



City of Palo Alto

City Council Staff Report

(ID # 11168)

Report Type: Study Session

Meeting Date: 4/13/2020

**Council Priority: Climate/Sustainability and Climate Action Plan,
Transportation and Traffic**

Summary Title: Earth Day Report 2020 (EDR20)

Title: Annual Earth Day Report Study Session

From: City Manager

Lead Department: Public Works

Recommendation

This is an Informational Report that supports a Study Session and requires no Council Action.

Executive Summary

This report includes:

- Summary of 2018-2020 Sustainability Implementation Plan (SIP) Progress Report
- More Detailed Accomplishments in the Seven Sustainability and Climate Action Plan Framework Areas
- Awards and Other Accomplishments

Background

The City of Palo Alto has long been a leader in sustainability, making impressive progress towards reducing its carbon impacts, greenhouse gas emissions, and resource consumption. Adopting a Sustainability Policy in 2001 ([CMR #206:07](#)) reflected the City's intention to be a sustainable community - one which meets its current needs without compromising the ability of future generations to meet their own needs. Since then, the City has undertaken a wide range of initiatives to improve the sustainability performance of both government operations and the community at large, including: adopting one of the first municipal Climate Action Plans in the US in 2007; adopting a Sustainability and Climate Action Plan (S/CAP) Framework ([CMR #7304](#)) in 2016, which includes an ambitious goal of reducing Greenhouse Gas (GHGs) emissions 80 percent below 1990 levels by 2030; providing 100 percent carbon neutral natural gas since July 2017 - making the City of Palo Alto Utilities the first utility in the world to provide carbon neutral electricity and natural gas as a standard to all customers - having provided 100 percent carbon neutral electricity since 2013; and, in December 2017 accepting the 2018-2020 Sustainability Implementation Plan (SIP) ([CMR #8487](#)) as a summary of the City's S/CAP work

plan. Sustainability is also embedded in the 2030 Comprehensive Plan (adopted in 2017), with 10 goals and over 50 actions outlined in the 2030 Comprehensive Plan Implementation Plan that are explicitly or implicitly related to sustainability.

While GHG emissions reduction is not the only goal of the S/CAP, it is the major one. To achieve an 80 percent reduction target by 2030, Palo Alto will need to meet a target “GHG reduction budget” of about 224,600 MT CO₂e (Metric tons of Carbon Dioxide Equivalent). The analyses in the 2016 S/CAP Framework (conducted in 2014-2015) projected that more than half of the needed additional reductions (117,900 MT CO₂e) could come from transportation related measures, just under half (97,200 MT CO₂e) from efficiency and fuel switching measures (largely in buildings), and about four percent (9,500 MT CO₂e) from continuation and extension of Palo Alto’s zero waste initiatives. These reduction targets are now outdated and do not include recent sustainability initiatives, actions, and projects. The analyses will be revised to include current information and staff will provide Council an update when new reduction targets are established.

As a result of various City-led initiatives, programs, and activities focused on climate change and sustainability, by the end of 2018 Palo Alto had reduced GHG emissions an estimated 56.5 percent from the 1990 baseline, despite a population increase of 20.4 percent from the 1990 baseline. Overall, the performance of City Municipal Operations showed a 65.8 percent reduction in Scope 1 and Scope 2 emissions from the 2005 baseline year.

Discussion

The 2018-2020 SIP focused on two key concerns, CO₂ emissions and water use, and four key areas of activity: Energy, Mobility, Electric Vehicles, and Water. Highlights of 2019 progress in these four SIP areas include:

- **Energy.** The City’s Energy Reach Code in 2019 required that all new construction projects exceed the state’s building efficiency standards by a minimum of 10 percent; these reach code savings contributed to the reported electric and gas efficiency savings in FY 2019. In FY 2019, the reported Electric Efficiency savings was 5,371 MWh, or 0.61 percent of the City’s total electric use. This is equivalent to the total power used by 853 California homes in a year. Similarly, the reported FY 2019 Gas Efficiency savings was 128,333 therms, or 0.44 percent of the City’s total gas use. The avoided GHG emissions from the gas efficiency savings is equivalent to taking 148 passenger vehicles off the road for a year. The City also tracks avoided natural gas use from electrification programs. As of December 2019, the annual avoided gas use based on the heat pump water heater program is 6,008 therms (10 units rebated in 2017, 26 units in 2018, and 8 units in 2019).
- **Mobility.** The newly established Office of Transportation drafted a Council-approved 2019 Transportation Work Plan, which provides a high-level summary of the Office of Transportation initiatives, programs, and projects. In 2019, single-occupancy vehicle (SOV) commute trips to downtown Palo Alto continued a downward trend from 2015,

with drive alone trips being reduced 15 percent. Transit ridership increased 21 percent since 2015 and rideshares increased 3 percent. Caltrain Average Weekday Ridership at all Palo Alto Caltrain stations decreased by 439 riders between 2019 and 2018, which is consistent with a 2.3% decrease in overall Caltrain ridership. Palo Alto Downtown Caltrain station has the second highest ridership after San Francisco Fourth and King. City of Palo Alto employee participation in available commute benefits increased by 60 participants between 2018 and 2019.

- **Electric Vehicles (EVs).** The City's various EV adoption programs, rebates and incentives, increased public EV infrastructure, and EV policies have contributed to a steady increase in the number of EVs registered in Palo Alto. There are approximately 4,500 EVs (approximately 7 percent penetration) registered in Palo Alto, which displace approximately 10,800 MT CO₂e per year. This translates to an estimated 1 in 7 homes in Palo Alto with an EV and nearly 1 in 3 new vehicles (29 percent) in Palo Alto is an EV. Staff has not found any EV penetration rate in the Country which equals or exceeds the Palo Alto rate.
- **Water.** Council approved a Partnership Agreement that gives Valley Water an option to acquire about half of the treated wastewater produced by the Regional Water Quality Control Plant (RWQCP) ([CMR #10627](#)). The new agreement also funds a salt removal facility in Palo Alto which will allow increased use of recycled water from the Palo Alto Regional Water Quality Control Plant. Palo Alto, in collaboration with Valley Water, developed a Northwest County Recycled Water Strategic Plan to identify the best potable and non-potable options for water reuse in the RWQCP service area. Council accepted a Green Stormwater Infrastructure Plan ([CMR #9883](#)), which outlines how the City intends to transform its stormwater infrastructure over years to slow the flow of storm runoff, increase infiltration, recharge groundwater, increase irrigation and other uses, and remove contamination. Per capita water use decreased from 2018 to 2019. Recycled water use will change significantly as the water reuse expansion projects described above are implemented.

When the 2016 S/CAP Framework was adopted by Council, staff anticipated the need to update the S/CAP in 2020. The 2020 S/CAP Update will include the four areas of the 2018 - 2020 SIP and add three more areas: Climate Adaptation & Sea Level Rise, Natural Environment, and Zero Waste. A snapshot of 2019 accomplishments in these three areas is as follows:

- **Sea Level Rise.** In March 2019, Council approved the City's first Sea Level Rise Adaptation Policy ([CMR #9576](#)). To develop a Plan based on the guidelines of the Policy, staff will be recommending Council approval of a consultant contract to assist with a Sea Level Rise Vulnerability Assessment and then the Sea Level Rise Adaptation Plan itself. Staff reviewed the regional Strategy to Advance Flood protection, Ecosystems and Recreation (SAFER Bay) Project Draft Feasibility Report, completed a preliminary design Palo Alto Horizontal Levee Pilot Project, developed a Regional Water Quality Control Plant (RWQCP) New Outfall Line Project, and, in partnership with Valley Water, began repairs on the Palo Alto flood basin Tide gate.

