

SUBCOMMITTEE NO. 2

Agenda

Senator Bob Wieckowski, Chair
Senator Mike McGuire
Senator Tony Mendoza
Senator Jim Nielsen



Thursday, August 24, 2017
Upon adjournment of session
State Capitol - Room 4203

Consultant: Joe Stephenshaw

Issues for Discussion

Greenhouse Gas Reduction Fund Overview

Panelists:

- *Brian Brown, Managing Principal Analyst, Legislative Analyst's Office*
- *Matt Almy, Assistant Program Budget Analyst, Department of Finance*
- *Doug Ito, Assistant Division Chief, Transportation and Toxics Division, Air Resources Board*

Public Comment

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Greenhouse Gas Reduction Fund Overview

2017-18

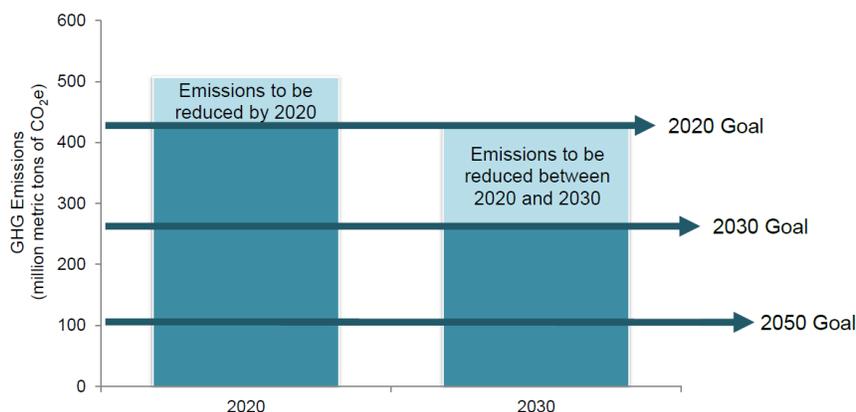
BACKGROUND

The California Global Warming Solutions Act of 2006 (AB 32 [Nunez/Pavley], Chapter 488, Statutes of 2006) established the State Air Resources Board (ARB) as the state agency responsible for monitoring and regulating sources emitting greenhouse gases (GHGs) and required the ARB to approve a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions level in 1990 to be achieved by 2020 and prepare and approve a Scoping Plan, to be updated every five years, to achieve the maximum technologically feasible and cost-effective reduction of GHG emissions.

Senate Bill 32 Pavley, Chapter 249, Statutes of 2016 established an additional GHG target of at least 40 percent below 1990 levels by 2030. In addition, Chapter 250 of 2016 (AB 197, E. Garcia) directs ARB to prioritize regulations that result in direct GHG emission reductions, including emission reductions at large stationary sources and from mobile sources.

GHG Emissions. AB 32 established 1990 as the baseline year for determining California's GHG emissions. According to ARB's updated emission inventory, 1990 emission levels were equal to 431 million metric tons of carbon dioxide-equivalent (MMT_{CO2e}). The following chart from ARB's Cap-and-Trade Auction Proceeds Second Investment Plan shows the GHG emission reduction goals for 2020, 2030, and 2050. Significant investments from several sources of both public and private entities are needed to support the transformative technologies that are essential to reach both the 2030 and 2050 goals.

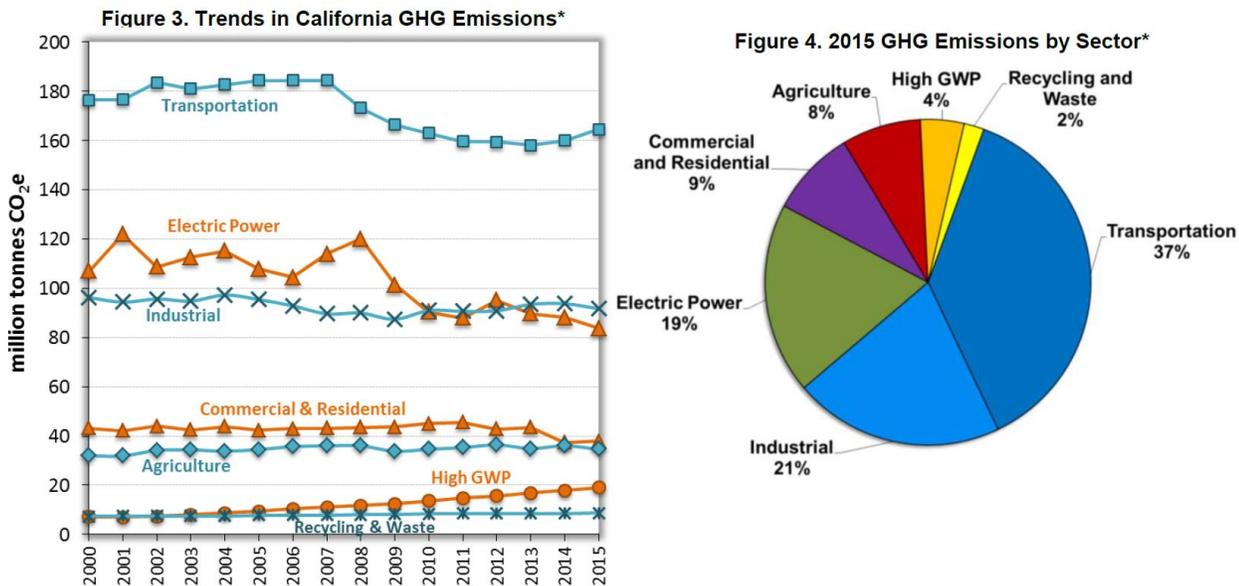
Figure 3. California Greenhouse Gas Emissions and Reduction Goals*



*MMT_{CO2e} means "million metric ton of carbon dioxide equivalent" emissions.

According to ARB's 2017 Edition California GHG Emission Inventory, California's GHG emissions have followed a declining trend since 2007. In 2015, emissions from routine emitting activities statewide were 1.5 million metric tons of CO₂ equivalent (MMT_{CO2e}) lower than 2014 levels, representing an overall decrease of 10 percent since peak levels in 2004. During the 2000 to 2015 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 14.0

tonnes per person to 11.3 tonnes per person in 2015, a 19 percent decrease. Overall trends in the inventory also demonstrate that the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross domestic product (GDP)) is declining, representing a 33 percent decline since the 2001 peak, while the state's GDP has grown 37 percent during this period. The following figures from ARB display the trends in, and overall percentage of, GHG emissions by sector.



