 200 heavy-duty vehicles, 4,400 publicly available level 2 and DC Fast chargers, and over 1,400 residential chargers.

The TFCA-funded incentive programs are also augmented by other Air District efforts to accelerate electric vehicle (EV) adoption in the Bay Area, such as outreach activities and forums to promote new technologies, share best practices, and encourage local agencies to adopt EV-friendly ordinances. The Air District's efforts, in combination with other initiatives, have contributed to the Bay Area's high adoption rate of EVs with more than 180,000 light-duty plug-in EVs being registered to residents and businesses in the region.

For FYE 2020, staff is recommending TFCA funds be allocated to support the following project categories to help accelerate the region's transition to zero-emission vehicles.

- **EV Charging Stations:** To support deployment of publicly available EV chargers throughout the region through the *Charge!* Program. In FYE 2020, special emphasis will be placed on targeting installations in multi-family dwellings, designated chargers for taxi and ride hail drivers, transit park-and-rides, and impacted communities.
- **Zero-emissions Light-Duty Fleets:** To accelerate the adoption of light-duty zero-emission vehicles that will be operated in the Air District's jurisdiction. In FYE 2020, special emphasis will be placed on targeting carsharing and public agency fleets.
- **Zero-emission Medium- & Heavy-Duty Vehicles and Infrastructure:** To support the purchase of zero-emission trucks and buses and the installation of refueling infrastructure.
- **Clean Cars for All:** To complement a new program that will provide funding to qualifying low-income residents to purchase new and used light-duty EVs and to transition to other clean mobility options.

- **Light-duty Vehicle Hydrogen Fueling Stations:** Approximately \$500,000 from prior year funding is available for award as match to complement funding from California Energy Commission or the Volkswagen Environment Mitigation Trust for the installation, upgrades, and improvements of hydrogen dispensing facilities.

Other Air District - Sponsored Programs

For FYE 2020, staff is recommending TFCA funds also be used to reduce motor vehicle trips and accelerate the adoption of clean air vehicles via the following Air District-sponsored programs.

- ***Spare the Air:*** To provide funding to support this public outreach program for the summer ozone season to conduct advertising, media, and educational activities and to reduce vehicle miles traveled and emissions by behavior modification.
- ***Enhanced Mobile Source Inspections & Commuter Benefits Program:*** To support the enhanced inspection patrols to report smoking vehicles and enforcement of the state's drayage truck regulation and related truck/mobile source regulations conducted at, and adjacent to, the Port of Oakland. Funds may also be used to support the Air District's implementation of the Commuter Benefits Program, including performing education, outreach, monitoring, and tracking of Bay Area employers subject to the program, and conducting compliance assistance and outreach to companies and government agencies.
- ***Vehicle Buy Back:*** To support administrative and marketing efforts undertaken by the Air District's contractors to implement this voluntary grant program that pays \$1,000 to residents who scrap an operable and registered model year 1996 or older vehicle. This funding augments approximately \$7 million annually in funding from the Carl Moyer and Mobile Source Incentive Fund programs, which provide the project funding for this program.

TFCA Cost-Effectiveness

The TFCA authorizing legislation requires the Air District to adopt cost-effectiveness criteria to maximize emissions reductions and public health benefits. Cost-effectiveness (C/E) is one of the key criteria that are used to evaluate and select projects to be funded by TFCA³. In addition to reducing these criteria pollutants, TFCA-funded projects have other benefits such as conserving energy and reducing GHG emissions; reducing traffic congestion; improving quality of life for residents and commuters by expanding access to services that provide first- and last-mile connections to rail, ferry, and mass transit; and improving physical fitness and public safety by facilitating active modes of transportation such as walking and biking.

³ C/E is calculated by dividing TFCA funds awarded by the sum of surplus emissions reduced of reactive organic gases (ROG), nitrogen oxides (NOx), and weighted particulate matter (PM10) over the project operational period (POP).