- **Natural Environment.** Renewal, restoration, and growth of our natural resources and environment provide habitat, flood protection, storm water management, cleaner air, cleaner water, and human health enhancement. Record tree planting and pruning contributed to increase the value of benefits produced by 36,000 public trees to nearly \$18 million annually.
- **Zero Waste.** Reducing the amount of waste discarded in landfills is an important strategy for both GHG reductions and overall sustainability. In 2019, Council approved a new Disposable Foodware Ordinance, which is one of the most aggressive plastics bans in the nation. Council also approved a Deconstruction & Construction Materials Management Ordinance to require deconstruction of buildings (instead of demolition). The formal enforcement program for the recycling and composting ordinance continued with active engagement of commercial customers who were not sorting their refuse correctly. In November 2019, Palo Alto celebrated the opening of the expanded Household Hazardous Waste Reuse Zone where residents pick up products that were dropped off, but that are still in good shape.

The 2018 - 2020 SIP provides a roadmap through the end of 2020. For the City to continue progress towards its climate and sustainability goals and targets, a 2020 S/CAP Update is necessary to further study the highest impact actions to take. The 2020 S/CAP Update will include key actions in all the 7 areas described above: Energy, Mobility, Electric Vehicles, Water, Climate Adaptation & Sea Level Rise, Natural Environment, and Zero Waste.

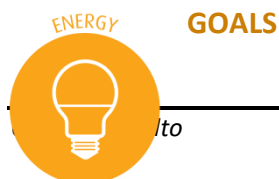
The City is fully committed to a sustainable future. The City owns, operates, and maintains a full-service utilities portfolio that provides electric, gas, water, and wastewater services to residents and businesses in Palo Alto. Palo Alto’s continued leadership in advancing sustainability commitments has succeeded mainly because of the continued cooperation across City Departments and diverse community stakeholders, and the support of City Council.

A one-page summary of the 2019 SIP Projects and Key Performance Indicators (KPIs) can be found in Attachment A: 2018 - 2020 Sustainability Implementation Plan 2019 Snapshot.

Previous Earth Day Reports have included an extensive review of the prior year’s Greenhouse Gas Inventory. However, this year’s Earth Day Report is primarily a 2018-2020 SIP progress report. For the first time, the 2019 Greenhouse Gas Inventory will be compiled by a consultant, AECOM, and that inventory will be completed by June 2020. The full results of the 2019 Greenhouse Gas Inventory will be included in the 2020 Sustainability and Climate Action Plan City Council Study Session tentatively scheduled for the early fall.

2018-2020 Sustainability Implementation Plan Progress Report

Energy SIP Progress Report



- ➔ Drive building efficiency and electrification through voluntary and mandatory programs
- ➔ Mitigate the impacts of natural gas use through carbon offsets (in the short term) and electrification (in the mid-to long-term)

KEY ACTIONS

- EGY1** - Continue to purchase carbon offsets to match natural gas emissions as a transitional measure. Evaluate potential local offset purchases.
- EGY2** - Achieve cumulative energy efficiency savings of 2-5 percent by 2020 through voluntary and mandatory energy efficiency measures in building
- EGY3** - Encourage voluntary electrification (and mandates as appropriate) of natural gas appliances through actions such as pilot programs, process streamlining, evaluating barriers (rates/fees, financing), and contractor/supplier engagement.
- EGY4** - Develop mandates that will result in even greater efficiency savings and decarbonization from 2020 to 2030. Potential evaluations include higher efficiency standards for new and existing buildings.
- EGY5** - Develop programs that will result in even greater efficiency savings and decarbonization from 2020 to 2030.
- EGY6** - Complete construction of a replacement facility for sludge incinerators, the City facility with the largest energy use.

KEY PERFORMANCE INDICATORS

- ➔ Building Energy Efficiency Savings
- ➔ Avoided Natural Gas Use due to Electrification Programs

In 2005, electricity and natural gas consumption in buildings accounted for 43% of the City’s overall GHG emissions. To reduce the GHG emissions from the buildings sector, the City has aggressively pursued all cost-effective energy efficiencies through voluntary and mandatory programs. In 2008, City Council adopted the city’s first Energy Reach Code that requires new construction projects to meet energy standards that are more stringent than California’s building energy efficiency standards. In 2013, City Council adopted a Carbon Neutral Electric Supply Plan, which commits the City to providing its customers with a 100% carbon neutral electricity supply, sourced from hydroelectric and renewable energy sources. In November 2019, City Council unanimously adopted an all-electric mandate ([CMR #10875](#)) for residential new construction projects effective April 1, 2020. Council further directed staff to return to Council with ordinances to mandate all-electric new construction projects for non-residential buildings and Accessory Dwelling Units in 2020. As part of its November 2019 decision, Council recognizes that an all-electric home is cheaper to build and operate over the lifetime of the building, and helps the City meet its GHG reduction goal. The all-electric mandate currently does not apply to existing buildings, which represent a much larger share of carbon emissions, but staff is working on options to present Council for potentially extending this mandate to

cover significant remodel projects. As of 2018, buildings are responsible for 32% of the City’s overall GHG emissions, comprising 43 million square feet of residential and 25 million square feet of commercial buildings.

More efficient buildings require less electricity, natural gas, and water, while saving customers money. For energy efficiency, City Council adopted the first set of Ten-Year Energy Efficiency (EE) Goals in 2007, with a cumulative savings target of 3.5 percent of the forecasted electric and gas usage between 2008 and 2017. These energy efficiency goals have since been updated, with the most recent set of ten-year energy efficiency goals adopted in 2017 to achieve cumulative electric energy savings of 5.7 percent and gas savings of 5.1 percent between 2018 and 2027. The Utilities Department oversees a portfolio of energy efficiency programs that range from customer rebates to direct installation assistance to a home energy advisory hotline for residential and nonresidential customers. Besides rebate programs, the Utilities Department also runs workshops and outreach campaigns to promote energy efficiency. In addition to ongoing EE programs, Palo Alto’s Energy Reach Code in 2019 required all new construction projects to exceed the state’s building energy efficiency standards by a minimum of 10 percent. The energy efficiency savings, from both EE programs and the City’s Energy Reach Code, are reflected in the Energy SIP Key Performance Indicator (KPI) for Building Energy Efficiency Savings.

Table 1 shows the City’s Building Energy Savings KPI, under which it reports both electric efficiency savings and gas efficiency savings. In FY 2018, the reported Electric Efficiency savings was 5,957 MWh, or 0.63 percent of the City’s total electric use. This is equivalent to the total power used by 946 California homes in a year. Similarly, FY 2018 Gas Efficiency savings was 251,718 therms, or 0.97 percent of the City’s total gas use. The avoided GHG emissions from the gas efficiency savings is equivalent to taking 290 passenger vehicles off the road for a year. In FY 2019, the reported Electric Efficiency savings was 5,371 MWh, or 0.61 percent of the City’s total electric use. This is equivalent to the total power used by 853 California homes in a year. Similarly, the FY 2019 Gas Efficiency savings was 128,333 therms, or 0.44 percent of the City’s total gas use. The avoided GHG emissions from the gas efficiency savings is equivalent to taking 148 passenger vehicles off the road for a year.