The transportation sector remains the largest source of GHG emissions in the state, accounting for 37 percent of the inventory, and had an increase in emissions in 2015. Emissions from the electricity sector continue to decline due to growing zero-GHG energy generation sources. Emissions from the remaining sectors have remained relatively constant, although emissions from high-GWP gases have continued to climb as they replace ozone depleting substances (ODS) banned under the Montreal Protocol.

California faces ambitious goals to reduce GHG emissions, improve air quality, deploy zero-emission vehicles (ZEVs), and reduce petroleum dependency. ARB's 2014 First Update to the Climate Change Scoping Plan and 2016 Mobile Source Strategy conclude that many of the same actions are needed to meet GHG, smog forming, and toxic pollutant emission reduction goals – specifically, a transition to zero-emission and near zero-emission technologies and use of the cleanest, lowest carbon fuels and energy across all vehicle and equipment categories.

In addition to GHGs, SB 1383 (Lara) Chapter 395, Statutes of 2016, requires ARB to implement a strategy to reduce methane emissions by 40 percent, hydro fluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. These types of emissions are also known as short-lived climate pollutants. Short-lived climate pollutants are estimated to be responsible for about 40 percent of current net climate forcing (the heating effect caused by GHG emissions in the atmosphere). ARB is currently in the process of updating its scoping plan to identify the policies that will be used to achieve the additional reductions needed to meet the 2030 GHG target.

Cap-and-Trade. The cap-and-trade program is a key element of California's GHG emission reduction strategy. The cap-and-trade program will provide about 20 percent of the GHG emission reductions needed to achieve the 2020 limit under AB 32. The program creates a limit on the emissions from

sources responsible for 85 percent of California's GHG emissions, establishes the price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy, and provides covered entities the flexibility to implement the lowest-cost options to reduce emissions. In addition to reducing GHG emissions, the program also complements and supports California's existing efforts to reduce criteria and toxic air pollutants.

In the cap-and-trade program, ARB places a limit, or cap, on GHG emissions by issuing a limited number of tradable permits (allowances) equal to the cap. A portion of the allowances are distributed for free, a portion placed in a cost-containment reserve, and the remainder auctioned. ARB conducts quarterly auctions where California state-owned and Québec-provincial-owned allowances, as well as allowances consigned by electrical distribution utilities, can be purchased. The funds raised by the sale of California state-owned allowances are deposited into the Greenhouse Gas Reduction Fund (GGRF) and are available for appropriation. Each year, the cap is lowered and the number of allowances declines in proportion to achieve the intended emission reductions. The cap is enforced by requiring each source that operates under the cap to turn in one allowance or offset credit for every metric ton of carbon dioxide equivalent (MTCO_{2e}) emissions that it produces. Businesses that aggressively reduce their emissions can trade or sell their surplus allowances to firms that find it more expensive to reduce their emissions.

Beginning in 2013, the cap included GHG emissions from electricity and large industrial sources. Transportation fuels and residential and commercial use of natural gas and propane were included in the cap starting in 2015. The first cap-and-trade auction was held on November 14, 2012, and subsequent auctions have been conducted quarterly.

Proceeds from cap-and-trade auctions provide an opportunity for the state to invest in projects that help California achieve its climate goals and provide benefits to disadvantaged communities. Several bills in 2012, one in 2014, and one in 2016 provide legislative direction for the expenditure of auction proceeds, including SB 535 (de León), Chapter 830, Statutes of 2012, AB 1532 (J. Pérez), Chapter 807, Statutes of 2012, SB 1018 (Committee on Budget and Fiscal Review), Chapter 39, Statutes of 2012, SB 862 (Committee on Budget and Fiscal Review), Chapter 36, Statutes of 2014, and AB 1550 (Gomez), Chapter 369, Statutes of 2016.

These statutes require a state agency, prior to expending any money appropriated to it by the Legislature from the fund, to prepare a description of 1) proposed expenditures, 2) how they will further the regulatory purposes of AB 32, 3) how they will achieve specified greenhouse gas emission reductions, 4) how the agency considered other objectives of that act, and 5) how the agency will document expenditure results.

Additionally, AB 398 (Eduardo Garcia), Chapter 135, Statute of 2017, which extends ARB's authority to establish and utilize, a market-based mechanism, specifically a system of market-based declining annual aggregate emissions limits for sources or categories of sources that emit greenhouse gases (cap-and-trade), until December 31, 2030, includes the following investment priorities:

AB 398 Investment Priorities
1) Air toxic and criteria air pollutants from stationary and mobile sources.
2) Low- and zero-carbon transportation alternatives.
3) Sustainable agricultural practices that promote the transitions to clean technology, water efficiency, and improved air quality.
4) Healthy forests and urban greening.
5) Short-lived climate pollutants.
6) Climate adaptation and resiliency.
7) Climate and clean energy research.

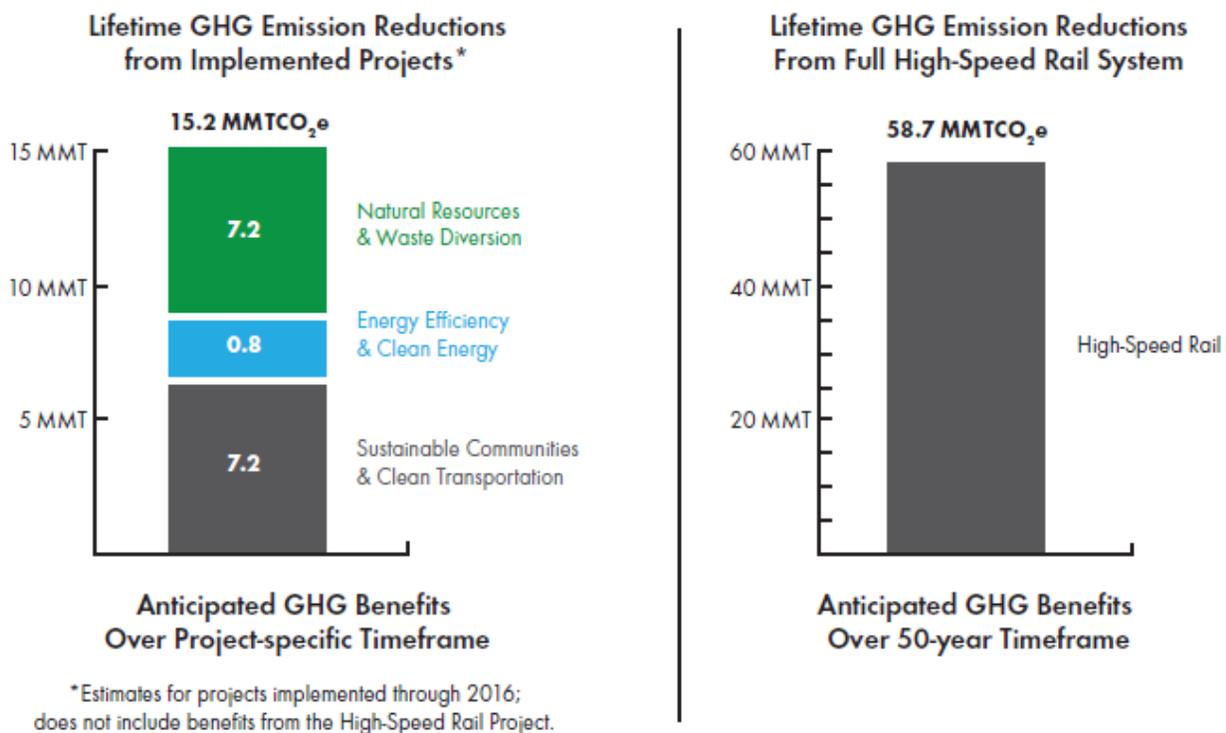
Auction Revenue Spending. The state has used auction revenue to fund various programs and projects. For revenue collected in 2015-16 and beyond, statute continuously appropriates 1) 25 percent for the state's high-speed rail project, 2) 20 percent for affordable housing and sustainable communities grants (with at least half of this amount for affordable housing), 3) 10 percent for intercity rail capital projects, and 4) 5 percent for low carbon transit operations. The remaining 40 percent is available for annual appropriation by the Legislature. The chart below from the Legislative Analyst's Office (LAO) demonstrates how the state has spent auction revenues through 2016-17.

