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City of Palo Alto Sustainability and Climate Action Plan

Implementation Work Plan (2023 through 2025)

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## 1. Executive Summary

This work plan implements the City’s Sustainability and Climate Action Plan (S/CAP). In November 2016 the Council adopted the [S/CAP Framework](http://www.cityofpaloalto.org/civicax/filebank/blobdload.aspx?BlobID=60858), which has served as the road map for achieving Palo Alto’s sustainability goals. On [October 3, 2022](https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/agendas-minutes/city-council-agendas-minutes/2022/20221003/20221003accsm-amended.pdf" \l "page=131), the City accepted an updated set of Goals and Key Actions and is performing CEQA review with the goal of formally adopting the S/CAP in spring of 2023. This work plan implements this updated set of Goals and Key Actions.

The Goals and Key Actions are divided into eight areas, four of which are climate-focused and include actions to achieve the City’s “80x30”[[1]](#footnote-2) and carbon neutrality[[2]](#footnote-3) goals (Climate Action, Mobility, Electric Vehicles, and Buildings) and four of which are focused on actions that create a sustainable natural environment and adapting to a warming climate but do not contribute significantly to the 80x30 goal (Natural Environment, Zero Waste, Water, and Sea Level Rise).

Based on Council’s acceptance of the S/CAP Goals and Key Actions, staff and the Ad Hoc Subcommittee developed five Climate Action priorities for 2023 through 2025, which are listed in Section 2.i below:

It includes a variety of work items for achieving these priorities, including:

* Promoting electric vehicles (EVs) for residents, commuters, visitors, and other users (e.g. deliveries, rideshare) and regionally, including micromobility (e-bikes, e‑scooters, and other small EVs).
* Reducing vehicle miles traveled through citywide Mobility programs, including parking management, piloting on-demand transit, implementing the City’s Housing Element, and updating the Bicycle Plan
* Launching an Advanced Heat Pump Water Heater Pilot Program and scaling it up
* Beginning a strategic upgrading of capacity in the residential areas of the electric grid and promoting whole home electrification in the upgraded areas
* Expanding access to EV charging in multi-family buildings (including affordable housing) and exploring ways to electrify those buildings as well
* Electrifying commercial rooftop packaged heating, ventilation, and air conditioning (HVAC).
* Partnering with major employers on emissions reduction plans, including commuter emissions
* Electrifying City buildings and vehicles where feasible
* Engaging City operations to support these goals
* Exploring additional emissions reduction opportunities by surveying multi-family and non-residential building equipment and exploring other ideas from the community (e.g. shuttles, shared vehicles)
* Evaluating funding and resource needs of the above programs and identifying viable funding sources.

This work plan implements the S/CAP goals for a sustainable natural environment (including reducing waste, creating a sustainable and holistically managed water system, and a thriving urban canopy) by:

* Reducing water consumption while exploring ways to capture and store water, as well as to increase the availability and use of recycled water
* Developing and adopting a multi-year Sea Level Rise Adaptation Plan
* Minimizing wildland fire hazards through Plan implementation, zoning, and collaborating with Fire agencies
* Increasing Palo Alto’s Tree Canopy and reducing pesticide use in parks and open space preserves
* Supporting the Green Stormwater Infrastructure (GSI) Plan and incorporating GSI in municipal projects
* Encouraging food waste reduction, prevention, and recovery and providing waste prevention technical assistance
* Eliminating single-use disposable containers and prioritizing domestic processing of recyclable materials

## 2. 2023-2025 Climate Action Section Work Plan: Making Progress on the 80x30 Goal

The Climate Action section of the S/CAP focuses on achieving the City’s 80x30 goal, and includes goals and key actions primarily focused on reducing emissions in transportation and buildings. The climate action sections of the S/CAP itself are divided into four topic areas (Climate Action, Mobility, EVs, and Energy), but this work plan is intended to prioritize and organize those key actions, so work plan items are organized according to five 2023-2025 Climate Action section priorities.

### 2.i 2023-2025 Climate Action Section Priorities

The following five priorities are intended to focus the City’s efforts on the highest potential and lowest cost emissions reduction actions and supporting efforts to enable the City’s programs in these areas to be as impactful as possible. Appendix B outlines how the highest priority emissions reduction actions were chosen (single-family residential electrification, expanding EV charging access, commercial rooftop packaged HVAC, and Mobility). EV charging is a complex topic with a variety of different types of vehicle owner needs and potential electric grid impacts and benefits, and Appendix C outlines the guiding principles the City used for developing electric vehicle charging work items. These principles will also be reflected in any studies done on EVs or EV programs developed.