The City did not meet Council-adopted EE goals for FY 2019 and is not on track to meet FY 2020 EE goals. Since the standards for energy efficiency have been raised to such a high level, incremental, claimable efficiency savings are difficult to achieve. The City has, however, executed contracts for new EE programs and will be launching new programs for residential customers as well as small to medium business customers by mid-2020. The City is also implementing new systems to simplify tracking of EE savings and all-electric buildings in Palo Alto.

Table 1: Energy SIP KPI: Building Energy Efficiency Savings

Percent Energy Saved / Total Energy Usage	FY17	FY18	FY19
Percent Electric Efficiency Savings	0.65%	0.63%	0.61%

Percent Gas Efficiency Savings	0.81%	0.97%	0.44%
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Source: City of Palo Alto Utilities

Large decreases in natural gas use are needed to achieve Palo Alto’s 80x30 goal. While gas efficiency will play a part in reducing emissions, building electrification will need to play an even larger role, even though it is one of the more expensive forms of GHG reduction available. Space heating and water heating in buildings are two dominant uses of natural gas, followed by commercial cooking, and a significant amount of conversion to electricity will need to be done for these uses. Based on a recent study commissioned by the California Energy Commission (CEC), building electrification using efficient space and water heating technologies can reduce natural gas consumption by roughly 60%, and is the lowest-cost and lowest-risk pathway to meet the state’s decarbonization goal.

City staff is working to overcome the many barriers to building electrification, which range from a lack of awareness among the public on efficient electric alternatives to gas appliances, to the high upfront cost of electrifying existing buildings, to the lack of familiarity among contractors with efficient electric heat pump appliances. Palo Alto is addressing these barriers through different approaches, from offering heat pump water heater rebates and project assistance, providing educational resources through online resources and workshops, and working with other local governments as well as community groups to promote efficient electric alternatives to gas appliances.

Table 2 shows the Avoided Natural Gas Use Due to Electrification Programs KPI, expressed in therms. As of end of 2018, this is based on the number of rebated heat pump water heater units (10 units rebated in 2017, 26 units in 2018, and 8 units in 2019). Since heat pump water heaters have an expected service life of 13 years, the avoided annual gas use is additive across the years. The City did not meet its targets for 2019, due to several factors. Retrofitting gas appliances in existing buildings can be significantly more expensive than a like-for-like gas appliance replacement, especially in cases where electrical infrastructure upgrade is necessary. Besides the higher upfront purchase cost of heat pump equipment, the operational cost of heat pump equipment may also be higher than comparable gas equipment depending on the utility rate tier that the customer is billed at. Outside of Palo Alto, only a handful of California utilities currently offer customer rebates to promote building electrification.

Table 2: Energy SIP KPI: Avoided Natural Gas Use Due to Electrification Programs

Avoided Natural Gas Use Due to Electrification Programs	2017	2018	2019
Rebated heat pump water heater units	10	26	8
Cumulative gas savings (therms)	1,453	4,916	6,008

Source: City of Palo Alto Utilities

Over the next few years, the city will expand its menu of electrification program offerings. Staff is developing a 2-year (2020-2021) Building Electrification Work Plan ([CMR #11106](#)) that covers customer programs and outreach activities, as well as strategic planning to position the electric

and gas utility to adapt to changing demand in the coming decades.

Finally, the City of Palo Alto's Regional Water Quality Control Plant (RWQCP) replaced the City facility with the largest energy use - the sewage sludge incinerators - with a more environmentally friendly Sludge Dewatering and Truck Loadout Facility. The updated treatment process will reduce climate-warming greenhouse gas emissions by approximately 15,000 metric tons of carbon dioxide equivalent per year- this approximates the carbon dioxide emissions of 3,000 passenger cars. The replacement technologies dewater the sludge and send it to farming areas to produce agricultural soil supplements.

Mobility SIP Progress Report



GOALS

- ➔ Reduce Single Occupancy Vehicle (SOV) travel
- ➔ Make it more convenient not to drive

KEY ACTIONS

- MOB1** - Implement solutions and incentives to reduce SOV travel
- MOB2** - Advocate for regional transportation solutions that reduce emissions and congestion
- MOB3** - Fund the TMA with the goal of reducing SOV commute-trips downtown by 30 percent
- MOB4** - Increase bicycle boulevard mileage and redesign streets to support active and non-SOV modes of travel
- MOB5** - Provide incentives for the appropriate mode of travel
- MOB6** - Explore housing strategies (such as transit-oriented development, trip caps, parking maximums and unbundling parking) that reduce auto trips

KEY PERFORMANCE INDICATORS

- ➔ SOV commute mode share
- ➔ Transit ridership
- ➔ Commute Benefits participation by City Employees

Transportation has consistently been a top City Council priority in some form or another for the last six years and will continue to be a priority for 2020. Most transportation activities also support the City Council's climate change priority. In response to the increasing prominence of mobility issues in Palo Alto and throughout the region, transportation resources and functions have been transitioned to a separate Office of Transportation, moving out as a division of the Planning & Community Environment Department (now Planning and Development Services).

Road transportation is the greatest single source of local GHG emissions, at approximately 94 percent, which includes local (internal) trips as well as commute trips. In the U.S., the world's second-largest producer of greenhouse gases, transportation makes up the largest share of emissions at 28 percent. Transportation also makes up the largest share of emissions in California, at 41 percent. Building a sustainable transportation system that provides convenient, affordable alternatives to the automobile requires a wide range of strategies, including:

- **Transportation Demand Management (TDM).** TDM refers to strategies that improve transportation system efficiency and reduce congestion by shifting trips from single occupant vehicles to collective forms of transport, including mass transit and carpools. TDM is a critical component of a comprehensive strategy to reduce traffic congestion, single-occupancy vehicles (SOV), and parking demand. In January 2015, the City of Palo Alto, in collaboration with local businesses and residents, supported establishment of a transportation management association (TMA) for the downtown area to coordinate TDM activities. The success of this effort and its potential to expand to other areas of the City will depend on securing ongoing funding and on the committed participation of employers who face parking and traffic challenges in downtown. In 2018, Palo Alto launched a \$1 million Federal Transit Administration (FTA) funded Fair Value Commuting (FVC) Demonstration project to reduce SOV driving in the Bay Area. The project tested a package of strategies to tackle these challenges. From July through December 2019, Palo Alto - along with the cities of Menlo Park, Mountain View and Cupertino - piloted the use of commuter trip reduction software, a multimodal trip planning app, and commuting incentives. The lessons from the FVC pilots are currently being compiled to help shape how existing employers continue pilot efforts, whether other employers follow suit, and how policymakers can complement and further encourage such efforts.
- **First / Last Mile Connections.** Many people live or work within a mile from a transit station or bus stop; however, distance, perception of safety, and inconvenience may deter them from using transit, so the entire trip is made by SOV simply for lack of convenience of a small but crucial segment of the trip. Currently, the Palo Alto shuttle, bicycling, and walking are the best first/last mile options for most of Palo Alto, with 61% of Palo Residents living within a quarter mile walk of transit. The current Palo Alto Crosstown Shuttle (CTS) provides a free north-south shuttle service from the Palo Alto Transit Center to Crescent Park, Midtown, the Charleston Rd. area, and several community centers, libraries, senior centers, and schools in between. Ridership is approximately 4,900 passenger trips per month, consisting mostly of middle school students and senior citizens. In December 2019, Council approved a contract with Transmetro as the new shuttle services provider, which will allow for the continued operation of the Crosstown Shuttle without a gap in service. The new service also comes with expanded performance reporting and customer service tools such as real-time shuttle information, automatic passenger counters, and a 24-hour emergency contact number. City Council also approved extending the Bike share pilot program and staff are currently finalizing the guidelines for the program, which will keep the city largely on the sidelines while private companies compete for riders. The city's guidelines would

include rules pertaining to how bikes and scooters should be parked as well as prohibitions on blocking pedestrian areas and access to buildings.