Figure 4						
Cap-and-Trade Spending Through 2016-17						
<i>(In Millions)</i>						
Program	Agency	2013-14	2014-15	2015-16	2016-17	Total
High-speed rail ^a	High-Speed Rail Authority	—	\$250	\$458	\$250 ^b	\$958
Affordable housing/sustainable communities	Strategic Growth Council	—	130	366	200 ^b	696
Low carbon vehicles	Air Resources Board	\$30	200	95	363	688
Transit and intercity rail capital	Transportation Agency	—	25	183	235 ^b	443
Low-income weatherization and solar	CSD	—	75	79	20	174
Transit operations	Caltrans	—	25	92	50 ^b	167
Transformational Climate Communities	Strategic Growth Council	—	—	—	140	140
Agricultural energy and efficiency	Food and Agriculture	10	25	40	65	140
Sustainable forests and urban forestry	Forestry and Fire Protection	—	42	—	40	82
Green infrastructure	Natural Resources Agency	—	—	—	80	80
Waste diversion	CalRecycle	—	25	6	40	71
Water efficiency	DWR	30	20	20	—	70
Wetlands and watershed restoration	Fish and Wildlife	—	25	2	—	27
Active transportation	Caltrans	—	—	—	10	10
Black carbon woodsmoke	Air Resources Board	—	—	—	5	5
Other technical assistance and administration	Various	2	10	14	24	50
Totals		\$70	\$852	\$1,354	\$1,522	\$3,800

^a Does not include \$400 million loan repayment from General Fund that is allocated to high-speed rail in future years under current law.
^b Estimated continuous appropriation based on \$1 billion 2016-17 revenue estimate in Governor's budget.
CSD – Community Services and Development; Caltrans – Department of Transportation; and DWR – Department of Water Resources.

Agencies receiving appropriations, referred to as “administering agencies,” develop and implement a suite of programs in transportation and sustainable communities, clean energy and energy efficiency, and natural resources and waste diversion. These programs are collectively referred to as California Climate Investments.

Investment Outcomes and Program Review. According to ARB’s 2017 Annual Report on Cap-and-Trade-Auction Proceeds, implemented projects (projects for which final funding recipient has received funds and projects have attributable GHG and disadvantaged community benefits) are expected to reduce GHG emissions by over 15 million metric tons of carbon dioxide equivalent (MTCO₂e) over their respective GHG reduction timeframes, which vary by program and are based on when projects are implemented and the duration of reductions as defined in the quantification methodology. In addition, the full High-Speed Rail Project is expected to reduce GHG emissions by nearly 59 million MTCO₂e over its first 50-years of operating life, as detailed in the 2016 California High-Speed Rail Sustainability Report. This revised estimate is based on increased ridership forecasts and the extension from Los Angeles to Anaheim, which result in greater GHG reductions over the operating life. The reductions estimated from implemented projects and the High-Speed Rail Project are shown in the below figures from ARB’s report.



Based on cumulative data, 50 percent of the \$1.2 billion dollars implementing California Climate Investments is funding projects that provide benefits to disadvantaged communities; and 34 percent of the \$1.2 billion is funding projects located within disadvantaged communities.

Cumulatively, agencies have implemented projects in 97 percent of disadvantaged community census tracts, which are providing a variety of benefits to those communities. For example, through CAL FIRE’s Urban and Community Forestry Program, the City of Modesto Tree Replanting Activity Project has planted over 1,400 trees that provide shade, result in energy savings, and create a more comfortable environment for active transportation and recreation. Caltrans’ Low Carbon Transit

Operations Program is supporting Visalia Transit system's V Line bus service expansion to seven days a week. CSD's Low-Income Weatherization Program is helping low-income residents in disadvantaged communities reduce their energy use and energy costs; in Kern County alone, over 600 homes received energy efficiency upgrades.

Pursuant to AB 1532 (Pérez), Chapter 807, Statutes of 2012, ARB's annual reports provide a summary of programmatic investments made from the GGRF, and estimates of the GHG reductions expected from project investments. For example, the 2016 annual report provided estimated costs that showed that programs for which they reported would spend an average of \$57 in cap-and-trade auction revenue to reduce each ton of GHG. However, the estimated costs varied greatly between programs; ranging from \$4 for organics and recycling loans to \$725 for incentives for public fleets pilot projects for disadvantaged communities. The cost per ton was more than \$100 for about half of the programs.

In its review of the 2016 report, the LAO expressed a number of concerns with the ARBs methodology, including, that it ignores interactions with existing regulations and not adequately accounting for likely activities that would occur without the program. As a result of these limitations, the LAO found that at least some of the estimates probably do not accurately predict the program's likely effect on GHG emissions.

In addition, the LAO pointed out that cap-and-trade spending is often only a portion of the overall amount of funding for each project, such as for transit improvement projects and affordable housing developments. As a result, it can be difficult to assess what portion of the GHG reductions should be attributed to state funds versus other funding sources.

Lastly, the LAO highlighted that many of the programs can provide significant co-benefits that the Legislature might also consider important, such as reduced local air pollution, water conservation, financial savings for low-income households, enhanced wildlife habitat, and improved forest health. Understanding the magnitude of these co-benefits can be an important piece of information when evaluating various spending options and weighing trade-offs between achieving GHG reductions and other co-benefits.