The 2023-2025 climate action section priorities are:

1. Complete grid modernization plan and begin construction to increase reliability and transformer capacity for electrification
2. Launch effective programs for emissions reductions with highest impact and lowest cost: single-family electrification, strategic promotion of EVs, commercial rooftop HVAC, and expanded transportation alternatives
3. Build community awareness and confidence in electrification through engagement, addressing concerns, and program results
4. Identify an additional 9% in emissions reduction opportunities to achieve the 80x30 goal
5. By 2024 identify funding needed and potential funding sources for full scale implementation of highest impact emissions reductions

### 2.ii 2023-2025 Climate Action Summary Timeline

The proposed timeline for the 2023-2025 Climate Action section work items (which are listed below in section 2.c) is outlined below. The proposed timeline is contingent on certification of environmental review and may be modified accordingly. A more detailed timeline for each work plan item is included in Appendix A.

| **Priority** | **2023** | **2024** | **2025** | |
| --- | --- | --- | --- | --- |
| **P1 (Modernize grid)** | * Grid modernization study completion, hire contractor * Reliability/Resiliency Strategic Plan | * Begin a 5-7 year construction effort to increase reliability and transformer capacity * Implement Reliability and Resiliency Strategic Plan | | |
| **P2 (Launch programs)** | Design and launch programs: | | | |
| * Full-scale HPWH program * Pilot commercial HVAC * Municipal electrification * Downtown parking management program * On-demand transit pilot | * Single-family whole home * Full-scale commercial HVAC * Full-scale multi-family EV charger program (tentative) | Design and launch additional programs based on the 2024 studies (See P4 for other studies that may result in new programs) and the EV Strategic Plan | |
| Studies to guide program launches: | |
| * EV Strategic Plan * Multi-family and income-qualified EV work plan * Bicycle Plan update | * Work plan for commuter and visitor EV charging and EV promotion * Vision Zero program (tentative) |
| P3 (Build awareness and confidence) | Build awareness of the need for climate action and the City’s services and achievements. Drive community actions to achieve S/CAP goals. Build confidence in the City’s electric infrastructure. Report results from new and existing programs: | | | |
| * New program: HPWH pilot * Existing programs: * Existing Mobility programs * Multi-family EV charger | * New programs: Full-scale HPWH program, commercial HVAC pilot * Continuation of existing programs | | * New programs; Full-scale HVAC, multi-family EV charger * Continuation of programs |
| P4 (Additional emissions reductions) | * Seek ideas from community members and other experts * Monitor technologies and medium term opportunities | * Multi-family and non-residential electrification study * Study highest potential community ideas/technologies | | * Evaluate new programs based on studies |
|  |
| P5 (Funding needs and sources) | * Evaluate implementation cost for full scale high impact / lower cost programs * Preliminary evaluations of potential funding sources | * Decisions on how to fund priority electrification areas * Develop financial and operational plan for gas utility | | * Implement follow up from prior-year studies |

### 2.C Climate Action 2023-2025 Work Plan

The climate change topic areas of the S/CAP (Energy, EVs, Mobility, and Climate Change) are highly inter-related. Multiple key actions can affect the same community members in various ways. For example, a multi-family building owner might do a project that builds EV charging, bike storage, and electrifies some building equipment, which touches all three topic areas. Programs should be as simple as possible for the community. As a result, the work plan below is organized according to the type of activity and the part of the community served instead of being organized by the S/CAP topic areas. The key actions being implemented are listed next to each work plan item, and an index is provided in Appendix D to help readers map the Key Actions from the S/CAP to all implementing work plan items.

The work plan is organized according to the priorities above, as follows:

1. **Grid Modernization:** Complete grid modernization plan and begin construction to increase reliability and transformer capacity for electrification
2. **Launch Programs:** Launch effective programs for emissions reductions with highest impact and lowest cost: single-family electrification, strategic promotion of EVs, commercial rooftop HVAC, and expanded transportation alternatives

P2.1 Residential Emissions Reduction

P2.2 Non-Residential Emissions Reduction

P2.3 Citywide Mobility

P2.4 Municipal Electrification

P2.5 EV Strategic Plan

1. **Build Awareness and Confidence:** Build community awareness and confidence in electrification through engagement, addressing concerns, and program results
2. **Additional Emissions Reductions:** Identify an additional 9% in emissions reduction opportunities to achieve the 80x30 goal
3. **Funding Needs and Sources:** By 2024 identify funding needed and potential funding sources for full scale implementation of highest impact emissions reductions

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| **P1: Grid Modernization** |