- **Bicycling.** Palo Alto dedicated its formal bikeway system—one of the nation’s first-in 1972. Bikeways have since become commonplace, and considerable progress has been made in overcoming barriers to bicycle travel in and around Palo Alto. Palo Alto’s bikeway network consists of on-road bicycle lanes, bicycle boulevards and bicycle routes, off-roadway shared-use paths and bridges and bicycle parking facilities. Fourteen underpasses and bridges span barriers such as freeways, creeks and railroad tracks. Palo is a leading city nationwide for adult bicycle commuting, up from 5.8% in 1990 to 7.9% in 2018. More impressively, Palo Alto high school bicycle commuting is up from 12% in 2001 to 51% in 2019. Residents and commuters also celebrated the 10th Anniversary of Bike Palo Alto Day. The City has also made significant progress in implementing its [2012 Bicycle + Pedestrian Transportation Plan](#).
- **Housing/Transportation Land Use Relationship.** Building a sustainable transportation system also requires thoughtful planning around housing. Building housing near transit, for example, can reduce vehicle miles travelled. City Council adopted the Housing Work Plan Implementation Ordinance ([Ordinance #5460](#)) on April 1, 2019. As discussed in the City Manager Report, the Housing Work Plan Implementation Ordinance was drafted to amend various sections of the Palo Alto Municipal Code to implement new policies to spur greater housing production, such as the Housing Incentive Program ([CMR #9974](#)). In addition, the Planning and Development Services Department and the [North Ventura Coordinated Area Plan](#) Working Group has hosted several community workshops to provide opportunities for meaningful input for a walkable, mixed-use neighborhood.

In October 2019, Council approved the 2019 Transportation Work Plan ([CMR #10692](#)), a high-level summary of the Office of Transportation initiatives, programs, and projects. The work plan focus areas include mobility (i.e., Safe Routes to School, transit agency coordination, and the Palo Alto Shuttle), bike boulevard implementation and other traffic calming programs, supporting the Highway 101 Pedestrian/Bike Bridge Project at Adobe Creek, other capital improvement projects, and evaluating/implementing parking management efforts. The transportation work plan also highlights new ways the Office of Transportation and the City are approaching outreach and community engagement for transportation issues.

As shown in Table 3, in 2019 SOV commute trips to downtown Palo Alto continued a downward trend from 2015, with drive alone trips being reduced 15 percent. Transit ridership increased 21 percent since 2015 and rideshares increased 3 percent. However, for non-downtown locations, drive alone trips are 78% of all trips, with transit at 3% and carpool at 10%.

Table 3: Mobility SIP KPI: SOV Commute Mode Share

Commute Mode (Downtown Palo Alto)	2015	2016	2017	2018	2019
Drive Alone	57%	56%	53%	49%	42%
Transit	18%	18%	20%	27%	39%
Carpool	5%	6%	8%	9%	8%

Source: Palo Alto Downtown TMA Survey

Although Palo Alto is served by various modes of public transit, the most readily available data is for Caltrain Average Weekday Ridership (AWR). As shown in Table 4, Caltrain Average Weekday Ridership at all Palo Alto Caltrain stations decreased by 439 riders between 2019 and 2018, which is consistent with a 2.3% decrease in overall Caltrain ridership. The Palo Alto Downtown Caltrain Station has the second highest AWR after San Francisco Fourth and King.

Table 4: Mobility SIP KPI: Transit Ridership

Transit Ridership	FY2016	FY2017	FY2018	FY2019
Caltrain Average Weekday Ridership	9,052	9,072	9,457	9,018

Source: Caltrain

As shown in Table 5, overall City of Palo Alto employee participation in available commute benefits increased by 60 participants between 2018 and 2019. Palo Alto’s FTA Fair Value Community Demonstration project launched a pilot program in 2019 to improve employee participation in available commute benefits. The pilot included the creation of a Commute Concierge to assist staff with navigating and utilizing available commute benefits. The number of employees who requested a Go Pass (which can be used on Caltrain between all zones, seven days a week, and is currently offered only to benefited employees assigned to City Hall, Development Center and Downtown Library) increased by 11 participants; the number of employees ordering transit, parking, or bicycle benefits expenses through GoNavia, a commute benefit ordering website, increased by 35 participants, and employee participation in walking or carpooling to work increased by 14 participants.

Table 5: Mobility SIP KPI: Commute Benefits Participation by City Employees

Commute Benefit	2016	2017	2018	2019
Go Pass	185	198	190	201
GoNavia (Commuter Benefit Ordering Website)	55	62	49	84
Walk/Carpool	29	28	36	50
Total Participation	269	288	275	335

Source: City of Palo Alto Human Resources

EV (Electric Vehicle) SIP Progress Report



GOALS

- ➔ Accelerate EV penetration for both PA-based & inbound vehicles
- ➔ Make “Going EV” more convenient and economical than using fossil fueled vehicles

KEY ACTIONS

- EV1** - Develop programs and ordinances to streamline City processes for EVSE installations

- EV2** - Consider requiring EV Readiness and charger installation in existing buildings
- EV3** - Evaluate programs to expand EV charger deployment on private property, including rebates, incentives, outreach, policies, and financing options (e.g. on-bill financing) to stimulate charging infrastructure and EV ownership/use.
- EV4** - Build out public and private infrastructure to support rising EV penetration, including anticipated local ownership of 4-6,000 EVs by 2020
- EV5** - Expand EV deployment in City fleet
- EV6** - Support regional EV group-buy programs
- EV7** - Build public awareness of EV options through communications, workshops, and Ride-and-Drive events.

KEY PERFORMANCE INDICATORS

- ➡ EV penetration (registered in Palo Alto)
- ➡ GHG emissions avoided through EVs

As discussed in the Mobility section, transportation currently accounts for approximately 94 percent of the community’s remaining GHG emissions. Increasing the number of EVs replacing fossil fuel vehicles and building EV infrastructure can help reduce transportation related GHGs. The 2016 S/CAP Framework set a target of 90 percent EV market share in Palo Alto by 2030, with half of all cars commuting into Palo Alto to be electric. The adoption rate of EVs in Palo Alto is currently the highest in the country. A recent report shows that in 2017, 1 in 3 new vehicles (29 percent) in our community was an EV. For comparison, in 2017 the EV market share for new vehicles in California was approximately 5 percent. Based on vehicle registration data from the Department of Motor Vehicles and California Air Resources Board vehicle counts, there were an estimated 4,500 EVs (approximately 7 percent penetration) registered in Palo Alto at the end of 2019.

GHG reduction estimates due to EV adoption are approximately 2.4MT/year/car. If we assume that there are currently 4,500 vehicles registered in Palo Alto, these cars will displace approximately 10,800 MT CO₂e per year.

City of Palo Alto’s Utilities, Planning and Development Services, Public Works Departments, and the Office of Sustainability have a number of coordinated initiatives in place to accelerate the adoption of electric vehicles in the Palo Alto community, including addressing barriers in municipal code and City and State-mandated policies. It is estimated that 1 in 7 homes in the community has an electric vehicle. City of Palo Alto Utilities (CPAU) offers a number of programs to facilitate EV adoption (e.g. rebates for EV charger installations, bulk-buy program, educational events/tools, rebate on utility connection fees triggered by EV charger installation). In September 2019, staff presented a 3-year (2019-2021) EV workplan ([9/4/19 UAC Memo](#)) to increase adoption of EVs to the Utilities Advisory Commission. The City has also identified a 5-

year replacement strategy to expand EV deployment in City Fleet. The City fleet currently has 425 vehicles: 12 are EVs, 7 are hybrids, and 74 are alternative fuel vehicles, with 35 percent of nonemergency vehicles using alternative fuels or technology.