In its 2017 report, the ARB pointed out that, in an effort to quantify and standardize reporting on co-benefits achieved by these programs and others, CARB contracted with University of California (UC), Berkeley in 2016 to research and evaluate potential quantification methods for a number of economic, social, and environmental co-benefits. Administering agencies collaborated to prioritize benefits for initial evaluation based on those most broadly applicable across GGRF programs, and those with interest from multiple agencies and stakeholders, including job creation and local air quality. Methods will be developed next year and results will be included in future annual reports.

The 2017 report also provides an overview of each program or subprogram, including the total amount appropriated through 2016, a description of how GHG, disadvantaged community, and other benefits are achieved, cumulative anticipated GHG benefits from implemented projects, and disadvantaged community benefits from implemented projects. Some highlights include:

- **Clean Vehicle Rebate Project (GHG Benefit 4,852,300 MTCO_{2e}, Located in DACs – 6 percent, Benefit DACs – 38 percent).** The State's Clean Vehicle Rebate Project (CVRP), which is now primarily supported by cap-and-trade dollars, promotes clean vehicle adoption by offering rebates of up to \$7,000 for the purchase or lease of new, eligible zero-emission

vehicles, including electric, plug-in hybrid electric and fuel cell vehicles. Eligible California residents can follow a simple process to apply for a CVRP rebate after purchasing or leasing an eligible vehicle. And many do. Since 2010, CVRP has issued more than \$377 million in rebates for more than 175,000 vehicles, according to the Center for Sustainable Energy, which administers CVRP for CARB.

This statewide program is available on a first-come, first-served basis for new eligible clean cars. To make clean vehicles more accessible to a greater number of California drivers in communities most impacted by air pollution, lower-income consumers (with household incomes of less than or equal to 300 percent of the federal poverty level) are eligible for an increased rebate amount.

More than 11,000 rebates have been issued to individuals who live within a disadvantaged community. These investments are designed to help lower-income residents in areas of California affected most by air pollution afford the cleanest cars.

- **Enhanced Fleet Modernization Program Plus-Up (EFMP Plus-Up) (GHG Benefit 6,900 MTCO_{2e}, Located in DACs – 94 percent, Benefit DACs – 100 percent).** Operates in conjunction with EFMP, the voluntary vehicle retirement and replacement program implemented by ARB and local air districts in coordination with the Bureau of Automotive Repair. EFMP Plus-Up provides additional incentives, above the base EFMP incentive, for lower-income consumers living in disadvantaged communities who retire older vehicles and replace them with cleaner used or new hybrid, plug-in hybrid, or zero-emission vehicles.

Program benefits include GHG reductions by funding the purchase of new or used zero-emission vehicles, hybrids, or plug-in hybrid electric vehicles, which emit fewer GHGs than the vehicles being scrapped and conventionally fueled replacement vehicles.

Disadvantaged community benefits include: improved public health and reduced exposure to environmental contaminants by reducing emissions from vehicles operating in or near disadvantaged communities; increased disadvantaged community residents' access to cleaner vehicles and transportation; the program provides an economic benefit to lower-income Californians and disadvantaged community residents that receive funding. Funding is limited to lower-income consumers living in disadvantaged communities.

Co-benefits include: reduced NOX, ROG, CO, PM, and toxic air contaminant emissions, which help improve air quality and provide health benefits to the communities where projects are located; reduced petroleum use; economic benefit by reducing vehicle purchase costs and fuel costs; and accelerated implementation of advanced technology.

- **Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) (GHG Benefit 76,100 MTCO_{2e}, Located in DACs – 43 percent, Benefit DACs – 62 percent).** Provides vouchers, available on a first-come, first-served basis statewide, to help California fleets offset the higher up-front cost of purchasing hybrid and zero-emission trucks and buses. Additional incentives are provided for zero-emission vehicles that provide benefits to disadvantaged communities.

Program benefits include achieving GHG reductions by funding zero-emission and hybrid trucks and buses which emit fewer GHGs than conventionally fueled diesel vehicles.

Disadvantaged community benefits include: improved public health and reduced exposure to environmental contaminants by reducing emissions from vehicles operating in or near disadvantaged communities.

Co-benefits include: reduced NOX, ROG, CO, PM, and toxic air contaminant emissions which helps improve air quality, and provides health benefits to the communities where projects are located; reduced petroleum use; economic benefit by reducing vehicle costs and fuel costs; and accelerated implementation of advanced technology.

The 2017 annual report also provided data showing that, through 2016, programs funded by cap-and-trade revenue had received 986 proposals totaling approximately \$4.9 billion. Of these, the programs were only able to select 505 projects totaling approximately \$1 billion – meaning total requested funding was 490 percent of available funds.

The cap-and-trade program applies to transportation, energy, and industrial sources and helps California achieve the 2020 statewide emission reduction target. The State Agency Greenhouse Gas Reduction Report Card, published by the California Environmental Protection Agency (CalEPA), includes estimates of GHG emissions reduced as a result of measure implementation and a list/timetable for the adoption of measures.

Investment strategies that emphasize both GHG emission reductions and benefits to disadvantaged communities are priorities for California Climate Investment funding. Once program and project types for GHG emission reductions have been identified, the next focus is to prioritize program structures and project types that benefit disadvantaged communities. Many of the investment recommendations in the ARB's Second Investment Plan have been identified by community representatives as priority projects (e.g., increased urban forestry, weatherization, and mobility options) or have the potential to yield environmental, economic, or public health benefits to disadvantaged communities. For example, an affordable housing project, located in a disadvantaged community near transit and paired with a clean car sharing program, can provide affordable housing, mobility, and air quality benefits for disadvantaged community residents.

2017-18 GGRF Funds

This past January, the Governor's budget proposed to spend \$2.2 billion in cap-and-trade revenue in 2017-18. This was comprised of \$1.5 billion in auction revenue assumed to be collected in 2017-18 and almost \$700 million in unallocated prior-year collections. Consistent with current law, 60 percent (\$900 million) of projected 2017-18 revenue would be continuously appropriated. Under the Governor's proposal, the remaining \$1.3 billion in proposed discretionary spending was allocated as follows: 1) \$500 million to support the Governor's transportation funding package and 2) \$755 million for other categories of activities as displayed in the following table from the LAO.

Figure 5
Proposed 2017-18 Cap-and-Trade Expenditure Plan

(In Millions)

Program	Amount
Continuous Appropriations	
High-speed rail	\$375
Affordable housing and sustainable communities	300
Transit and intercity rail capital	150
Transit operations	75
Subtotal, Continuous Appropriations	(\$900)
Discretionary Spending	
Public transit and active transportation projects	\$500
Clean transportation and petroleum use reduction	363
Transformative Climate Communities	142
Carbon sequestration	128
Short-lived climate pollutants	95
Energy efficiency and renewable energy	28
Subtotal, Discretionary Spending	(\$1,255 ^a)
Total	\$2,155

^a Does not total due to rounding.