For programs and projects sponsored directly by the Air District in FYE 2020, staff recommends maintaining the same C/E limits that were approved by the Board for FYE 2019 with one exception. The C/E limit for publicly available charging stations has historically been \$250,000, except for charging stations that are paired with new renewable power or charging stations at multi-dwelling units (MDUs), transit stations, and park and ride lot facilities, for which the CE limit has been increased to \$500,000. For FYE 2020, staff is proposing to expand the \$500,000 C/E limit to all categories of eligible EV charging projects in order to help fill the gaps of the Bay Area’s EV charging network. The proposed cost-effectiveness limits and POP for each of the Air District sponsored programs is shown in Table 2:

Table 2 – Proposed Cost-Effectiveness and POP for Air District Sponsored Programs

Program Categories	Max. C/E	POP	Notes
	(per ton of emissions reduced)	(in Years)	
Bicycle Racks (BRVP)	\$250,000	3	No Change
EV Charging Stations	\$500,000	4	Increased Max. C/E
Spare the Air	\$90,000	1	No Change
Enhanced Mobile Source & Commuter Benefits Enforcement	\$90,000	1	No Change
Vehicle Buy Back	\$90,000	3	No Change

For the programs and projects that will be offered under the Regional Fund, staff will return to the Mobile Source Committee with a recommendation for C/E limits later this Spring.

Administration

Staff is proposing that the Executive Officer/APCO continue to approve TFCA Grant Agreements with individual grant award amounts up to \$100,000. TFCA projects with grant award amounts over \$100,000 will continue to be brought to the Committee for consideration at least on a quarterly basis.

BUDGET CONSIDERATION / FINANCIAL IMPACT

None. The Air District distributes “pass-through” funds to grantees on a reimbursement basis. Administrative costs for the TFCA Regional Fund program are provided by the funding source.

Respectfully submitted,

Jack P. Broadbent
Executive Director/APCO

Prepared by: Chengfeng Wang and Mark Tang
Reviewed by: Karen Schkolnick and Ranyee Chiang

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: March 14, 2019

Re: Electric Vehicle (EV) Ecosystem Update: Status of Light-Duty EV Adoption in the
Bay Area

RECOMMENDED ACTION

None; receive and file.

BACKGROUND

As part of its deliberations, the Mobile Source Committee (Committee) received several presentations in 2018 on the light- and heavy-duty electric vehicle (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.

DISCUSSION

The Bay Area Air Quality Management District (Air District) has invested significant resources to reduce transportation emissions through electric vehicles (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 will provide an overview of the topics covered in this report, including:

- Status of Light-Duty EV Adoption in the Bay Area
- EV Programs: EV Equity
- EV Programs: Incentives and Awareness

This report will be the basis for additional stakeholder review and input in order to develop an update to the 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.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Rebecca Fisher, Tin Le, Ken Mak, Mark Tang, Karissa White, Deanna Yee
Reviewed by: Ranyee Chiang

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

Bay Area Electric Vehicle Ecosystem: 2019 Update

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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*

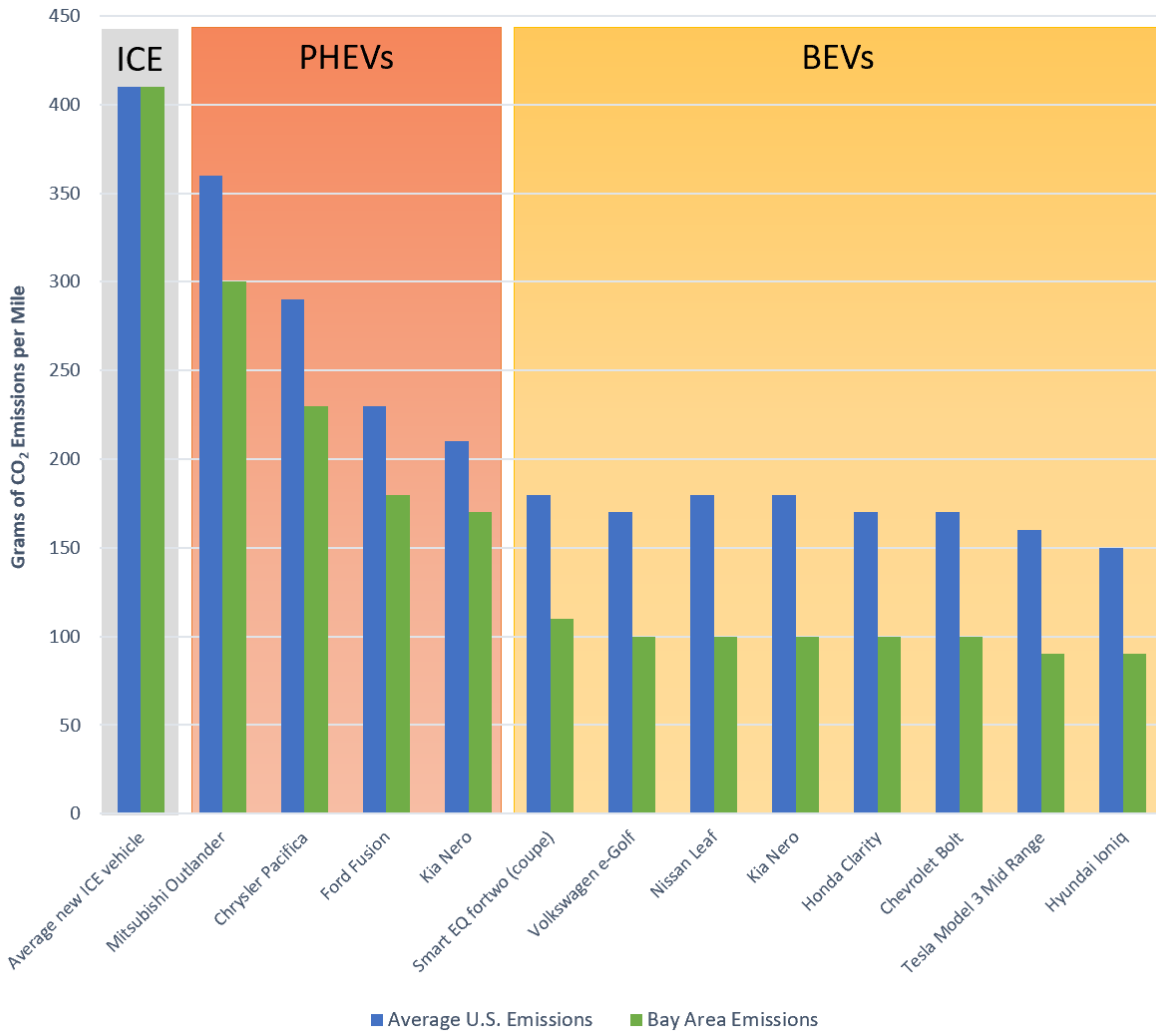
² *California Department of Transportation: Estimated Vehicles Registered by County, 2017*