The California Energy Commission (CEC) is partnering with local energy agencies to launch an incentive program for the installation of electric vehicle charging stations throughout Santa Clara and San Mateo counties, through their California Electric Vehicle Infrastructure Project (CALeVIP). CALeVIP is funded by the CEC and administered by the Center for Sustainable Energy (CSE), a not-for-profit corporation. In August 2019, the CEC awarded \$1 Million in grant funding for the City to provide cash rebates for installation of Electric Vehicle (EV) chargers at multi-family residential, mixed use, and commercial buildings.

In November 2017, in an effort to reduce GHGs associated with waste collection services, the City funded a pilot project for the City’s waste collection contractor, GreenWaste of Palo Alto, Inc. (GreenWaste), to purchase and use North America’s first full-sized all-electric automated waste collection truck. The electric truck has been operating for over two years, saving approximately 6,000 gallons of diesel fuel and reducing 78 metric tons of CO₂e per year. GreenWaste staff and the vehicle manufacturer “BYD” have gained a better understanding of this vehicle and its capabilities and BYD is already developing the next prototype vehicle with a goal to have the battery capacity completely meet the City’s waste collection needs in terms of miles, lifts, and hours by 2023. The forecasted needed battery capacity is between 375 kWh and 400 kWh. At that point, future GreenWaste replacements could potentially be electric vehicles.

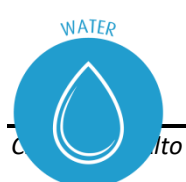
As shown in Table 6, the number of EVs registered in Palo Alto has steadily increased since 2015, likely as a result of a combination of EV adoption programs, rebates and incentives, increased public EV infrastructure, and improvements in EV technology and battery range. GHG emissions displaced from EVs has also increased. The number of non-gas cars is expected to keep rising, with 70% of current drivers of electric vehicles saying they are likely to get a second vehicle, according to a department survey of residents. Of those who own them, 73% say they charge their vehicles at home. Meanwhile, 70% of survey responders who don't drive an electric vehicle say they would be "extremely interested" in getting one if they knew EV charging would be readily available.

Table 6: EV SIP KPIs: Estimated EV penetration and GHG emissions avoided through EVs

EV SIP KPIs	2015	2016	2017	2018	2019
EV Penetration (registered in Palo Alto)	1,200	2,000	3,100	4,000	4,500
GHG emissions avoided (MT CO ₂ e)	2,880	4,800	7,440	9,600	10,800

Sources: CPAU, California Air Resources Board, and DMV Vehicle Registration Data

Water SIP Progress Report



GOALS

- ➔ Reduce inefficient water consumption

- Ensure adequate water supply from sustainable sources
- Protect canopy, creeks, groundwater, and the bay

KEY ACTIONS

- WAT1** - Develop programs and ordinances to maximize water efficiency
- WAT2** - Develop programs and ordinances to facilitate the use of non-traditional, non-potable water sources (e.g. graywater, stormwater, black water, etc.)
- WAT3** - Develop Northwest County Recycled Water Strategic Plan and explore the most effective uses of recycled water within the RWQCP service area (including Palo Alto)
- WAT4** - Develop a City-wide Green Stormwater Infrastructure Plan to treat flows before discharging into creeks and waterbodies, and (when possible) capture and infiltrate stormwater back into the hydrologic cycle
- WAT5** - Reduce salinity of Palo Alto's recycled water to increase use

KEY PERFORMANCE INDICATORS

- Per capita water use
- Percentage recycled water use

Water is a limited resource in California, and its availability is affected by drought and will be further impacted by climate change and potential changes to the state water system. The sustainability goals are geared toward reducing water use; improving water quality; developing opportunities to reuse water for the Regional Water Quality Control Plant; and protecting the tree canopy, the San Francisco Bay, local waterways, and the groundwater aquifer.

The Regional Water Quality Control Plant (RWQCP) is a local source of drought-proof, sustainable water, only a small fraction of which is currently being used for irrigation and toilet flushing. The RWQCP treats wastewater from Palo Alto, Mountain View, and four other service territories, and generates approximately one million gallons of high-quality recycled water each day. Recycled water is used in Palo Alto to irrigate the City's municipal golf course and Greer Park as well as for RWQCP processes. Investments in pipeline expansions and additional treatment facilities are needed to increase the amount of water reused from the facility. On November 18, 2019, Council approved a Partnership Agreement that gives the Santa Clara Valley Water District (Valley Water) ([CMR #10627](#)) an option to acquire about half of the treated wastewater produced by the RWQCP. The Agreement addresses multiple objectives, including diverting treated wastewater discharge from the San Francisco Bay, increasing the use of treated wastewater from the RWQCP, and displacing potable imported water where appropriate and feasible. The Agreement with Valley Water and the City of Mountain View (Mountain View) is comprised of three main elements:

1. Valley Water will contribute \$16 million, of approximately \$20 million total cost, to

design and construct a small salt removal facility at the RWQCP in Palo Alto to improve the quality of non-potable recycled water used in Palo Alto and Mountain View. The improved water will be better for salt-sensitive plants and will, in the short-term, enable Mountain View to connect around 60 new customers to the distribution system.

2. About half the treated wastewater produced by the RWQCP will be transferred to Valley Water for use in the county south of Mountain View. Valley Water will pay \$1 million per year to be allocated between all the wastewater agencies that commit treated effluent to the transfer.
3. Palo Alto and Mountain View will have a future option to request a new potable or non-potable water supply from Valley Water if needed. Any new water resource will be supplied by Valley Water at cost.

Water reuse will increase in importance as California’s population expands and climate change and new environmental regulations pose uncertainties in imported water supply availability. Palo Alto, in collaboration with the Valley Water District, developed a [Northwest County Recycled Water Strategic Plan](#) to identify the best potable and non-potable options for water reuse in the RWQCP service area. The Strategic Plan evaluates potential additional uses of recycled water Study Area through the year 2030, identifies recycled water concepts that look beyond individual agency boundaries, and evaluates previously recommended recycled water projects with new options developed through the Strategic Plan.

The City has multiple programs and ordinances to facilitate the use of non-traditional, non-potable water sources including rebates for rainwater capture and incentives for graywater systems. In May 2019, City Council accepted a Green Stormwater Infrastructure (GSI) Plan ([CMR #9883](#)), which outlines how the City intends to transform its stormwater infrastructure over years to slow the flow of storm runoff, increase infiltration, recharge groundwater, increase irrigation and other uses, and remove contamination. Related to the requirements of the GSI Plan, staff drafted a policy to integrate GSI and Sustainability in City policies, plans, and the Capital Improvement Project process. Staff is currently developing a Sustainability and GSI Checklist for the CIP process.

Efficient water use is a top priority, and the City - through Valley Water - offers a variety of programs including indoor and outdoor water use surveys, landscape conversion rebates, irrigation equipment rebates, and many water-related events and workshops throughout the year. Whether a water supply shortage exists or not, “Making Water Conservation a California Way of Life” is a concept embraced by the City.