Grid modernization is critical, particularly for residential electrification. The programs below will impact the electric grid, and there are also supporting grid-related efforts that could reduce barriers to electrification citywide, such as examining electric rate design, low wattage solutions, and fee structures for transformer upgrades. Electric grid reliability and resilience will be important to inspiring confidence in electrified homes and vehicles.

| **Work Item** | | **Key Action** | **Description** | **Resource****Availability** | **Target** **Completion Date** | **Status (Dec 2022)** |
| --- | --- | --- | --- | --- | --- | --- |
| 1.A | Grid Modernization Study | E8 | Complete a grid modernization study covering scope, designs, high level cost estimates, and estimated implementation timelines for electric system upgrades. | Recruitment challenges. Planning fully funded. Implementation funding needs under review. | Dec ‘22: Complete study  Dec ’23: Complete design, bring contractor on board  Early 2024: Begin construction | Consultant hired, study in progress, nearing release of initial draft study |
| 1.B | Reliability and Resiliency Strategic Plan | E8 | Develop Reliability and Resiliency strategic plan based on principles in Appendix D | Fully staffed, funding needs under evaluation | Dec 2023 | Not started |
| 1.C | Reliability and Resiliency Strategic Plan Implementation | E8 | Implement Reliability and Resiliency Strategic Plan | Staffing and funding needs to be evaluated | To be evaluated as part of 1.B | Policy guidelines for plan development to Council December 5, 2022 |
| 1.D | Evaluate Utility Rates and Fees | E6 | Evaluate utility rate designs and fee structures in the context of future electrification, implement any needed changes | Fully funded | Mar 2023 | Cost of service evaluation in progress |

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| **P2.1: Residential Emissions** |

The long-term goal in residential areas is full electrification of vehicles and buildings, but some electrification of some types of buildings is easier and less costly than others. Single-family homes tend to be easier and less costly to electrify than multi-family buildings. It is easier to install EV charger access as well. Grid capacity is an important consideration that drives the work plan in residential areas. The plan below prioritizes individual heat pump water heating electrification (which is primarily in single-family homes, but also some multi-family) and EV charger access in multi-family homes. Individual heat pump water heaters have low grid impact compared to other electrification measures and can be installed citywide while grid modernization gets underway. In modernized neighborhoods electrification of space heating and other equipment and appliances can be promoted.

The work plan for multi-family residential emissions reduction prioritizes EV charger access in multi-family homes. EV chargers are relatively easy to install without City assistance in single-family homes, but the City’s multi-family EV program will help multi-family building owners and condo associations install EV chargers so residents can access the savings and emissions reductions from EVs. This work plan includes development of a strategy to scale successful existing multi-family EV charging pilot programs to all multi-family buildings in Palo Alto. Multi-family building electrification requires more study to develop cost-effective strategies, since early studies and pilots have found multi-family building electrification to be very expensive. But more pilots in affordable housing projects, where grants and other funding might be available, would help the City get experience and develop strategies. All programs will be developed with equity in mind, considering how to serve low-income residents and renters.