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.

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

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 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		Expected in 2020	
Minivan		Expected in 2020	

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

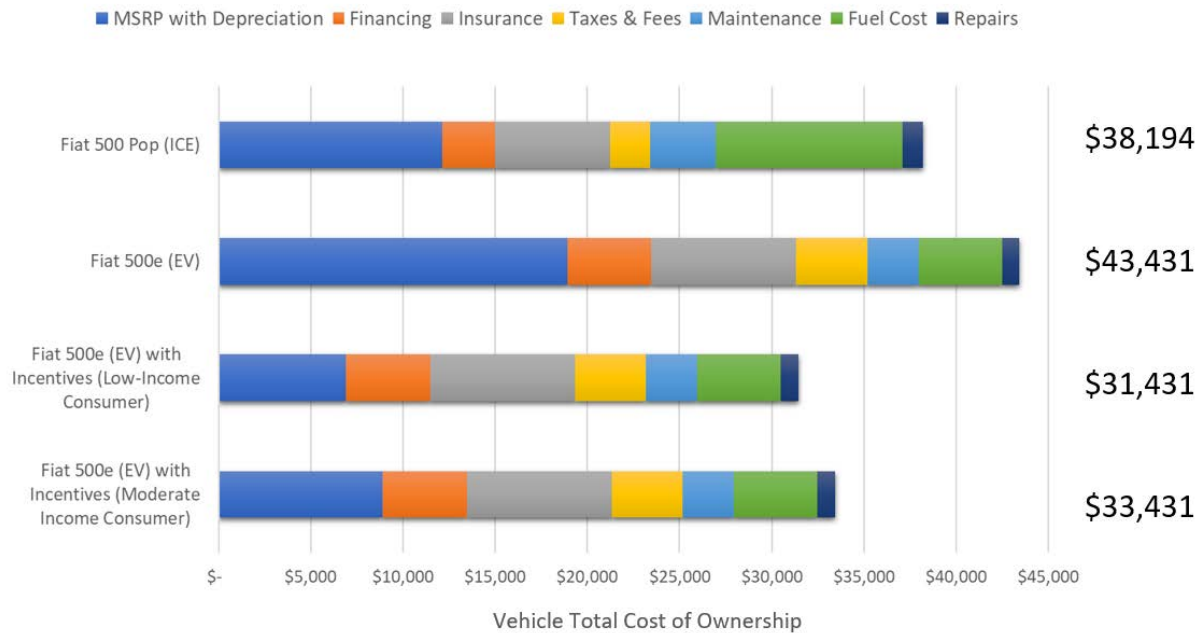
⁶ *Electrifying the Vehicle Market (2016)*, Union of Concerned Scientists, August 2016.