As shown in Table 7, per capita water use decreased from 2018 to 2019, but is still not as low as 2017. The percentage of recycled water used compared to available capacity is not expected to change significantly until a water reuse project is identified and implemented.

Table 7: Water SIP KPIs: Per Capita Water Use and Percentage Recycled Water Use

Water SIP KPIs	2017	2018	2019
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Per Capita Water Use (GPCD - Gallons Per Capita per Day - of potable water)	134	142	137
Percentage Recycled Water (RW) Use (Volume of RW / RW filter Capacity)	16%	18%	17%

Source: City of Palo Alto Utilities

Reducing water use contributes to GHG reductions although the link is not as significant in Palo Alto as it is in some other parts of the state because the San Francisco Public Utilities Commission (SFPUC) system is gravity-fed, requiring no pumping. Energy used to heat or pump water in Palo Alto’s residents and businesses take advantage of the City’s carbon neutral gas and electricity supplies. GHG reduction related to water use in Palo Alto is not specifically tracked nor included in the City’s GHG reduction statistics.

Accomplishments in Sustainability and Climate Action Plan Framework Areas

When the 2016 S/CAP Framework was adopted by Council, staff anticipated the need to update the S/CAP in 2020. The 2018 - 2020 SIP provides a work plan through the end of 2020. In order to continue progress towards our climate and sustainability goals and target, staff has initiated planning and timeline discussions for a 2020 S/CAP Update. While the 2018 - 2020 SIP focused only on four areas of activity - Energy, Mobility, Electric Vehicles, and Water - the 2020 S/CAP Update will include those four areas and add Climate Adaptation and Sea Level Rise, Natural Environment, and Zero Waste. These S/CAP Framework chapters were selected based on urgency of need, impact on climate and sustainability goals, and alignment with Council priorities.

Climate Adaptation and Sea Level Rise



GOALS

- ➔ Draft a Sea Level Rise Adaptation Policy for Council review and approval (March 2019)
- ➔ Complete a Sea Level Rise Adaptation Vulnerability Assessment and Implementation Plan Chapter for the 2020 S/CAP Update

The key 2019 accomplishments for climate adaptation and sea level rise include:

1. **Council adoption of Palo Alto’s Sea Level Rise Adaptation Policy.** Staff drafted a Sea Level Rise Adaptation Policy which reflects technical input from across City Departments; sea level rise subject matter experts from the San Francisco Estuary Institute, Bay Area Climate Action Network, University of California Berkeley climate and sea level rise researchers, and the Berkeley Climate Readiness Institute. The policy was also peer review by the San Mateo County Office of Sustainability-Climate and Sea Level Rise Planning and the Santa Clara County Office of Sustainability. The policy received public review in February 2019, and City Council reviewed and accepted the policy on

The goal of the policy is to bridge the high-level policy statements about sea level rise that are found in various City plans (e.g., S/CAP Framework, 2030 Comprehensive Plan, Threat and Hazard Identification Risk Assessment) with an eventual nuts-and-bolts Sea Level Rise Adaptation Plan. The Plan will serve as the Sea Level Rise Implementation Plan chapter of the 2020 S/CAP Update. The policy includes goals and procedures and the roles and responsibilities of City Departments in preparing for sea level rise.

2. **The release of a Request for Proposals (RFP) for Consultant Services for a Sea Level Rise Vulnerability Assessment and Sea Level Rise Adaptation Plan.** Staff released an RFP for Sea Level Rise Adaptation consultant services in November 2019. Services will include:

- a) A vulnerability assessment of how sea level rise and related rising shallow groundwater levels will impact Palo Alto's infrastructure, neighborhoods, economy, and Baylands habitat
- b) Development of a Sea Level Rise Adaptation Plan for Council approval
- c) Community engagement and public meetings
- d) Tool development and an education strategy for staff and the public
- e) Research and technical guidance

The contract is scheduled for Council approval on April 6, 2020.

3. **Strategy to Advance Flood protection, Ecosystems and Recreation (SAFER Bay) Project Draft Feasibility Report.** [The draft feasibility report](#) was released by the San Francisquito Creek Joint Powers Authority in June 2019. The report evaluates flood protection alternatives along the San Francisco Bay shoreline from the San Francisquito Creek border to the Palo Alto/Mountain View city boundary and it describes levee alignments along the Baylands. The alignments integrate a mix of traditional levee alignments, horizontal levees, and habitat restoration and the mechanical equipment needed to support them. Staff reviewed the report and plans to present it to Palo Alto City Council in 2020 in conjunction with the South San Francisco Bay Shoreline Phase II Feasibility Study (Shoreline Study) led by the U.S. Army Corps of Engineers and Valley Water. The Shoreline Study leverages initial SAFER recommendations.
4. **Palo Alto Horizontal Levee Pilot Project.** A horizontal levee is a gently sloped, irrigated, and vegetated flood control levee along a shoreline which provides key transitional habitat, storm surge attenuation, and wastewater polishing. Horizontal levees incorporate green infrastructure into traditional flood control infrastructure. The pilot location is a small section along Harbor Marsh at the east end of Embarcadero Road near Byxbee Park and the Regional Water Quality Control Plant. Although designed to be a permanent system, the project is considered a pilot due to its relatively small size and goal of collecting information and data for inclusion in the design of the larger flood improvement projects (e.g., SAFER Bay). As such, the pilot project would be designed for

integration into the proposed SAFER Bay levee alignment. A preliminary design was completed in 2019 and additional \$500,000 in grant funds was secured from Coastal Conservancy Proposition 1 to progress the design to a 60% project definition and initiate permitting. Please refer to the [Palo Alto Horizontal Levee Pilot Project Factsheet](#) for more information.

5. [Regional Water Quality Control Plant \(RWQCP\) New Primary Outfall Project](#). This project includes a new Outfall pipeline to convey treated effluent to the Bay, as well as rehabilitation of the existing 52-year old outfall pipe, and pump replacement for effluent discharged to Renzel Marsh. The new Outfall pipeline will provide reliable transport of treated wastewater effluent under projected climate change and sea level rise scenarios. Construction will begin in fall 2020. Construction will occur between the months of October and January between 2020 and 2023 to protect nesting and migratory birds.

6. **Palo Alto Flood Basin Tide Gate Repairs**. During heavy rainfall, stormwater runoff flows from three creeks (Adobe, Barron, and Matadero) towards the Bay, where it is detained by the surrounding earthen levee and tide gates known as the Palo Alto Flood Basin. One of the 16 gates is mechanical, and it is used to release water to the Bay as needed. Without this system in place, heavy storm events combined with seasonal high tides could push storm runoff upstream, over creek channels and onto streets and private property. The existing tide gate was built by Valley Water in 1956 and is in need of repair. The new tide gate will be made adaptable to sea level rise scenarios. Construction will begin in fall 2021 by Valley Water and occur only between September and January. The project is anticipated to end in January 2025. The short construction season is required to protect nesting and migrating birds. Public meetings and structure tours are scheduled for mid-March and April.

Natural Environment



GOALS

- ➔ Value and enhance the commonwealth for future generations
- ➔ Renew, restore and enhance resilience of our natural environment
- ➔ Align S/CAP planning for the Natural Environment with other City plans
- ➔ Maximize carbon sequestration and storage in the Natural Environment

Sustainability is not only about mitigation, adaptation, and resilience, but also regeneration - identifying opportunities for renewal, restoration, and growth of our natural resources and environment. Palo Alto will continue to build and restore its natural resources, “common wealth” (the wealth we share in common, including the natural environment and its ecosystem services, and civic infrastructure), and the bio-capacity that supports it, including soils, tree canopy, biodiversity, and other components. Enhancing and maintaining these resources will use natural areas and systems to provide habitat, flood protection, storm water management,

cleaner air, cleaner water, and human health enhancement.