| **Work Item** | | **Key Action** | **Description** | **Resource****Availability** | **Target** **Completion Date** | **Status (Dec 2022)** |
| --- | --- | --- | --- | --- | --- | --- |
| **All Residential** | |  |  |  |  |  |
| 2.1 A | Promote EV Adoption | EV1,EV4 | Offer Workshops and Events to raise awareness of EVs, including electric micromobility options and incentives. Work item subject to change based on EV Strategic Plan (see 2.5A). | Fully staffed and funded, staffing issues may impact this in the short term | Ongoing | In 2022 conduct 33 EV related workshops and expos. Contracting in progress to offer more awareness raising opportunites in 2023. |
| 2.1 B | Emissions Reduction Advisory Services | C1 | Provide single points of contact for online and phone advice for residents to reduce building and transportation emissions. | Fully staffed and funded | Dec ‘23: Phone advising  Timeline for launch of online services under evaluation | RFP responses evaluated and contract negotiations are in progress |
| 2.1 C | Evaluate small electric vehicles (e.g. e‑bike) program potential | EV4 | Evaluate alternatives for providing residential small electric vehicle programs or pilots. Work item subject to change based on EV Strategic Plan (see 2.5A). | Fully staffed and funded, though staffing issues may impact this in the short term | Complete evaluation by December 2023 | RFP being written |
| **Single-family Residential** | |  |  |  |  |  |
| 2.1 D | Heat Pump Water Heater Electrification Pilot Program | E1,E5 | Launch a pilot heat pump water heater electrification pilot to achieve 1000 gas water heater replacements by the end of 2023 | Partly staffed and funded – sales/ marketing needs being evaluated | Launch late 2022 / early 2023, aim to achieve goal by Dec 2023 | Council approved program on October 3, staff implementing the plan |
| 2.1 E | Full-Scale Heat Pump Water Heater Electrification Program | E1,E5 | As pilot program nears its goals, transition to a full-scale program with the goal of electrifying all water heaters in Palo Alto | Fully staffed for design, staffing / funding needs to be determined | Based on pilot program progress, tentatively late 2023 | Some preliminary analysis completed, otherwise not started. |
| 2.1 F | Electrification data collection program | E1 | Do home evaluations to collect data and help people plan for equipment or whole home electrification | Fully staffed, funding needs under evaluation | Program up and running by December 2023 | Contract negotiations in progress |
| 2.1 G | Pilot Programs for Modernized Neighborhoods | E1,E5 | Identify and launch electrification programs for neighborhoods with increased electric capacity such as whole home or heat pump space heating pilot programs | Fully staffed, funding needs under evaluation | Program design and approvals by Dec 2024 | Not started |
| 2.1 H | Single-family Electrification Rebates | E1 | Establish rebates for all appliances and equipment in single-family homes | Fully staffed and funded | Launch rebates by spring of 2024 | Some analysis done, but moving slowly due to conflicting priorities |
| **Multi-family Residential** | |  |  |  |  |  |
| 2.1 I | Affordable Housing EV Charging and Electrification Pilot | E5,EV5,EV7 | Design a pilot electrification and EV project in an affordable housing multi-family building to test potential scalable approaches. Work item subject to change based on EV Strategic Plan (see 2.5A). | Fully staffed, funding needs under evaluation | Complete pilot design by December 2023 | Partner identified, grant secured for EV charging, contract negotiations in progress for electrification pilot management, some analysis completed. |
| 2.1 J | Multi-Family EV Charger Program | EV5,EV6EV7 | Establish rebates and EV charging technical assistance , with the goal of expanding charger access to 10% (1,100 units) of multifamily households. Work item subject to change based on EV Strategic Plan (see 2.5A). | Fully staffed and funded | Aiming for 1,100 units by December 2025 | 100+ multifamily properties actively proceeding in programs to install EV chargers |
| 2.1 K | Multi-family and Affordable Housing Electrification and EV Charger Access Strategy Development | C8,EV6,EV7,EV8 | Evaluate potential scalable strategies for multi-family and affordable housing EV charger and electrification programs, including the role of publicly-owned EV charging, such as in rights-of-way. Work item subject to change based on EV Strategic Plan (see 2.5A). | Fully staffed and funded for evaluation, implementation needs TBD | Complete evaluation by December 2023 | Evaluating responses to RFP issued for multi-family electrification services, analyses of potential program designs / funding sources in progress. |

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| **P2.2: Non-Residential Emissions** |

City staff has less experience and knowledge with electrification of non-residential building equipment than with electrification of other types of building equipment. In section 6 of this work plan there are several studies planned that could help staff develop building electrification strategies for the non-residential sector. In the meantime, rooftop packaged heating, ventilation, and air conditioning (HVAC) units are potentially cost-effective to electrify. This work plan includes running a small initial pilot while simultaneously designing a potential advanced pilot and evaluating the potential for mandated electrification for end of life replacements. These rooftop HVAC programs and/or mandates can reduce emissions in major facilities as well (see Section 5)

In addition, staff plans to partner with major facility owners in Palo Alto to help them achieve their sustainability goals. Ideally these partnerships would include both building electrification, promotion of alternative transportation and EVs for commuters, and expanded EV charger access. A successful partnership with at least one major employer could provide an example that could lead to future employer partnerships, while a partnership with the schools could be an educational opportunity that leads to more awareness of electrification among residents.

Staff estimates about a third of transportation emissions come from drivers entering Palo Alto to visit or do business. The City is limited in its ability to affect these emissions, but partnering regionally to promote alternative transportation modes and personal and fleet EVs should help.

