



# 2021 SUSTAINABILITY AND CLIMATE ACTION PLAN

## DRAFT Goals and Key Actions

*Acting Now for a Resilient Future*



# SUSTAINABILITY AND CLIMATE ACTION PLAN GOALS

## CLIMATE ACTION Reduce GHG emissions 80% below 1990 levels by 2030



ENERGY

- ➔ Reduce GHG emissions from the direct use of natural gas in Palo Alto's building sector by at least 60% below 1990 levels by 2030 (or 50% below 2018 levels) by:
  - a. Electrifying most single-family appliances
  - b. Electrifying most non-residential rooftop packaged HVAC units
  - c. Reducing gas use in major facilities by at least 20%
  - d. Seeking additional opportunities for commercial and multi-family electrification



MOBILITY

- ➔ Reduce commute vehicle miles traveled by 16-19%
- ➔ Reduce vehicle miles traveled by 12% by:
  - a. Increasing the mode share for active transportation modes (walking, biking, and transit) from 19% to 40% of local work trips by 2030
  - b. Increasing the availability of transit and shared mobility services from 61% to 100% by 2030
  - c. Utilizing development regulations and standards to continue creating a housing density and land use mix that supports transit and non-SOV transportation modes
  - d. Utilizing pricing, fees, and other program and policy tools to encourage reductions in GHGs and VMT



ELECTRIC VEHICLES

- ➔ Reduce transportation related GHG emissions at least 65% from 1990 levels by:
  - a. Increasing electric vehicles (EVs) registered in Palo Alto from 4,500 (2019) to 28,000 (44% of vehicles)
  - b. Facilitating the share of EV commute vehicles from single digits to 40% by 2030
  - c. Developing a public and private charging network to support these levels of EV penetration



WATER

- ➔ Exceed the forthcoming Making Conservation a California Way of Life indoor and outdoor water use targets by 5%
- ➔ Achieve 10% of total water demand met by water reuse (recycled or stormwater capture)
- ➔ Improve current recycled water by reducing total dissolved solids by 50% by 2024 compared to 2019 base year
- ➔ By 2030, achieve a 10% increase in acres of watershed treated within the City compared to the 2020 baseline, utilizing stormwater management to protect the San Francisco Bay and increasing beneficial use of captured stormwater



CLIMATE ADAPTATION & SEA LEVEL RISE

- ➔ Develop a multi-year Sea Level Rise Adaptation Plan for Council Review by December 2021 to include a sea level rise vulnerability assessment and adaptation plan.
- ➔ Minimize wildland fire hazards by ensuring adequate provisions for vegetation management, emergency access and firefighting, and standards for design and development of areas exposed to wildland fire hazards.



NATURAL ENVIRONMENT

- ➔ Restore and enhance resilience and biodiversity of our natural environment
- ➔ Increase tree canopy to 40% city-wide coverage by 2030



ZERO WASTE

- ➔ Divert 95% of waste from landfills by 2030, and ultimately achieve zero waste
- ➔ Implement short- and medium-term initiatives identified in the *2018 Zero Waste Plan*



# Climate Action

## GOAL

- ➔ Reduce GHG emissions 80% below 1990 levels by 2030

## KEY ACTIONS

- C1.** Enable any resident to receive guidance on reducing their building and transportation emissions via phone consultations, interactive web applications, or other communications platforms. They may receive a consultation and/or sign up for City programs and services (also see Energy Key Actions E1 and E2, EV Key Action EV1, and Mobility action M1)
- C2.** Work with major employers to develop custom emissions reduction plans that address commute, building and other emissions on an employer by employer basis.
- C3.** Complete study to identify any additional Energy, EV, or Mobility key actions needed to achieve 80% reduction in greenhouse gas emissions from 1990 levels by 2030, such as electrification of additional multi-family or commercial end uses, greater electrification of vehicles, or other emissions reduction actions not already identified in this Plan. If legally feasible and approved by community action after a stakeholder design process, implement these additional key actions.
- C4.** Complete a study, including legal analysis, of the staffing and funding needed to operate programs, services, and related City processes at a high enough capacity to accommodate all necessary emissions reduction activities through 2030.
- C5.** Present options for Council consideration to accelerate EV, Mobility, and Energy emissions reduction activities identified in this Plan through mandates or price signals, such as building emissions performance standards, carbon pricing, on-sale or replace-on-burnout ordinances, parking rules in public and private spaces, and withdrawal of gas by a date certain. If one or more mechanisms are determined to be necessary to achieve the 80x30 goals, are legally feasible, and are approved by community action after a stakeholder design process, implement them.
- C6.** Complete a technical and legal study of alternatives available to fund post-2025 key actions, such as a carbon tax, parcel taxes, or other community funding mechanisms. If these mechanisms are determined to be necessary to achieve the 80x30 goals, legally feasible, and are approved by community action after a stakeholder design process, implement one or more mechanisms.
- C7.** Complete an affordability study to identify vulnerable populations and businesses who may need help with electrification and the scale of subsidy needed. Develop a Council-approved affordability policy to guide incentive and program funding design.
- C8.** Complete a study of carbon neutrality options, including the potential contribution of expansion of the Palo Alto urban canopy in achieving carbon neutrality goals.