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.

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.

Figure 2: Example 5-year Total Cost of Ownership, 2019 ICE vehicle (Fiat 500 Pop) and BEV (Fiat 500e)



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 Fiat 500 cost competitive compared to the ICE version (Figure 2). Results for other EVs are comparable to this example. 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

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.

their entire lineups, increasing the number of EV models available, emissions reduction targets, and phasing out internal combustion engine vehicles.

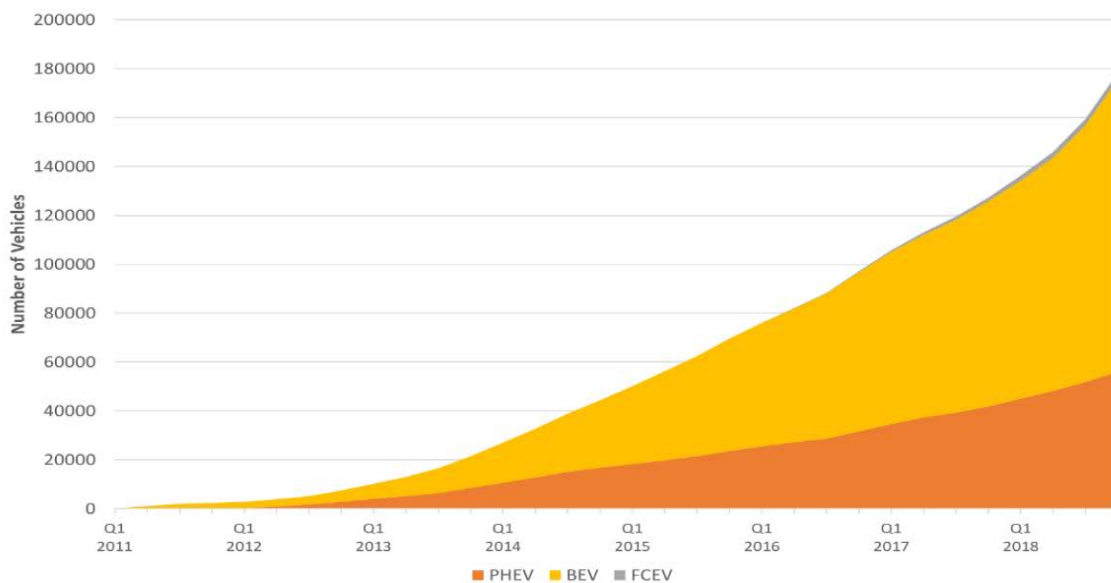
Table 2: Auto Manufacturer EV Commitments

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).

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

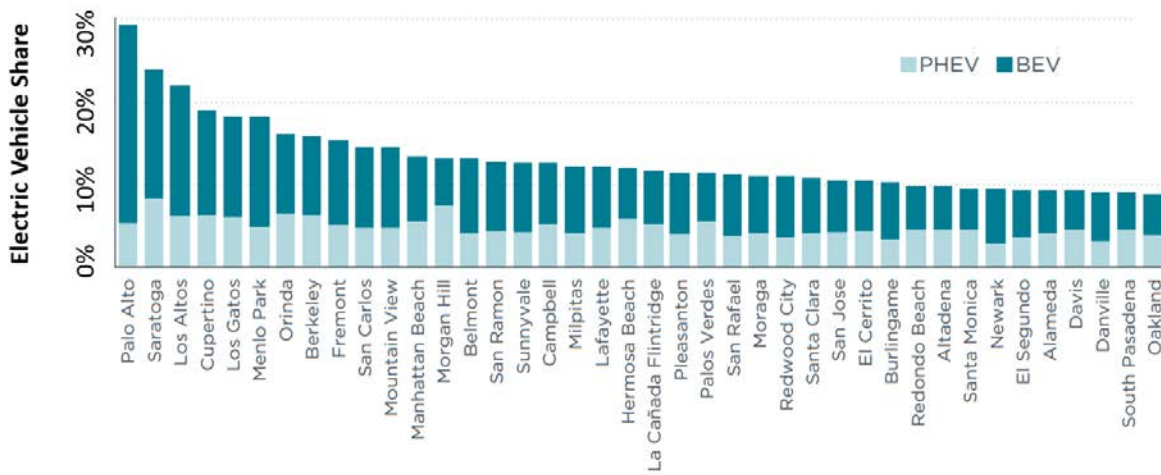


Source: Clean Vehicle Rebate Program (January 2019)