In addition to the \$1.5 billion assumed for 2017-18, the Governor's January budget proposal assumed \$1 billion in cap-and-trade revenue in 2016-17. However, total 2016-17 revenue was actually \$892 million, or \$108 million less the Governor's budget assumption. As a result, programs that are continuously appropriated 60 percent of auction revenue received \$535 million in 2016-17. Additionally, this resulted in a ending year fund balance of \$843 million in discretionary funds available for appropriation in 2017-18.

Based on an \$843 million fund balance and 40 percent of the \$1.5 billion in estimated revenue for 2017-18, there is approximately \$1.4 billion in discretionary funds that could be appropriated by the Legislature for the current budget year as displayed in the following table.

Available Cap-and-Trade Revenue for 2017-18 Appropriation (dollars in millions)	
2016-17 Fund Balance	\$843
2017-18 Estimated Revenue	\$1,500
60 Percent Continuous Appropriation	\$900
2017 Budget Act (Keep the Lights On)	\$22
Available for Expenditure Plan	\$1,400
Fund Balance (End of 2017-18)	21

It should be noted that the ARB held the first auction of the current fiscal year last week (August 15th). All of the allowances sold in both the current and advance auctions. Total state revenue from this auction will likely be approximately \$640 million. This is the first of four auctions that will be held in 2017-18. However, if subsequent auctions, during this fiscal year, result in similar revenue, the total revenue for 2017-18 would surpass the Governor's budget assumption of \$1.5 billion.

Staff Comment

As mentioned above, the state is required to ensure that statewide GHG emissions are reduced to at least 40 percent below the statewide greenhouse gas emissions limit (1990 level) no later than December 31, 2030 (Executive Order B-30-15; SB 32 (Pavley)). Given this ambitious requirement, the state must increase its focus on and investments in sectors and activities that are the largest sources of GHG emissions.

For example and as previously mentioned, according to the ARB's 2017 Edition California GHG Emission Inventory, the transportation sector remains the largest source of GHG emissions in the state, accounting for 37 percent of the inventory, and had an increase in emissions in 2015. One approach the Legislature could pursue is to target emissions from the transportation sector by focusing investments on emission reductions in both light duty and medium/heavy duty vehicles and equipment:

- 75 percent of vehicle on CA roads are light duty and they account for 70 percent of on-road GHG emissions – the largest transportation source.
- Although there are 308,000 EVs on the road today, they still only account for 1.2 percent of all vehicles.
- CA needs to increase to 1.5 million EVs by 2025 and 4.2 million EVs by 2030.
- 3 percent of CA vehicles are medium/heavy duty, however, they account for 23 percent of on-road emissions.
- The Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP), which assists California fleets with purchasing advanced technology vehicles, has 214 vouchers, totaling \$11 million on its waitlist (backlog will be much larger in the fall).
- Heavy-duty vehicles are responsible for approximately 33 percent of the State's NOx emission and approximately 25 percent of the diesel PM emissions and are the primary source of emissions in the freight system.

Such a focus would be consistent with the new investment priorities established by the Legislature in AB 398. Additionally, there are co-benefits related to public health from these types of targeted investments that will improve air quality. The American Lung Association's 2016 State of the Air report found that over 80 percent of Californians live in areas with unhealthy air. The Air Resources Board's current estimate is that the freight sector is responsible for \$20 billion in health damages annually in California, including 2,200 premature deaths and 1,300 emergency room visits and hospitalizations each year.

Whatever approach the Legislature decides to pursue in developing a GGRF expenditure plan, a factor that must be considered is that AB 398 suspends the State Responsibility Area fee until January 1, 2031 and then repeals the fee as of that date and requires that GGRF funds backfill this suspension. AB 398 also provides for certain sales and use tax exemptions that are also required to be backfilled with GGRF revenue. These responsibilities will have to be taken into consideration when crafting GGRF expenditure plans.

Lastly, AB 617 (Cristina Garcia), Chapter 136, Statutes of 2017, among other things, creates various requirements for air quality control districts. The Legislature must weigh how these requirements create fiscal pressures on air quality control districts, as well as the appropriate level of state support.

Member Requests

The following GGRF requests have been submitted by member offices:

- **Safeguarding California Grant Program.** \$5 million for the Natural Resources Agency, in coordination with Strategic Growth Council and Office of Planning & Research, to develop the Safeguarding California grant program to support the development and implementation of innovative climate adaptation and resiliency projects.
- **Clean Medium- and Heavy-Duty Vehicles and Port Equipment – \$500 million.** There is an immediate need for substantial and sustained funding for zero and near-zero trucks and freight-related equipment – particularly in and around our ports, transportation arteries, and trade corridors. This could include medium- and heavy-duty trucks, cargo handling equipment, transport refrigeration units, drayage trucks, forklifts, freight locomotives, and ship emissions capture technology. Existing programs – such as SB 1204, HVIP and Prop 1B – are in extremely high demand and are vastly oversubscribed (current waitlists total tens of millions of dollars.) Goods movement is one of the largest sources of air pollution in the state, especially near freight hubs like ports. Heavy-duty vehicles are responsible for approximately 33 percent of the state’s NOx emission and approximately 25 percent of the diesel PM emissions and are the primary source of emissions in the freight system. Simultaneously, California’s ports serve as a major economic engine and job creator for the state and nation. It is imperative that our ports remain economically competitive while moving forward aggressively to drastically cut emissions and clean up the air. \$500 million in annual GGRF funding for clean medium- and heavy-duty equipment and port equipment will help California achieve its greenhouse gas reduction, air quality, clean and sustainable freight and transportation, environmental justice, and public health goals.
- **Double Continuously Appropriated Transit Categories.** Since the passage of SB 862 in 2014, transit projects throughout California have been allocated approximately \$515 million from the Low-Carbon Transit Operations Program and Transit and Intercity Rail Program based on the Air Resources Board’s 2017 Annual Report to the Legislature. Combined, these transportation-related programs receive 15 percent of cap-and-trade revenues, yet the transportation sector generates over 90 percent of the cap-and-trade auction revenue. The existing funded programs include 228 allocated projects which will reduce greenhouse gas (GHG) emissions by almost 1.6 million metric tons once complete. Additionally, across the two programs, the level of funding invested in disadvantaged communities is approximately 95 percent.