## KEY PERFORMANCE INDICATORS

- GHG reductions
- Community support



## Energy

### GOAL

- ➔ Reduce GHG emissions from the direct use of natural gas in Palo Alto's building sector by at least 60% below 1990 levels by 2030 (or 50% below 2018 levels) by:
  - a. Electrifying most single-family appliances
  - b. Electrifying most non-residential rooftop packaged HVAC units
  - c. Reducing gas use in major facilities by at least 20%
  - d. Seeking additional opportunities for commercial and multi-family electrification

### KEY ACTIONS

- E1.** Launch comprehensive residential program services and incentives to promote voluntary electrification of water heating, space heating, cooking, clothes drying, and other appliances that use natural gas, as well as single-family residence panel upgrades and EV charger installation (also see Key Action EV-2, Multi-family EV Charging program). Services may include technical assistance, vetted contractor lists, on-bill financing, and/or direct install services.
- E2.** Launch non-residential program services and incentives for electrification of non-residential mixed-fuel rooftop packaged HVAC units, cooking equipment, and small non-residential gas appliances (as well as workplace EV charging). Services may include technical assistance, vetted contractor lists, on-bill financing, and/or direct install services.
- E3.** Ensure low income residents and vulnerable businesses are able to electrify appliances and maintain cost-effective gas heating where electrification is unaffordable or infeasible.
- E4.** Develop electric rate options for electrified homes, EV charging, and solar + storage microgrid customers.
- E5.** Adopt an all-electric reach code for residential major renovations, new ADUs, and new non-residential construction.
- E6.** Conduct an Electrification and Planning Assessment of City Facilities, which will be used to develop a plan for electrification that results in an 80% reduction in natural gas usage at City facilities by 2030.
- E7.** Complete a study of the reliability and resiliency needs of an electrified community and develop proposals for programs to facilitate community resiliency.
- E8.** Adopt City ordinance to require energy benchmarking for commercial & multifamily buildings over 25,000 sf.

### KEY PERFORMANCE INDICATORS

- GHG emissions from natural gas use in the building sector
- Number of rooftop packaged HVAC units electrified\*
- Number of households that have electrified at least one appliance, broken down by housing type (single-family or multi-family) and low-income status\*
- Number of single-family households fully electrified
- Percentage of gas use reduction in major facility and City facilities

\*Tentative Key Performance Indicator (KPI). Still determining how to collect data.



# Mobility

## GOALS

- ➔ Reduce commute vehicle miles traveled by 16-19%
- ➔ Reduce vehicle miles traveled by 12% by:
  - a. Increasing the mode share for active transportation modes (walking, biking, and transit) from 19% to 40% of local work trips by 2030
  - b. Increasing the availability of transit and shared mobility services from 61% to 100% by 2030
  - c. Utilizing development regulations and standards to continue creating a housing density and land use mix that supports transit and non-SOV transportation modes
  - d. Utilizing pricing, fees, and other program and policy tools to encourage reductions in GHGs and VMT