Palo Alto is one of 3,409 cities in the United States that hold the Arbor Day Foundation’s “Tree City USA” status due to its dense urban canopy and more than 300 different species throughout streets, parks, and other landscaped areas. Protecting, maintaining, and enhancing the urban forest is a high priority for the City. City of Palo Alto Utilities was recognized with the Tree Line USA award by the National Arbor Day Foundation for the fifth year in a row.

In February 2019, Palo Alto City Council approved the Urban Forest Plan Second Edition ([CMR #10034](#)). In addition, the City encompasses a variety of natural plant communities within a densely built environment. The Baylands and undeveloped land in the western hills contain undisturbed plant communities and habitat for a variety of species. The following natural plant communities exist within the City’s boundaries: 1) Annual Grassland (various locations); 2) Coastal Scrub (foothills); 3) Chamise Chaparral (foothills); 4) Forests (Redwood, Montane Hardwood-Conifer, Montane Hardwood in foothills); 5) Oak Woodland (foothills); and 6) Wetlands (Baylands).

Record tree planting and pruning contributed to increase the value of benefits produced by 36,000 public trees to nearly \$18 million annually. This segment of the tree population represents approximately 9 percent of Palo Alto’s land area. Proposals have been requested to create a canopy cover analysis tool which will allow calculation on any selected area from the size of an individual parcel to citywide. Citywide tree canopy cover was 32.8% in 1982 and 37.6% in 2010. Analysis of canopy cover trends will inform actions to reach goals identified in plans.

Staff is continuing development of a carbon sequestration project designed to plant as many as 10,000 trees identified as viable opportunities in South Palo Alto on private properties.

Zero Waste



GOALS

- Achieve a 95 percent diversion rate by 2030
- Improve generation habits and reduce the total amount of material sent to the landfill
- Provide local recycling and composting resources
- Minimize energy and pollution from waste collection
- Provide consistent maintenance of the Palo Alto landfill cap and gas control systems to minimize fugitive emissions

Reducing the amount of waste discarded in landfills is an important strategy for both GHG reductions and overall sustainability. Diverting waste from landfills occurs through product changes, material use reduction, reuse, recycling, and composting. These actions promote a “circular economy” where materials, water and energy do not create waste but instead are

used as resources. Getting to the 95% goal will require refinement of existing programs, the addition of new policies and programs, and working with businesses and residents that purchase products that will eventually become waste. The [2018 Zero Waste Plan](#) identifies new programs and initiatives needed to meet the City's sustainability and zero waste goals. With the City's diversion rate at 82%, progress towards additional diversion is planned with the implementation of key initiatives identified in the 2018 Zero Waste Plan including the following that support waste reduction and diversion:

1. **Disposable Foodware Ordinance.** In June 2019, Council approved one of the region's strictest restrictions on plastics with a new ordinance to ban disposable foodware items to reduce plastics in the environment and waterways ([CMR #10148](#), [#10471](#)). The ordinance requires the following:

- Banned plastic produce bags, straws, utensils, stirrers, drink plugs, food and drink picks, and other small disposable plastic items.
- Reusable or compostable alternatives to the banned items.
- Compostable items must be acceptable in the City's compost collection program.
- Compostable alternatives to be issued only upon request or via a self-serve station.
- Compostable produce bags are required at local markets and grocery stores.

Outreach to communicate the new requirements to the community and the affected food service establishments was developed and conducted in late 2019 in preparation for the implementation of the new requirements to be effective in January 2020. Patient rooms at hospitals and clinics are exempt from the policy.

2. **Transition to Reusable Foodware.** A key component of the Foodware Packaging Reduction initiative of the 2018 Zero Waste Plan is to reduce the amount of disposable single use foodware packaging generated in Palo Alto. In 2019, the food vendors at the Earth Day event and May Fete Fair were required to use reusable foodware. A reusable foodware service vendor was contracted by the Zero Waste team to help facilitate this effort.
3. **Deconstruction & Construction Materials Management Ordinance.** Deconstruction, the careful disassembly of building components to maximize reuse and recycling became a new ordinance in June 2019 ([CMR #10148](#), [#10472](#)). The new ordinance requires deconstruction (instead of demolition), salvage for reuse and source separation of materials for increased recycling. Through the new ordinance, valuable materials that would have been destroyed by traditional demolition will be recovered for reuse and increased diversion. The new requirements will increase reuse and recycling, conserve natural resources, reduce greenhouse gas emissions, and encourage Zero Waste. This ordinance affects approximately 115 construction projects annually and will be effective July 1, 2020. Outreach to communicate the new requirements to the community and the affected projects is being developed and strategies for communication and process

are created.

4. [Household Hazardous Waste Reuse Zone](#). The Household Hazardous Waste (HHW) Program expanded and held an inaugural reopening celebration of its HHW Reuse Zone to showcase its new bright and eye-catching colorful design. The HHW Reuse Zone consists of good quality, gently used household products that were donated by the public. Items such as paint, motor oil, and cleaning products are dropped off at the HHW Station and screened by staff to make sure it can then be placed in the Reuse Zone. Many of the items brought into the HHW Station for disposal are in good condition and typically come from a small home project that doesn't require the whole can of paint, or a move where someone must clear out their cleaning supplies. Before discarding or even recycling these items they should be used to completion, which is the best use of the products and the resources it takes to create them. By expanding the existing reuse program and encouraging the public to participate, the goal is for the community to reuse household items that would otherwise be discarded.
5. **Enforcement Program for Commercial Customers.** The active engagement of commercial customers not sorting their refuse correctly continued. The goal of this enforcement is to clean up the City's recyclable materials so that they can be marketed beneficially and improve waste diversion from landfills.

Awards and Other Accomplishments

Awards

- The City of Palo Alto Utilities won the Smart Energy Provider award in recognition of its energy efficiency, distributed generation, and environmental initiatives that support a goal of delivering low-cost, quality, safe, and reliable electric service. This is the first year the American Public Power Association has awarded this designation to public power utilities.
- City of Palo Alto Utilities received the 2019 National Energy Innovator Award for its Home Efficiency Genie program.
- City of Palo Alto Utilities was recognized by the American Public Power Association (APPA) as a Reliable Public Power Provider (RP3) Diamond level - the highest honor - for proficiency, sound business practices, and a utility-wide commitment to safe and reliable delivery of electricity, system improvement, energy efficiency and workforce development.
- City of Palo Alto Utilities was recognized with the Tree Line USA award by the National Arbor Day Foundation for the fifth year in a row.
- For the second year in a row, the City of Palo Alto received an "A" score for reporting on our climate-related data to the CDP (Carbon Disclosure Project). Palo Alto joins only 43 other cities - out of over 800 cities who report to the CDP - in the Leadership Scoring band for demonstrating best practice standards across adaptation and mitigation, setting ambitious but realistic goals and making progress towards achieving those goals, and for having strategic, holistic plans in place to ensure the actions being taken will reduce

climate impacts and vulnerabilities of the citizens, businesses and organizations residing in our city.