¹² *Program Statistics, 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 3: Top California Cities for New EV Market Share in 2017

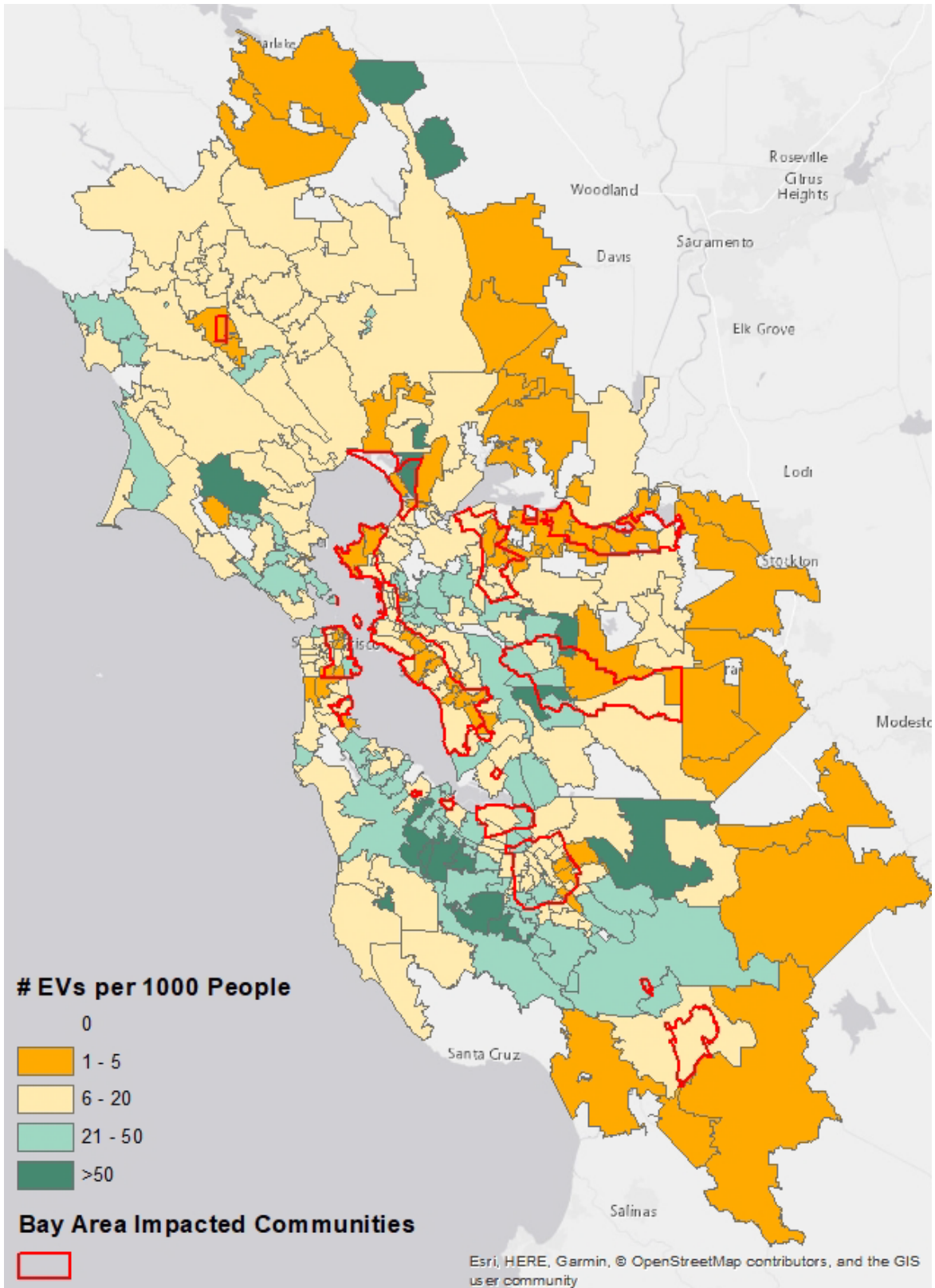


Source: ICCT, Vehicle registrations from IHS Automotive

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 4: 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*	<i>8+ hours</i>	<i>3-8 hours</i>	<i>20 minutes-1 hour</i>	<i>20 minutes-1 hour</i>

* 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 5: Publicly Accessible EV Charging Stations in the Bay Area