## KEY ACTIONS

- M1.** Expand transport options available in Palo Alto
  - Launch bike/scooter shared micro-mobility service to provide last-mile connection
  - Launch on-demand transit service pilot
  - Establish Neighborhood Mobility Hubs and/or a technology platform to conveniently co-locate or access active transportation, micromobility, EV car-sharing, and EV charging resources
- M2.** Improve Transportation Demand Management for employees and residents
  - Adopt a TDM Ordinance, including a telecommuting policy for local employers to align with regional targets
  - Allocate funding to scale up TDM programming, for example PATMA and others
  - Establish Safe Routes for Older Adults/Aging in Place program and continue the Safe Routes to School program
- M3.** Implement smart parking infrastructure in public garages and proposals for Council to price parking in business districts
  - Consider implementing a Healthy Climate Fee to partially offset GHG emissions from driving. This would be an optional fee in addition to parking permit costs that would support Alternative Modes in Palo Alto.
- M4.** Conduct a land use and transportation study to identify scenarios, changes, services, and programs that would reduce greenhouse gas emissions and accommodate projected housing growth without increasing transportation sector emissions. Include mobility equity needs analysis.
  - Develop proposals for Council for policies to discourage vehicle use and encourage alternative commute.
- M5.** Expand bicycle and pedestrian infrastructure
  - Update the Bicycle and Pedestrian Transportation Plan, identifying funding sources for Council consideration, and implementing upon community approval of funding

- Establish a Vision Zero data collection and analysis program to identify the High Injury Network and target safety improvements
- Install speed limit signage and markings to make streets more bicyclist and pedestrian friendly and safe
- Initiate a program to install 50 miles of protected class-4 bike lanes over 20 years
- Initiate a program to install 10 miles of multi-use paths over 20 years
- Initiate a program to install 10 miles of bicycle highways over 20 years
- Construct 8 protected intersections for biking and walking

**M6. Improve transit and traffic flow**

- Initiate a program to install transit signal priority equipment
- Install traffic signal equipment improvements to improve traffic flow and reduce idling time and associated GHG emissions
- Construct bus rapid transit lanes and queue jump lanes to speed bus travel

**KEY PERFORMANCE INDICATORS**

- Commute mode share for all modes
- Transit ridership, the proportion of residents within a quarter-mile walkshed of frequent transit, and the proportion of residents covered by on-demand transit services.
- Number and proportion of residents within a 10-minute walk of retail land uses
- Commute Benefits participation by City Employees
- Miles of bikeways and number of enhanced intersections
- Number and type of injuries and fatalities on High Injury Network\*
- VMT per capita for Residents
- VMT per capita for Employees

\*Tentative Key Performance Indicator (KPI). Still determining how to collect data.





## Electric Vehicles

### GOAL

- ➔ Reduce transportation related GHG emissions at least 65% from 1990 levels by:
  - a. Increasing electric vehicles (EVs) registered in Palo Alto from 4,500 (2019) to 28,000 (44% of vehicles)
  - b. Facilitating the share of EV commute vehicles from single digits to 40% by 2030
  - c. Developing a public and private charging network to support these levels of EV penetration

### KEY ACTIONS

- EV1.** Raise awareness of emission savings of alternative transportation modes, micromobility (such as e-bikes and e-scooters), EVs, the economics of these transportation modes compared to gasoline vehicles, and available incentives. Collaborate with regional partners, other agencies, and local nonprofit partners in promotional efforts. Provide information and access to City and partner programs via phone consultations, interactive web applications, or other communications platforms.
- EV2.** Enhance multi-family and workplace EV charging program as needed to create high levels of participation and expand it to include bike facility evaluation and alternative commute promotion. Evaluate financing and direct installation program features.
- EV3.** Ensure incentives are available for e-bikes and other light EVs
- EV4.** Ensure low income residents are able to adopt EVs and have access to EV charging. Consider outreach to low-income residents about the economics of EV adoption and incentives and other programs focused on ensuring charger access to low-income community members
- EV5.** Evaluate a residential EV credit or rate mechanism that creates an electric bill discount for registered EVs. Implement if legal, feasible, and if it is determined to produce greater adoption of EVs
- EV6.** Evaluate mandates or other mechanisms to ensure EV charging capacity needed to support EV growth. If one or more mechanisms are determined to be necessary to achieve the 80x30 goals, are legally feasible, and are approved by community action after a stakeholder design process, implement them.
- EV7.** Convert all compact sedan Palo Alto municipal vehicles to EVs when an e-bike is not an operationally acceptable replacement

### KEY PERFORMANCE INDICATORS

- Percentage of registered EV vehicles in Palo Alto
- EV ownership among low-income Palo Alto residents\*
- Number and type of shared, public, and workplace charging ports at major facilities in Palo Alto relative to EV penetration of resident, commuter, and visitor vehicle fleets\*
- Percentage of multifamily residents with access to overnight EV charging
- Percentage of commuters to Palo Alto major facilities using EVs\*
- Gasoline sales in Palo Alto

\*Tentative Key Performance Indicator (KPI). Still determining how to collect data.