With the transportation sector accounting for 37 percent of all GHG emissions, several legislators are requesting that the existing transit programs, the Transit and Intercity Rail Program and the Low Carbon Operations Program be doubled to 20 percent and 10 percent, respectively. If this occurs, we can expect to see similar GHG reductions and disadvantaged community benefits moving forward.

- **Transit and Intercity Rail Program.** \$100-\$200 million increase in funding for the program in addition to the continuous appropriation.
- **ARB Zero Emission Bus Program.** \$50-\$100 million for the program.

- **Revise Disadvantaged Communities Definition.** SB 535 makes significant investments that benefit California’s disadvantaged communities. AB 1550 changes the disadvantaged community requirement and now requires, at a minimum, 25 percent of cap-and-trade revenue to be invested in disadvantaged communities. Based on data from the 2017 Annual Report, 50 percent of all GGRF implemented funds (\$614 million of \$1.2 billion total), was for projects that provide benefits to disadvantaged communities.

The Bay Area has nearly three million low-income residents. Many are excluded under CES 3.0 despite living in high-pollution areas. To remedy this inequity, and to ensure more struggling Californians benefit from the cap-and-trade program, the Legislature should expand the application of AB 1550 (Gomez) – particularly the minimum amount benefitting “low-income communities and households.” AB 1550 utilizes eligibility criteria maintained by the California Department of Housing and Community Development (HCD) and better incorporates local cost of living factors. The income categories used in HCD’s State Income Limits to determine low-income communities have long served as a proxy for a variety of environmental risk factors when considering the “natural affordability” of housing – housing that is locally less expensive in the market because of undesirable factors. AB 1550, which is already integrated into certain cap-and-trade allocation formulas, captures this issue well. Through an enhanced focus on low-income communities and households, it can better serve all affected communities across California.

- **Toxic Air Contaminant Relief Program.** Allocate funding annually from the Greenhouse Gas Reduction Fund to do the following within specified regions of Los Angeles County: create a citizens commission to conduct a comprehensive investigation of air, water, and soil contamination issues within Los Angeles County and recommend further additional actions to remediate and, with respect to communities identified in LA County life expectancy assessment with lower life expectancy, take specific action to reduce TAC and GHG emissions; fund heating and air conditioning retrofits to improve indoor air quality in homes, schools, and public buildings; provide enhanced clean vehicle infrastructure and vehicle incentives specific to low-income households; fund clean vehicle public transit programs; provide resources to help businesses make improvements to lower emissions and retain jobs; establish a data monitoring system to ensure TAC and GHG emission reductions are quantified.
- **Inglewood Transportation Sustainability Program.** Allocate \$50 million to support transportation infrastructure projects related to the City of Inglewood’s sustainability measures in its downtown redevelopment project.
- **East Contra Costa County Fire District.** Provide \$10.5 million annually to allow the East Contra Costa County Fire District to open three fire stations that closed due to a lack of funding.
- **Short Lived Climate Pollutants – Waste Diversion and Food Recovery – \$50 million to the California Department Of Resources Recycling and Recovery (CalRecycle).** To meet California’s target of reducing methane emissions by 40 percent below 2013 levels by 2030 (SB 1383, Lara), an investment of \$50 million in waste diversion and food recovery programs at CalRecycle is requested. This would continue the department’s incredibly successful programs that reduce greenhouse gas emissions through food recovery, organic waste

recycling, and recycled content manufacturing. These projects are critical for cities across California working to reach the waste diversion and GHG emission requirements set by the legislature, including the requirements established under SB 1383, which set an ambitious target of diverting 75 percent of the organic waste we generate. CalRecycle estimates this will require the construction of 50 to 100 new and expanded organic waste recycling facilities, at a cost of approximately \$2-3 billion. These facilities have become increasingly expensive to build and are forced to compete with artificially low landfill tipping fees, so significant statewide investment will be necessary to achieve these goals and reduce the immediate climate impacts of landfilling organic waste. Despite limiting funding to shovel-ready projects, the department has received qualified grant applications totaling significantly more money than was available during each solicitation for each program. In fact, CalRecycle's programs have proven to be among the most oversubscribed of any CCI programs, and the department has been forced to deny multiple deserving projects, none of which went on to being built without the grants. In addition to being highly over-solicited, CalRecycle's programs are also ranked among the most cost effective methods in terms of dollars spent per GHG reduced.

- **Short Lived Climate Pollutants – Methane Reduction in the Dairy and Livestock Sector – \$50 million to the California Department of Food and Agriculture (CDFA).** Methane is responsible for about 20 percent of current net climate forcing globally, and manure is responsible for 25 percent of California's methane emissions. Improved manure management offers significant, near-term potential to achieve deep reductions in the state's methane emissions. Before ARB regulates dairy and livestock manure emissions, as required by SB 1383, California agencies must encourage and support near-term actions by dairies to reduce manure emissions through financial incentives, collaboration to overcome barriers, development of policies to encourage renewable natural gas production, and other market support. This funding will send strong market signals, build on last year's GGRF investment, and encourage the development of dairy digesters as well as alternate manure management practices.
- **Short Lived Climate Pollutants – Black Carbon Wood Smoke Reduction – \$50 million to the ARB.** Residential wood burning produces greenhouse gases and toxic air pollutants, and is forecast to be the largest source of human-caused black carbon emissions in 2030 if no new programs are implemented. Residential wood combustion produces greenhouse gases, fine particulate matter, black carbon, carbon monoxide, volatile organic compounds, and hazardous air pollutants, such as benzene and formaldehyde. These emissions also have serious health and quality of life impacts, particularly on people living with existing heart or lung conditions as well as low-income people of color. Wood smoke reduction programs provide Californians with incentives to replace old, uncertified wood-burning stoves and home heating with cleaner and more energy-efficient alternatives. They have proven to be extremely popular and are consistently oversubscribed in various rural and urban air districts. This funding will reduce greenhouse gas emissions, address both indoor and outdoor air quality, reduce fine particle and toxic air pollution, improve energy efficiency, reduce the risk of chimney fires, and improve public health in communities across the state.
- **Delta Wetlands Management/Restoration.** Provide \$20 million for the Delta Conservancy to work with private landowners to implement wetland management projects. The Delta Conservancy has been working with partner agencies to develop a carbon credit protocol.

Restoration projects may qualify for emissions credits certified by the ARB, which in turn could provide a revenue stream for further Delta restoration, causing a multiplier effect.