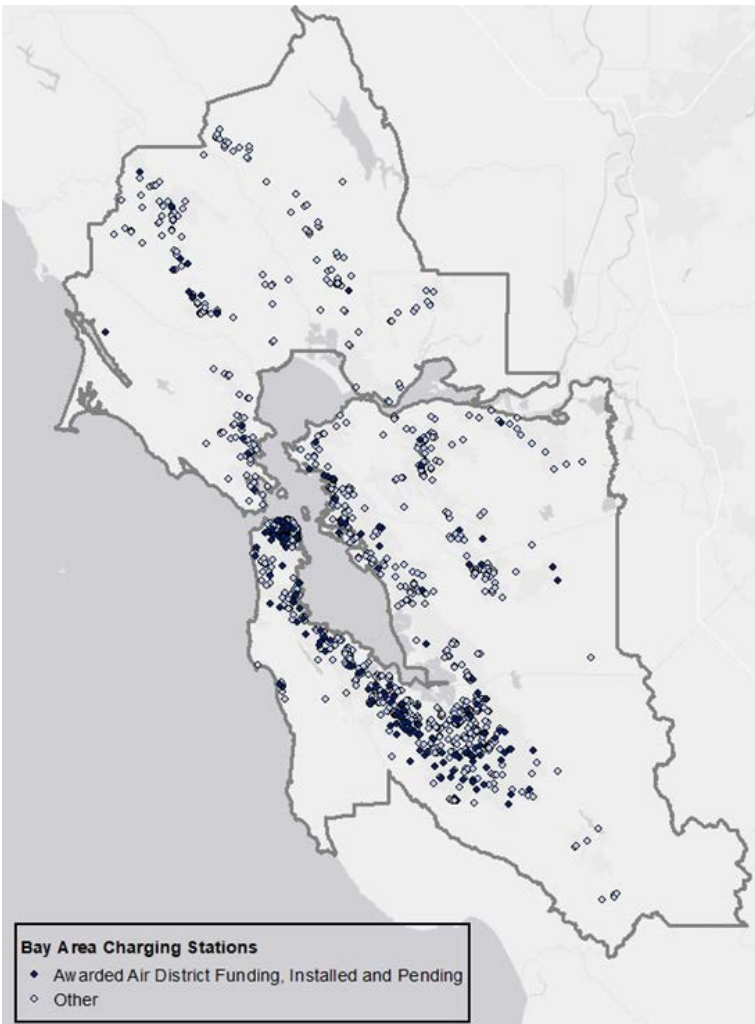
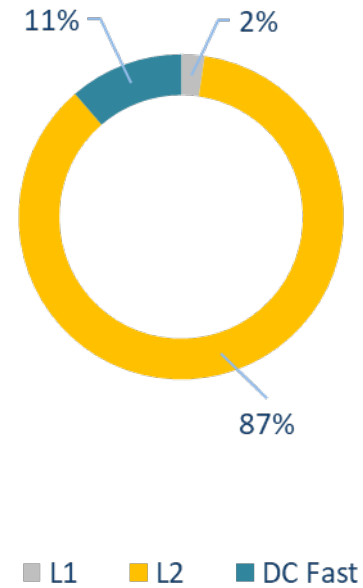