# Water

## GOALS

- ➔ Exceed the forthcoming Making Conservation a California Way of Life<sup>1</sup> indoor and outdoor water use targets by 5%
- ➔ Achieve 10% of total water demand met by water reuse (recycled or stormwater capture)
- ➔ Improve current recycled water by reducing total dissolved solids by 50% by 2024 compared to 2019 base year<sup>2</sup>
- ➔ By 2030, achieve a 10% increase in acres of watershed treated within the City compared to the 2020 baseline, utilizing stormwater management to protect the San Francisco Bay and increasing beneficial use of captured stormwater<sup>3</sup>

## KEY ACTIONS

- W1.** Maximize cost-effective water conservation and efficiency through incentives, outreach/education and other programs.
- W2.** Expand the use of effluent from the RWQCP by funding and building a water reuse project for Non-Potable Reuse, Indirect Potable Reuse, or Direct Potable Reuse.
- W3.** Increase implementation of green stormwater infrastructure on private property, municipal facilities and public rights-of-way to ensure water for urban canopy.
- W4.** Design and build a salt removal facility for the Regional Water Quality Control Plant
- W5.** Develop a "One Water" Portfolio for Palo Alto<sup>4</sup>.
- W6.** By 2023, establish a baseline and Key Performance Indicator for reduction of impervious surfaces to support the Green Stormwater Infrastructure Plan.

## KEY PERFORMANCE INDICATORS

- Indoor per capita residential water consumption
- Outdoor water consumption for irrigation
- Percentage of total water demand met by water reuse
- Total dissolved solids in recycled water

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<sup>1</sup> The California Water Action Plan, first released in 2014 and updated in 2016, is a roadmap to water resilience and reliability. Ten principles define California's Water Action Plan, including "Make Conservation a California Way of Life." Executive Order (B-37-16) instructed State agencies to help Californians adopt permanent changes to use water more wisely. New regulations will establish two usage targets for urban water suppliers, one for residential indoor use and one for the total irrigable land within an agency's service territory.

<sup>2</sup> Total dissolved solids (TDS) is a measure of the dissolved combined content of all inorganic and organic substances present in a liquid in molecular, ionized, or micro-granular (colloidal sol) suspended form. Elevated TDS can be toxic and must be monitored regularly.

<sup>3</sup> Green Stormwater Infrastructure (GSI) goals will be finalized once additional quantification work is conducted over the next two years to provide accurate, realistic and publicly vetted metrics.

<sup>4</sup> A "One Water" approach envisions managing all water in an integrated, inclusive, and sustainable manner that is more resilient to the impacts of climate change. The One Water approach recognizes that water must be managed in ways that respect and respond to the natural flows of watersheds and the natural ecosystem, geology, and hydrology of an area. projects and programs focus on achieving multiple benefits—economic, environmental, and social.





## Climate Adaptation and Sea Level Rise

### GOALS

- Develop a multi-year Sea Level Rise Adaptation Plan for Council Review by December 2021 to include a sea level rise vulnerability assessment and adaptation plan
- Minimize wildland fire hazards by ensuring adequate provisions for vegetation management, emergency access and firefighting, and standards for design and development of areas exposed to wildland fire hazards.

### KEY ACTIONS

- S1.** Commence work on Sea Level Rise Vulnerability Assessment to identify risks and hazards to the Palo Alto Baylands, City infrastructure, and residential and business property from 12", 24", 36", 48", and 84" of SLR with high tide, 100-year coastal storm event scenarios and rising shallow groundwater impacts (2021).
- S2.** Develop and implement a Sea Level Rise Adaptation Plan which provides guidance on: managing and enhancing Baylands ecosystem services, suggested adaptation pathways, retreat considerations, updated building codes and specifications, and a development and public education plan for property anticipated to be impacted by sea level rise (specific plan elements to be determined for staff and Council consideration during 2021).
- S3.** Discuss levee alignment alternatives with Valley Water and other adjacent neighboring agencies.
- S4.** Implement the Foothills Fire Management Plan to balance conservation of natural resources with reduction of fire hazards especially in open space areas.
- S5.** Minimize fire hazards by maintaining low density zoning in wildland fire hazard areas.
- S6.** Work collaboratively with other jurisdictions and agencies to reduce wildfire hazards in and around Palo Alto, with an emphasis on effective vegetation management and mutual aid agreements.
- S7.** Consider implementation of CAL FIRE recommended programs in educating and involving the local community to diminish potential loss caused by wildfire and identify prevention measures to reduce those risks.
- S8.** Coordinate regionally, act locally.