| **Work Item** | | **Key Action** | **Description** | **Resource****Availability** | **Target** **Completion Date** | **Status (Dec 2022)** |
| --- | --- | --- | --- | --- | --- | --- |
| 2.2 A | Rooftop Packaged Heating, Ventilation, and Air Conditioning (HVAC) Pilot | E2,C8, E7 | Continue HVAC pilot with the goal of completing 4-5 installations | Fully funded | December 2023 | Program launched, recruiting participants |
| 2.2 B | Rooftop Packaged HVAC Advanced Pilot Design | E2,C8, E7 | Develop proposal for an advanced pilot program and/or mandate | Fully funded | Proposal to Council for approval by Dec 2023, implementation 2024 | Not started |
| 2.2 C | Major Employer Partnerships | C2,E2, E3,EV3, other | Develop custom sustainability partnership with at least one major employer, electrification pilots with City facilities and PAUSD. Work item subject to change based on EV Strategic Plan (see 2.5A). | Fully funded for design, not implementation | Complete goals listed in “Description” column by December 2023 | Preparing to start discussions with various employers and PAUSD |
| 2.2 D | Commuter Transportation and EV Charging Strategy | C8,EV1,EV3,EV8 | Develop a strategy to promote EV adoption (including small EVs like e-bikes/e-scooters) and alternative transportation to commuters. Evaluate workplace charger programs and/or mandates, including role of publicly owned business district EV charging. Work item subject to change based on EV Strategic Plan (see 2.5A). | Fully staffed, consultant funding needs being evaluated. Implementation needs TBD. | Complete plan by end of December 2024, implementation timeline TBD | Not started |
| 2.2 E | Regional and State Partnerships | EV2, EV10 | Identify promising regional partnerships and State programs for potential City participation. Work item subject to change based on EV Strategic Plan (see 2.5A). | Under evaluation | Ongoing | Not started |

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| **P2.3: Citywide Mobility** |

Road transportation represents the largest percentage of Palo Alto’s existing carbon footprint – and a congestion headache. Reducing vehicle miles traveled is an important element in reducing these emissions. Reductions are achieved through a comprehensive citywide effort to increase access to alternative modes and awareness of the benefits complemented by programs for specific groups within the community. Land use is an important lever for affecting vehicle miles traveled. The City already has a variety of transportation programs and is addressing land use via its Comprehensive Plan process (including the Housing Element) and subsequent implementation. The work plan below acknowledges those efforts and aims to modestly expand them as staff time and funding permit.

| **Work Item** | | | **Key Action** | | **Description** | | **Resource****Availability** | | **Target** **Completion Date** | | **Status (Dec 2022)** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2.3 A | Transportation and Land Use Policies and Programs | M1 | | Continue to implement existing transportation policies and programs to reduce VMT | | Fully funded | | Ongoing | | Continuing to work on Council Transportation priorities including grade separation, street closures | |
| 2.3 B | Housing Element Adoption | M7, M9 | | Update the Housing Element for 2023-2031. | | Fully funded | | January 2023 | | Draft document being prepared for Council consideration | |
| 2.3 C | Housing Element Implementation | M7, M9 | | Implement the 2023-2031 Housing Element, which is projected to reduce VMT | | Funding via grants and annual City budget process | | 2031 | | Not started – awaiting Housing Element adoption | |
| 2.3 D | Micro-mobility evaluations | M2 | | Evaluate opportunities to pilot bike/scooter share and neighborhood mobility hub pilots to provide last-mile connections | | Proceed as staff time is available | | No target, proceed as time is available | | Some design work and research completed, staff aims to develop potential funding and/or staffing proposals as time permits. | |
| 2.3 E | On-demand transit pilot | M2 | | Launch on-demand transit pilot to provide last-mile connections for 100% of the city for a limited time | | Fully funded for two years | | Launch by Mar 2023 | | Reviewing proposals for on-demand transit provider | |
| 2.3 F | Update Bicycle Plan | M3 | | Update the 2012 Bicycle and Pedestrian Transportation Plan | | Fully funded | | Dec 2024 | | Awaiting consultant proposals in response to RFP issued in fall 2022 | |
| 2.3 G | Vision Zero Program | M3 | | Program to reduce roadway severe injuries and fatalities to zero | | Applied for grant funding for planning | | To be determined, depends on whether grant is received | | Applied for Federal Safe Streets for All grant to fund a safety action plan. Implementation would require additional staffing and funding | |
| 2.3 H | Evaluate expansion of employer transportation demand management (TDM) | M4 | | Evaluate possible alternatives to expand TDM ordinance requirements and/or voluntary TDM services (e.g. expanding the Transportation Management Association) | | Proceed as staff time is available | | No target, proceed as time is available | | Some design work and staff research has been done, staff exploring ways to fund and staff a study of options as time permits. | |
| 2.3 I | Proposals for Managing Downtown Parking Availability | M5 | | Develop proposals for pricing strategies to manage parking supply and availability | | Fully funded | | Fall 2022 | | Proposals to be shared with Council in Fall 2022 | |
| 2.3 J | Implement Efficient Downtown Parking Management | M5 | | Implement proposals for pricing strategies to manage parking supply and availability | | Funding and staffing to be determined | | Spring 2023 | | RFP for management services in development | |
| 2.3 K | Traffic Signal Improvements & Transit Signal Priority | M8 | | Maintain and modernize current traffic signals and central management systems.  Use technology to improve traffic operations and safety. Work with transit providers on transit signal priority where feasible. | | Mostly funded, long-term funding needs being evaluated | | Ongoing | | Long-term system plan in development. Supporting transit signal priority project for Dumbarton Express. Implementing Automated Traffic Signal Performance Measures to improve signal timing. | |