Figure 6: Publicly Accessible EV Charging Ports by Type

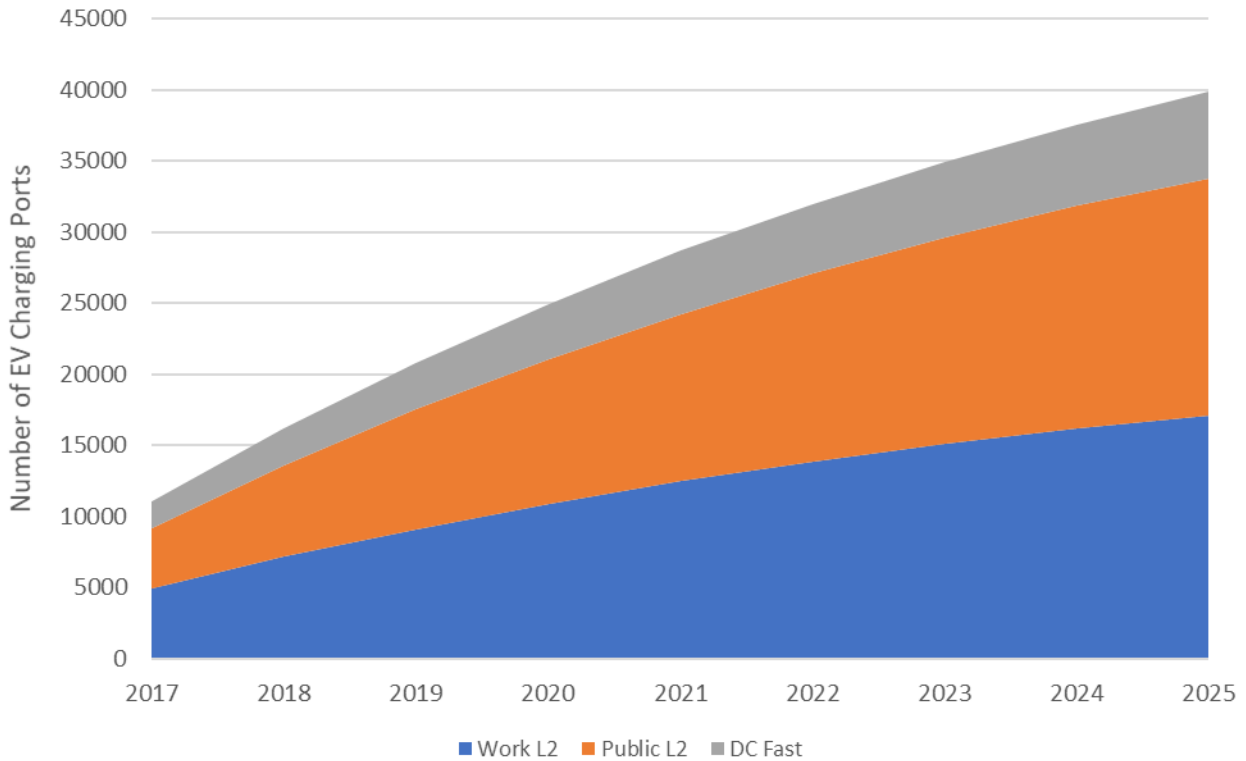


Source: Alternative Fuels Data Center and Charge! Program (BAAQMD)

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 7: 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.

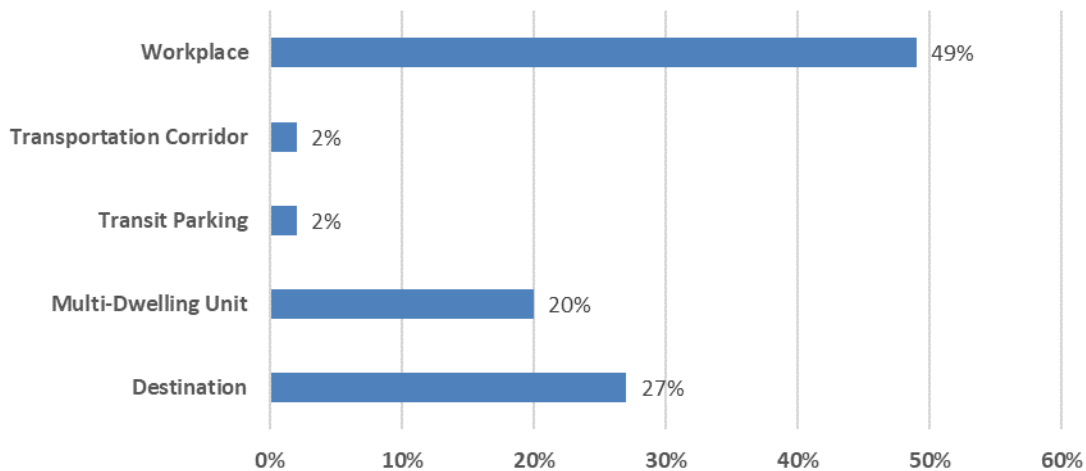
Since 2016, the Air District has administered the Charge! Program, which provides funding for the purchase and installation of publicly accessible charging stations in the Bay Area. This Program is open to organizations including government entities, non-profits, and businesses. The

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 8: 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 9: Total Annual Energy Dispensed (kWh) from Charge! Projects Installed