- **Sonoma Developmental Center.** Provide \$1.5 million to transition the Sonoma Developmental Center Property to parkland. The center is in the process of being closed and sits on a site that is approximately 1,000 acres, much of which is underdeveloped and serves as a critical wildlife corridor. Ensuring that the land outside of the core campus is preserved as parkland in perpetuity is critical and will provide numerous critical environmental benefits, including reducing GHGs.
- **Healthy Soils Program.** \$20 million for the Healthy Soils Program, which provides incentives/funding for farmers and ranchers to adopt innovative soil management practices that capture and store carbon. The program is currently funded at \$7.5 million, which limits its reach and impact.
- **State Water Efficiency and Enhancement Program (SWEEP).** \$20 million for SWEEP, which provides financial assistance for agricultural producers to improve irrigation management. These improvements reduce operating costs, improve yields, and save water and energy while reducing GHG emissions. Requested funds have exceeded the total available over the life of the program by nearly 250 percent. The program was funded at \$7.5 million last year.
- **Farmworker Housing.** Request that funding be allocated to support farm worker housing.
- **ARB's new Riverside research and testing facility and UC Riverside's College of Engineering-Center for Enviro Research and Technology.** ARB is currently relocating its motor vehicle and engine emissions testing and research facility to the 18 acre site at University of California, Riverside (UCR). A proposal has been submitted to take the first step in a plan to include a world-class facility to support motor vehicle emissions standards development, implementation, and enforcement. UCR has begun exploring the creation of a Clean Technology Innovation Park as part of its CE-CERT program. As the state continues to invest significant resources in reducing air pollution and greenhouse gases, it is critical that we utilize and invest in scholarly expertise located within disadvantaged communities. This proposal would invest \$10-12 million for a needs assessment study for the relocation and projected expansion of the CE-CERT facility; \$50 million for field testing and the creation of test-beds; and \$40 million for private sector investment to support innovation of clean technologies. With the partnership between UCR, CARB, and private investors, we stand to see a maximum return for a \$100 million investment.
- **Sonoma Marin Area Rail Transit (SMART).** \$40 million for expansion of rail service north of the Sonoma County Airport toward Windsor and Healdsburg.
- **State Coastal Conservancy.** \$50 million to support State Coastal Conservancy carbon projects, which would help capture GHGs through the conservation of natural and working lands. Examples of projects include forestland protection, tidal wetlands restoration, and improving agriculture land practices.

- **Biomass/Forest Health.** \$50 million for biomass focusing on forest health, which is one of the most cost-effective ways per ton of reducing GHGs. Wild land fire events release massive amounts of carbon into the atmosphere, and with tens of millions of dead and dying trees in the coastal and Sierra forest tracks, the state has a short amount of time to proactively deal with this pending crisis. Diverting forest residues, which would otherwise be open burned, to biomass plants will reduce GHGs through a carbon neutral process that also produces renewable energy.
- **Pacoima Wash.** \$20 million for Pacoima Wash plans, which covers a suite of urban greening, active transportation, and other low-impact projects along a major tributary of the LA River. 2017-18 budget language prohibited Prop 1 LA River funding from being used on the tributaries. The projects in Pacomia – among the top 5 percent most polluted and disadvantaged areas in the state – will improve ecosystem health and the way families live, work, and move through the built environment, resulting in fewer GHG emissions. These projects are shovel-ready and have been fully vetted by the community. Most importantly, they will help fulfill the promise of cap-and-trade; namely that we can transform communities while substantially reducing GHG emissions.
- **Forest Health.** \$15 million for prescribed burns and forest health. The devastating 2013 Rim Fire is a catastrophic result we can actually avoid. Over 1.2 million people were exposed to harmful particulate matter with an estimated \$600 million in health impacts, not to mention the 11.3 million metric tons of carbon pollution that was meant to be sequestered in our forest lands. This proposal stems from Senate and Assembly hearing on forest fires and forest health, which has direct nexus to GHG emissions. Controlled burns, run by CalFIRE, local fire agencies, and fire safe councils can reduce the intensity and danger of forest fires.
- **Free Ride Everywhere Downtown (FRED) San Diego Shuttle.** FRED is a free ride-hailing service using an all-electric GEM vehicle. This proposal would allow for expansion, including to low/moderate income areas such as Barrio Logan and Balboa Park.
- **Port of San Diego Emissions Reduction Program.** \$11.7 million through \$13 million to convert trucks to cleaner engines and \$10 million for port improvements that would reduce emissions and improve operations on the waterfront. The Marine Terminal on San Diego Bay currently sends 730 trucks from state tidelands managed by the Port of San Diego up interstates 5 and 15 on a weekly basis. The trucks are independently owned and use diesel fuel. The Marine Terminal is located in Barrio Logan – a hot spot on the current CalEnviro Screen.
- **Research and Development.** \$100 million to fund enhanced and improved research, development and early-stage technology deployment (RD&D) to be distributed over a five year period beginning with \$20 million this year. Innovative climate related projects resulting from RD&D will play a major role in reducing GHG emissions.
- **Heavy Duty Vehicle Incentive Program (HVIP).** \$75 million for the HVIP, with 50 percent allocated to projects in goods movement corridors within communities identified as having highest exposure to diesel particulate matter. The HVIP program received \$28 million in last year's budget. Applications for this funding well exceeded the amount allocated and by end of 2017 program is projected to have a \$25 million shortfall. With this backlog, combined with the availability of new, cleaner technologies, the Air Resources Board (ARB) and industry experts project HVIP demand in 2018 to be \$75 million. Communities located near goods

movement corridors suffer the worst exposure to diesel particulate matter and should receive priority.

- **Heavy Duty Trucks/Equipment.** \$175 million for heavy duty trucks and equipment. Diesel trucks and warehouses saturate environmentally disadvantaged communities. Heavy duty trucks operating in the state emitted 60 percent of all oxides of nitrogen emissions from mobile sources in 2016.
- **Urban Greening.** \$100 million for urban greening. Disadvantaged communities are impacted by rail yards and motor vehicles that exude GHGs. Funding local green acres such as parks, greenways, and open spaces, in built communities reduces GHG emissions by connecting communities and minimizing vehicle use.
- **Technical Assistance.** \$10 million for technical assistance. Communities often lack technical expertise, infrastructure, and implementation experience to compete for funds to mitigate GHG emissions.
- **Gold Line Foothill Extension Project.** \$280 million for the project, which will increase public transportation from Los Angeles County to San Bernardino County and decrease emissions and congestion. Cities that will benefit with a station platform are Glendora, San Dimas, La Verne, Pomona, Claremont and Montclair.
- **Santa Barbara County Association of Governments.** \$40 million dollars, including \$10 million for a capitalized maintenance access fee to secure LOSSAN North 6th Passenger Trip, \$15 million for electric busses and operating funds for the Coastal Express Regional Bus Service, and \$15 million for electric bus purchases and facility improvements in Santa Barbara and Ventura counties.
- **The Port of Hueneme (Oxnard Port District).** \$10 million to fund the purchase of a fully electric crane to meet customer needs and reduce on-dock emissions.
- **Santa Clara River Estuary.** \$3-\$4 million to implement fully completed study identifying Santa Clara River Estuary for wetlands restoration of over 42 acres of habitat.
- **Transformative Climate Community (TCC) Program.** \$40 million to continue the TCC program, adding language prioritizing funding for communities with high exposure to criteria air pollution from refineries. Language in AB 398 that enacted a preemption on local air districts specifically related to refineries has caused communities living in the shadow of refineries concern that they will be subjected to higher levels of pollution. To allay these concerns, emissions reductions in these communities should be a priority in the 2018 expenditure plan. The majority of previously allocated TCC funds (\$70 million) were provided to Fresno. Funding was not provided to the impacted refinery communities of the Bay Area and Los Angeles basin, which houses many zip codes that fall into the 90th percentile in CalEnviro Screen pollution levels.
- **Local Climate Action Plans.** \$30 million to the Strategic Growth Council (SGC) to fund implementation of emissions reduction strategies in local CAPs. Funding to assist the direct implementation of emissions reduction strategies identified in local climate action plans gives