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| **P2.4: City Facilities and Fleet Emissions** |

A priority for the Council in development of the S/CAP was that we lead by doing. Electrification of City facilities and the vehicle fleet is a critical part of that. In addition, if increased publicly-owned EV charging becomes a part of multi-family and/or business district EV charger strategies (see P2.1K and P2.2D), a detailed plan for maintenance and operation will be needed.

| **Work Item** | | **Key Action** | **Description** | **Resource****Availability** | **Target** **Completion Date** | **Status (Dec 2022)** |
| --- | --- | --- | --- | --- | --- | --- |
| 2.4 A | Facility Electrification Assessment Plan | E4 | Complete an assessment of electrification opportunities at City facilities | Fully funded | Under evaluation | Assessment of all City facilities is underway |
| 2.4 B | Facility Electrification Assessment Implementation | E4 | Implement recommendations from the Facility Electrification Assessment Plan where feasible | Under evaluation | Under evaluation | Not started |
| 2.4 C | Electrify Equipment at City Facilities during Routine Replacement | E4 | Evaluate the feasibility of electrification when doing end of life equipment replacements | Under evaluation | Under evaluation | On-going. The mechanical equipment at MSC-B is at the end of its service life and we are currently looking into electric replacement solutions |
| 2.4 D | Electrify City Vehicle Fleet | EV9 | Convert all Palo Alto municipal vehicles to EVs when feasible and when the replacement is operationally acceptable. | Evaluated with each replacement | On-going | There are two units identified in FY23 for potential EV replacements, pending manufacturer availability and cost |
| 2.4 E | Build City Fleet and Employee Charging Infrastructure | EV9,EV3 | Expand charging at City facilities to support an electrified fleet and employee EV adoption | Under evaluation | Under evaluation | We are currently testing a low cost EV charger solution that could be used for future employee charging locations |
| 2.4 F | Publicly-owned charger strategic plan | EV8 | Evaluate potential publicly-owned EV charger strategies. Work item subject to change based on EV Strategic Plan (see 2.5A). | Staffing and funding needs under evaluation | Residential plan – by Dec ‘23 (see P2.1 K)  Business district plan – by Dec ‘24 (see P2.2 F) | Not started |

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| **P2.5: Electric Vehicles Strategic Plan** |

Several work plan items relate to electric vehicle promotion and programs to improve access to charging. Coordinating staff effort across a variety of efforts focused on many different parts of the community requires some level of coordination. This strategic plan will guide development of other work items.

| **Work Item** | | **Key Action** | **Description** | **Resource****Availability** | **Target** **Completion Date** | **Status (Dec 2022)** |
| --- | --- | --- | --- | --- | --- | --- |
| 2.5 A | Electric Vehicle Strategic Plan Development | EV1 thru EV10 | Develop a strategic plan based on principles in Appendix C to guide coordination of various work items, including 2.1 A, C, I, J, and K, 2.2 C, D, and E, and 2.4 F. Align with Reliability and Resiliency Strategic Plan (1B and 1C) | Fully funded | Under evaluation | Policy guidelines for plan development to Council December 5, 2022 |

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| **P3: Building Awareness and Confidence** |

To achieve high participation in electrification programs and other emissions reduction efforts and continuing support for S/CAP climate action programs requires building community awareness and confidence through engagement, addressing concerns, and achieving program results.