Other Accomplishments

- In September 2019, the City partnered with Hewlett Packard to complete one of the City's largest solar array projects. Located on HP's headquarters, the project uses 3,372 solar panels that are projected to generate 2,355 megawatt hours of energy, enough electricity to power 263 average Palo Alto homes for a year. The system is also expected to offset 1,700 metric tons of carbon dioxide.
- City of Palo Alto Public Works and the Office of Emergency Services launched a new, first of its kind, Mobile Department Operations Center. The "MDOC" brings an entirely off-the-grid, solar-powered mobile office to the City's fleet to assist public safety efforts in the event of a disaster.
- The Office of Emergency Services completed design of a new Portable Power Pod (P3), the first all-electric generator in Palo Alto that is capable of powering the Mobile Emergency Operations Center (MEOC) and the 9-1-1 Dispatch Center.
- The Office of Emergency Services OES was awarded a \$200,000 Homeland Security Grant to acquire a solar-battery generator trailer. The final vendor will be selected and the new generator will be in service by the end of CY 2020.
- The City doubled participation in the Cool Block Initiative, welcoming members of 25 new block teams to Cool Block Palo Alto. The 25 existing Cool Block teams bought electric and plug-in hybrid cars or downsized to one car with their bikes as backup transportation; converted from gas to electric stoves; increased the number of plant-based meals eaten each week; investigated 'smart' irrigation controllers that release water based on local weather forecasts; and gathered for block book clubs, salons, holiday parties, Spring egg hunts and potlucks.
- The Library provides educational opportunities that provide the public with information and resources for reducing carbon footprint, waste and energy use, and for making improvements to home and habits that encourage a sustainable life. Library buildings include information about energy use and conservation, model new thinking regarding public building design, and sustain materials collections that aid customer education about all aspects of sustainability and the environment.

Future Vision

"Sustainability, in the context of climate change" and "Improving mobility for all" are 2020 Council Priorities. In 2020, our goal is to reinvigorate sustainability as a core value by integrating it into our programs and operations. Staff prepared a 2020-2021 Sustainability Workplan that will be brought to Council for approval in April 2020 ([CMR #11123](#)). Sustainability is embedded in the 2030 Comprehensive Plan, with 10 goals and over 50 actions outlined in the 2030 Comprehensive Plan Implementation Plan that are explicitly or implicitly related to sustainability. We will be looking into ways to further embed sustainability through actions such

as including sustainability considerations in City Council Staff Reports and including specific questions related to GHG emissions and sustainability in the Capital Improvement Program project development process.

For the City to continue progress towards S/CAP Framework goals and targets, the 2018 - 2020 SIP goals, and sustainability goals in the 2030 Comprehensive Plan Implementation Plan, a 2020 S/CAP Update is necessary to further study the highest impact actions we can take to reach our goals and targets. The 2020 S/CAP Update will include key actions in the following areas: Energy, Mobility, Electric Vehicles, Water, Climate Adaptation and Sea Level Rise, Natural Environment, and Zero Waste.

Resource Impacts

Initiatives are across departments and funds. Some are funded in current budgets, others will be submitted as part of the FY 2021 Proposed Budget, while some will need to be prioritized in light of competing priorities.

Stakeholder Engagement

The Earth Day report itself does not have an associated stakeholder engagement plan. However, within the context of the 2020 S/CAP Update, staff has developed an Engagement Plan which identifies relevant stakeholders, proposed materials, and desired meeting milestones and outcomes. Staff will involve the community in the development of the 2020 S/CAP goals and Key Actions through a community workshop this spring and a 2020 S/CAP Summit in the fall. Some of the areas will require more in-depth discussion, and staff will hold area-specific meetings to do a deeper dive on specific topics, such as Sea Level Rise.

Staff will also provide opportunities for on-line engagement to gain a better understanding of the community's concerns and vision around the 2020 S/CAP Process, as well as provide an opportunity for community members who can't attend the meetings to provide their input.

Policy Implications

The Earth Day Report aligns with two of the top three Council Priorities for CY 2020: "Sustainability, in the context of climate change" and "Improving mobility for all".

Environmental Review

Acceptance and discussion of this Earth Day report from Council does not meet the definition of a "project" under the California Environmental Quality Act and therefore no environmental review is required.

Attachments:

- Attachment A: 2018 – 2020 Sustainability Implementation Plan 2019 Snapshot

2018-2020 Sustainability Implementation Plan: 2019 Snapshot

ENERGY GOALS

- Drive building efficiency and electrification through voluntary and mandatory programs
- Mitigate the impacts of natural gas use through carbon offsets (short term) and electrification (mid-to long-term)

KPIs

➤ Building Energy Efficiency Savings	FY17	FY18	FY19
% Electric Efficiency Savings	0.65%	0.63%	0.61%
% Gas Efficiency Savings	0.81%	0.97%	0.44%
➤ Avoided Natural Gas Use Due to Electrification Programs	2017	2018	2019
Cumulative Savings (therms)	1,453	4,916	6,008

2019 Projects Highlights

- Adopted an all-electric mandate for residential new construction projects effective April 1, 2020
- Initiated Multifamily (MF) Building Gas Furnace Retrofit Pilot
- Launched Induction cooktop loaner program with Acterra
- Replaced the sewage sludge incinerators with a more environmentally friendly Sludge Dewatering & Truck Loadout Facility

MOBILITY GOALS

- Reduce Single Occupancy Vehicle (SOV) travel
- Make it more convenient not to drive

KPIs

➤ SOV commute mode share	2016	2017	2018	2019
Drive Alone (Downtown)	56%	53%	49%	42%
Transit (Downtown)	18%	20%	27%	39%
Carpool (Downtown)	6%	8%	9%	8%
➤ Transit Ridership (Caltrain)	FY2016	FY2017	FY2018	FY2019
Average Weekday Ridership	9,052	9,072	9,457	9,018
➤ Commute Benefits	2016	2017	2018	2019
City Employee Participation	269	288	275	335

2019 Projects Highlights

- Established the Office of Transportation
- Participated in and advocated for regional transit programs
- Increased active transportation mode share for school commutes
- Adopted a Housing Work Plan Implementation Ordinance

WATER GOALS

- Reduce inefficient water consumption
- Ensure adequate water supply from sustainable sources
- Protect canopy, creeks, groundwater, and the bay

KPIs

	2017	2018	2019
➤ Per Capita Potable Water Use (Gallons/Per Capita/Day)	134	142	137
➤ % Recycled Water (RW) Use (Volume of RW/RW filter Capacity)	16%	18%	17%

2019 Projects Highlights

- Approved an agreement with the Santa Clara Valley Water District and the City of Mountain View to design and construct a salt removal facility at the Regional Water Quality Control Plant (RWQCP), gives Valley Water the option to acquire about half of the treated wastewater produced by the RWQCP, and for Palo Alto to have a future option for water supply.
- Completed a Green Stormwater Infrastructure Plan
- Identified water reuse alternatives

ELECTRIC VEHICLE GOALS

- Accelerate electric vehicle (EV) penetration
- Make “Going EV” more convenient and economical than using fossil fueled vehicles

KPIs

	2015	2016	2017	2018	2019
➤ EV penetration (Palo Alto)	1,200	2,000	3,100	4,000	4,500
➤ GHG emissions avoided (MT CO2e)	2,880	4,800	7,440	9,600	10,800

2019 Projects Highlights

- Drafted three-year EV workplan to increase adoption of EVs
- Awarded \$1 million CALeVIP grant for EV charger installations at commercial properties, including non-profits, multi-family, and mixed-use buildings
- Identified replacement strategy to expand EV deployment in City Fleet
- Identified strategy to more than double publicly owned EV chargers
- Completed a Customer Survey on EV adoption barriers
- Co-sponsored workshops and ride-and-drive events for 400+ customers