locals a say in the pollution reductions and climate expenditures most valuable to their communities. Allocating funds through competitive grants will allow SGC to prioritize CAP projects with the highest GHG and criteria air pollution emissions reductions. Previous GGRF expenditure plans prioritized funding localities to develop climate action plans, now that many local governments across the state have both developed and adopted CAPs, now is the time to assist in the implementation to achieve direct emissions reductions.

- **Short-Lived Climate Pollution (SLCP).** \$40 million to CalRecycle for SLCP reductions, and \$20 million from the Low Carbon Transportation Fund at ARB for biofuels projects that reduce SLCPs. This funding will help replace diesel fuel in communities along freight corridors with cleaner biofuels while also promoting food recovery and organics recycling. Science shows that SLCPs, including methane emissions from organics, are responsible for 40 percent of global climate-forcing emissions. In addition, they are harmful local air pollutants. ARB's scoping plan emphasizes reduction of SLCPs as a key climate strategy, with proposed actions accounting for 32 percent of the state's overall GHG reductions through 2030. If California is to meet its climate change goals, it is critical that SLCP reductions receive funding.
- **Major Transportation and Freight Corridor - Phase 3.** \$42 million to complete Phase 3, which includes a list of projects to mitigate the construction impacts, including extended turn pockets, additional turn pockets and roadway rehabilitations where the primary impacts have resulted or are expected.
- **Transformational Climate Communities (TCC).** \$200 million, including \$100 million for the Strategic Transportation Plan, which brought together all elements of the transportation system in the Gateway Cities and \$100 million for the "Complete Street" regional corridor.
- **Transit Oriented Development (TOD).** \$15.8 million, including \$15 million to create the foundation to assist in the funding of a transit line/build a 20 mile sustainable corridor TOD from Artesia to Union Station, \$500,000 to integrate access projects that will provide First/Last Mile planning for the upcoming Eco-Rapid Transit (West Santa Ana Branch Corridor under Measures R and M), and \$300,000 study the feasibility of capping I-105 to provide enhanced station access, a superior bus/rail interface opportunity and a community oriented green space as well as possible bike-share facility.
- **Coastal Conservancy Climate Ready Program.** \$10-\$20 million for the program, which is helping natural resources and human communities along California's coast and San Francisco Bay adapt to the impacts of climate change, such as rising sea levels, beach and bluff erosion, extreme weather events, flooding, increasing temperatures, changing rainfall patterns, decreasing water supplies, and increasing fire risk. The conservancy is also working to capture greenhouse gases from the atmosphere through the conservation of natural and working lands.
- **Multi-use Urban Greening Facility.** \$27 million for the Recreation Development with Watershed Management Multi-Use Features project consists of the redevelopment of an 82-acre area in the southeastern corner and eastern bank of the San Gabriel River in the City of Pico Rivera (and contiguous area). The Whittier Narrows Dam Basin Recreation Area (WNRA) provides over 1,500 acres of passive and active recreation facilities in addition to natural habitat areas, an area almost twice the size of the 843 acres that make up Central Park in New York City. The Pico Rivera City project area has a unique asset in its outdated and

underutilized equestrian facilities which are heavily used by its neighboring low-income mostly immigrant community. Redevelopment would enhance this unique and extremely popular use in a low-income area and complete the overall WNRA providing an opportunity to establish a new and natural southern gateway into the WNRA from the communities of Pico Rivera, Whittier, and the communities further to the south, for equestrian and other forms of recreation such as walking, biking, and hiking.

- **Urban Greening.** \$25 million for the Artesia Park – Community Center project will replace the existing center. The center is a vital space for the City’s services to children, youth, seniors, and families. It also serves as a meeting space for public events.
- **Brownfields to Green Space.** \$45 million for the Holifield Park Expansion project will enhance the park with a LEEDS certified community center and improved existing and additional play fields using water-efficient technologies such as bioswales and weather-based integrated controllers. Also, enhancements will include energy-efficient lighting for fields, and the installation of walkways throughout the park with exercise equipment. This expansion will provide the community with accessible park facilities, youth play fields, and family-oriented recreation areas for increased health and opportunities for education and community activities. The request for this funding is \$20 million.

The Hermosillo Park Rehabilitations project will include the addition of facilities that provide options for family and student recreation, including a LEEDS certified community center and an outdoor amphitheater. Also included will be field improvements, including the use of energy-efficient lighting and the installation of walkways throughout the park. This rehabilitation will also incorporate a large-scale water infiltration system to replenish groundwater. These improvements will provide additional opportunities for family-oriented activities, education, and entertainment. The request for this funding is \$25 million.

- **Accessibility to Green Spaces and Hands-On Science.** \$10 million for the Columbia Memorial Space Center is a hands-on learning center dedicated to bringing the wonder and excitement of science and innovation to audiences of all ages and backgrounds. Through world-class programs and engaging exhibits, the Columbia Memorial Space Center strives to ignite a community of critical and creative thinkers. Funding will be used to provide better equipment for their exhibits, provide scholarships for underserved youth, and allow for predevelopment costs for a strategic plan to augment STEM teacher training and direct student instruction.
- **Waste Removal.** \$2.085 million for the City of Santa Fe Springs requests funding to remove volatile organic material/waste from wells serving the people within the City.
- **Fire Suppression.** \$5 million for the upgrade of the water supply and distribution system of Pico Water District to improve fire suppression and ensure the safety of children at local schools.
- **Low Income Weatherization Program.** Continue funding for the program, which installs rooftop solar systems, solar hot water heating systems and energy efficiency measures for low-income households.