| **Work Item** | | **Key Action** | **Description** | **Resource****Availability** | **Target** **Completion Date** | **Status (Dec 2022)** |
| --- | --- | --- | --- | --- | --- | --- |
| 3.1 A | Build awareness of the need for climate action and the benefits the City and its utility can provide | N/A | Achieve widespread awareness of the need for climate action and the City’s services and achievements, including low electric rates. Use partnerships and volunteers to help deliver the message. | Fully staffed, partially funded | Ongoing | Sustainability hub and various other engagement efforts implemented. |
| 3.1 B | Drive community actions to achieve S/CAP goals | N/A | Run effective marketing and outreach that drives community action on S/CAP goals | Under evaluation | Ongoing | Marketing plan in development |
| 3.1 C | S/CAP Survey Program | N/A | Continuing surveys of community sentiment and engagement to guide decision making and track certain key performance indicators | Under evaluation | Under evaluation – requires coordination with other City surveys | Not started |
| 3.1 D | S/CAP Reporting | N/A | Ongoing reporting of S/CAP results, including key performance indicators | Under evaluation | Ongoing | Annual reporting provided in Earth Day report, to be expanded to cover all S/CAP KPIs |
| 3.1 E | Build confidence in the City’s electric infrastructure | N/A | Communicate actions the City is taking to improve electric reliability and grid capacity, to help residents and businesses build resiliency, and successes in these areas | Under evaluation | Under evaluation – requires coordination with other City surveys | Not started |

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| **4. Additional Emissions Reductions** |

A variety of planning efforts are needed to achieve 80x30. Emissions reductions identified to date only achieve 71% from 1990 levels, so the City must identify additional reductions to achieve its 80x30 goals. The multi-family and commercial building sectors have the smallest contribution to the emissions reductions identified to-date, so this will be an area of focus where staff is likely to find the most additional emissions reductions. Note that carbon dioxide removal technologies are not included in this effort, these are part of a separate future study on the City’s carbon neutrality goal.

| **Work Item** | | **Key Action** | **Description** | **Resource****Availability** | **Target** **Completion Date** | **Status (Dec 2022)** |
| --- | --- | --- | --- | --- | --- | --- |
| 4.A | Multi-family and Commercial End Use Study | C3,E9 | Do end use study of commercial and multi-family buildings to identify potential building electrification measures | Fully staffed, consultant funding needs being evaluated | December 2024 | Writing consultant RFP |
| 4.B | Idea generation and additional research | C3, M10 | Consult community members and experts (including Stanford) and research new technologies to identify other potential approaches to reducing emissions in Palo Alto | Staffing and funding needs to be evaluated | December 2024 | Not started |
| 4.C | Additional Emissions Reduction Project Prioritization | C3 | Prioritize the most cost-effective approaches to achieving the additional emissions reduction needed to achieve 80x30 in establishment of next three-year work plan | Staffing and funding needs to be evaluated | December 2025 | Not started |

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| **5. Funding Needs and Funding Sources** |

A high-level assessment of resource needs and funding sources will be done by fall of 2023 to allow for Council discussions on potential funding sources in late 2023 and early 2024. The needs of low- and middle-income residents will be assessed as part of this effort. Full-scale implementation of high potential programs will cause significant reductions in gas utility sales, necessitating careful planning to manage contracting revenues and operational needs.

| **Work Item** | | **Key Action** | **Description** | **Resource****Availability** | **Target** **Completion Date** | **Status (Dec 2022)** |
| --- | --- | --- | --- | --- | --- | --- |
| 5.A | Resource Needs Assessment | C4 | Complete study of staffing and other resources needed for programs and operations to implement all 80x30 activities | Fully staffed, consultant funding needs being evaluated | Dec 2023 | Writing consultant RFP |
| 5.B | Funding Alternatives | C5, M5 | Complete study of funding alternatives for 80x30, taking into account Federal policy such as the Inflation Reduction Act. | Fully staffed, consultant funding needs being evaluated | Dec 2023 | Writing consultant RFP |
| 5.C | Affordability Study | C6,E5 | Identify vulnerable populations who may need help electrifying and subsidy needed | Fully staffed and funded | Dec 2023 | Consultant beginning work |
| 5.D | Gas Utility Financial and Operating Plan | N/A | Develop a financial and operating plan for declining gas utility sales that maintains safety and solvency while providing affordable gas service to remaining gas users | Staffing and funding needs to be evaluated | Dec 2024 | Not started |

## 3. 2023-2025 Sustainability Section Work Plan: Creating a More Sustainable Natural Environment

In Palo Alto, we have a Sustainability and Climate Action Plan (S/CAP) because we include sustainability areas that don’t necessarily have a direct impact on greenhouse gas reductions, but have critically important sustainability, public health and safety, regional, resource conservation, and equity benefits that contribute to overall climate action. The Sustainability area Key Actions were prioritized based on the co-benefits analysis conducted by AECOM.