### KEY PERFORMANCE INDICATORS

- Completed Sea Level Rise Vulnerability Assessment
- Council-approved Sea Level Rise Adaptation Plan
- Progress towards sea level rise levee alignments
- Implementation of Foothills Fire Management Plan mitigation measures



## Natural Environment

### GOALS

- ➔ Restore and enhance resilience and biodiversity of our natural environment
- ➔ Increase tree canopy to 40% city-wide coverage by 2030

### KEY ACTIONS

- N1.** Develop programs to plant trees to increase Palo Alto's tree canopy – that will be integrated with traditional tree planting programs and Green Stormwater Infrastructure programs – and provide carbon sequestration, improve water quality, capture stormwater when feasible, and reduce the urban heat island effect.
- N2.** Evaluate and modify plant palette selection in project plans to maximize biodiversity and soil health to adapt to the changing climate and incorporate buffers for existing natural ecosystems.
- N3.** Coordinate implementation of the Urban Forest Master Plan, Parks Master Plan, and other city-wide planning efforts and plan implementation functions through interdepartmental collaboration of the City's internal Sustainability Leadership Team.
- N4.** Expand the requirements of the Water Efficient Landscape Ordinance (WELO) to increase native and drought-tolerant species composition.
- N5.** By 2023, establish a baseline and Key Performance Indicator for treatment of impacts from impervious surfaces to support the Green Stormwater Infrastructure Plan.
- N6.** Incorporate Green Stormwater Infrastructure in future Capital Improvement Program projects to the maximum extent feasible.
- N7.** Ensure No Net Tree Canopy Loss for all projects.
- N8.** Continue to review the use of pesticides in all parks and open space preserves to identify opportunities to further reduce and eliminate the use of pesticides.
- N9.** Enhance pollinator habitat by including native plants and pollinator-friendly plant landscaping with all Park Capital Improvement Program projects starting in FY22 or when feasible.
- N10.** By 2024, establish a baseline and Key Performance Indicator for carbon storage of tree canopy in the public right of way and City-owned property.

### KEY PERFORMANCE INDICATORS

- Tree Canopy
- Percent reduction of pesticide use
- Measure biodiversity by percent of native species on City property and new landscape projects



# Zero Waste

## GOALS

- ➔ Divert 95% of waste from landfills by 2030, and ultimately achieve zero waste
- ➔ Implement short- and medium-term initiatives identified in the *2018 Zero Waste Plan*

## KEY ACTIONS

- ZW1.** Expand the Deconstruction and Construction Materials Management Ordinance.
- ZW2.** Eliminate single-use disposable cups and containers by expanding the Disposable Foodware Ordinance.
- ZW3.** Encourage food waste<sup>5</sup> prevention and require edible food recovery for human consumption from commercial food generators.
- ZW4.** Promote residential food waste reduction.
- ZW5.** Provide waste prevention technical assistance to the commercial sector.
- ZW6.** Champion waste prevention, reduction, reusables, and the sharing economy (e.g., waste prevention technical assistance for businesses, provide waste reduction grants, promote adoption of a “Zero Waste lifestyle”, promote access to goods over ownership).
- ZW7.** Evaluate a best practice standard for low carbon construction materials, beginning with concrete (including review of the Marin County Low Carbon Concrete Ordinance).

## KEY PERFORMANCE INDICATORS

- Diversion rate
- Number of *Zero Waste Plan*<sup>6</sup> initiatives implemented

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<sup>5</sup> “Food waste” refers to edible food that is not eaten, goes bad and is thrown away. It does not include food scraps such as banana peels, apple cores and bones – they should be composted.

<sup>6</sup> [www.cityofpaloalto.org/zwplan](http://www.cityofpaloalto.org/zwplan)