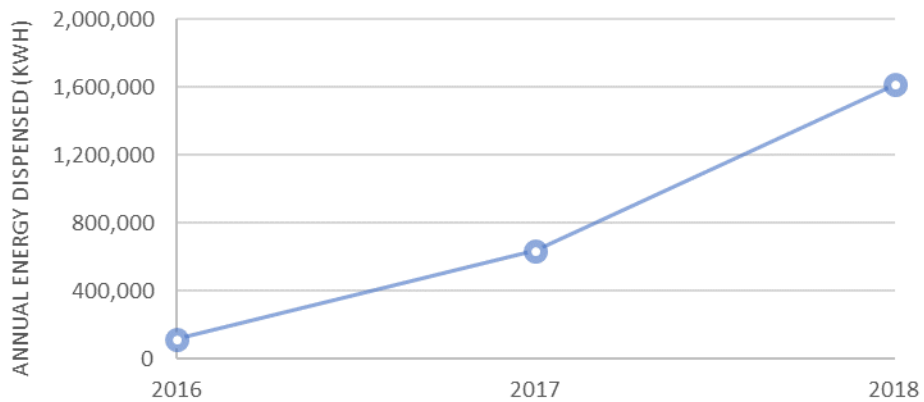


Table 10: Total Reduced Gasoline and Vehicle Miles Traveled from Charge! Projects Installed

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

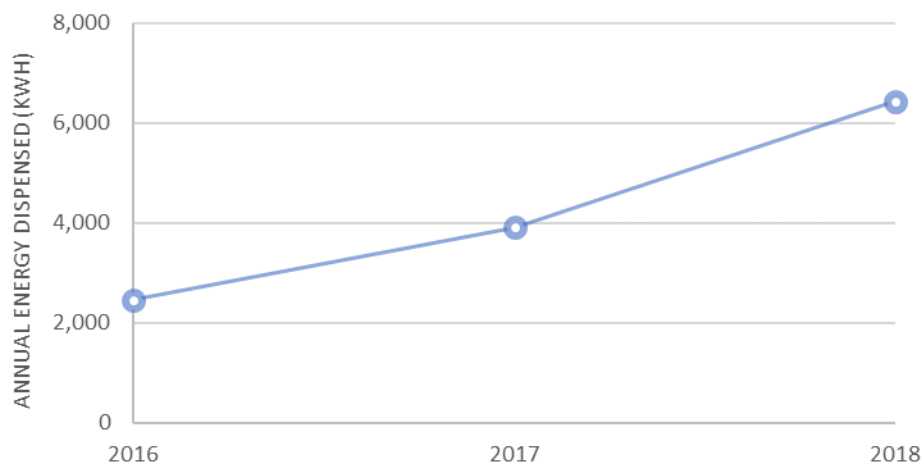


Table 11: Average Reduced Gasoline and Vehicle Miles Traveled Per Charger from Charge! Projects Installed

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 11: 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

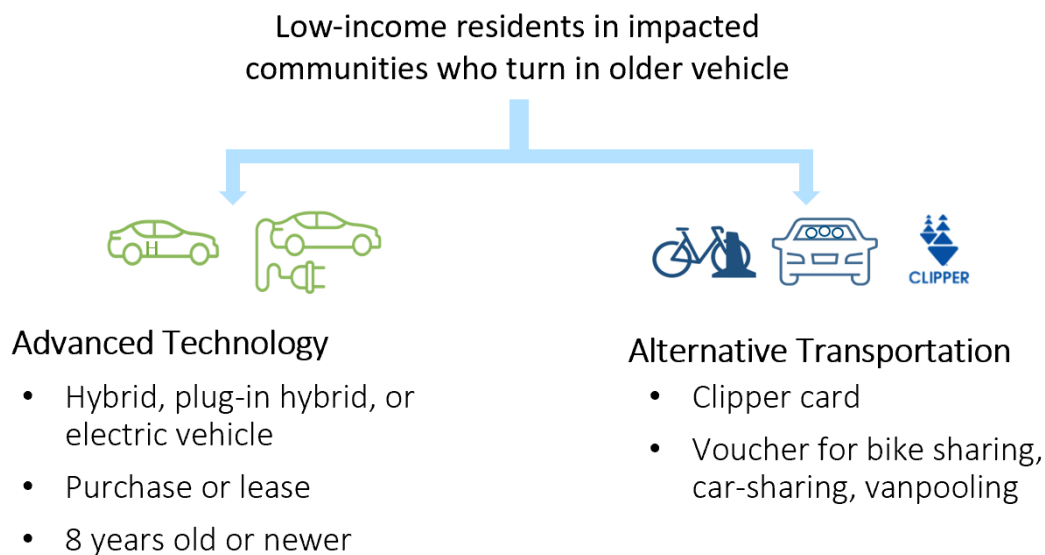
Since the Air District released the Bay Area EV Readiness Plan in 2013, by most measures, EV readiness has been realized in the Bay Area. It is time to focus on the rest of the potential EV market and for this reason, the Air District has started work on an update to the 2013 Plan, with a new “Bay Area 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 12: 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.