| **Work Item** | | **Key Action** | **Description** | **Resource****Availability** | **Target** **Completion Date** | **Status (Dec 2022)** |
| --- | --- | --- | --- | --- | --- | --- |
| 8.A | Maximize Water Conservation and Efficiency | W1 | Maximize cost-effective water conservation and efficiency through incentives, outreach/education, and other programs | Fully funded | On-going | This is an on-going effort |
| 8.B | Design and build a salt removal facility for the Regional Water Quality Control Plant | W2 | Facility that will remove salt from the recycled water produced at the RWQCP resulting in an enhanced product | Negotiating with Valley Water and the City of Mountain View | Bring to Council for approval by 2023 | Design is 90% complete. Council has not approved construction of the facility |
| 8.C | Develop a “One Water” Portfolio for Palo Alto | W3 | Develop a “One Water” Portfolio that includes stormwater, recycled water, on-site reuse, conservation, and groundwater | Fully funded | August 2023 | Study underway by staff and consultant |
| 8.D | Develop a tool for dynamic water planning in the future | W4 | Excel-based tool for water planning | Fully funded | August 2023 | Included as deliverable under One Water consulting contract |
| 8.E | Complete the Sea Level Rise Vulnerability Assessment | S1 | Complete a Sea Level Rise Vulnerability Assessment to identify risks and hazards to the Palo Alto Baylands, City infrastructure, and residential and business property, considering high tide, 100-year coastal storm event scenarios and rising shallow groundwater impacts | Fully funded | Fall 2022 | Completed in Fall 2022 |
| 8.F | Develop a Sea Level Rise Adaptation Plan | S2 | Develop a Sea Level Rise Adaptation Plan with goals to 1) Preserve and Expand Habitat, and 2) Protect City and Community Assets, and Private Property | Partially funded to develop the plan, and funding needed for plan and implementation | 2024 | Preparing a contract amendment AECOM so that we can move to the second phase of the project, which is to develop a Sea Level Rise Adaptation Plan over the coming months with the goal of bringing a plan to Council in 2024 |
| 8.G | Begin design process for a levee projects | S3 | Determine levee alignment and begin design process for a levee project that protects the Palo Alto community from sea level rise, and incorporates other related priorities including habitat restoration, recreation, transportation, City facilities, and community properties | Funded by US Army Corps of Engineers (50% Fed) and Valley Water / CA Coastal Commission (50% Non-Fed) \*PA staff is participating in the analysis | 2024 | Levee alignment will be determined by 2024 |
| 8.H | Identify Protection Strategies from Significant Flood Events at Newell Road Bridge | S4 | Complete Newell Road Bridge improvements | Funded by Caltrans / local sponsor (SFCJPA) | 2024 | Preparing construction documents and initiating right-of-way aquisition |
| 8.I | Identify Protection Strategies from Significant Flood Events at Pope Chaucer Bridge and Creek | S4 | Complete Pope Chaucer Bridge and Creek widening improvements | Applied for grants and secured partial funding through SFCJPA / partner agencies contributions | 2025-2026 | Analysing existing conditions within Creek to verify structural integrity |
| 8.J | Identify Protection Strategies from Significant Flood Events | S4 | Working with San Francisquito Creek Joint Powers Authority (SFCJPA) partner agencies to identify strategies to protect the community from flows that exceed the 70-year + storm event | Part of SFCJPA operating budget – Palo Alto contributes 1/5 of operating budget | On-going | This is an on-going coordination effort  with Stanford (the entity not the University) |
| 8.K | Implement Foothills Fire Management Plan | S5 | Implement the Foothills Fire Management Plan to balance conservation of natural resources with reduction of fire hazards especially in open space areas | Partially funded | On-going | This is an on-going effort |
| 8.L | Minimize Fire Hazards Through Zoning | S6 | Minimize fire hazards by maintaining low density zoning in wildland fire hazard areas and enforcing building codes for fire resistant construction | Staff available | On-going | This is an on-going effort |
| 8.M | Collaborate on Reducing Wildfire Hazards | S7 | Coordinate with other Fire agencies through the Santa Clara County Fire Chiefs Association and CalFire | Staff available | On-going | This is an on-going effort |
| 8.N | Implement CAL FIRE Public Education Programs | S8 | Implement 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 | Fully Funded | On-going | This is an on-going effort |
| 8.O | Increase Palo Alto’s Tree Canopy and establish a baseline and Key Performance Indicator for carbon storage of tree canopy | N1  N5 | Develop programs to plant trees to increase 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 | Partially funded, Staff available as time permits | Establish baseline by 2024 | New canopy cover GIS tool recently launched, which will help establish a baseline |
| 8.P | Ensure No Net Tree Canopy Loss for all Projects | N2 | Ensure no net tree canopy loss for all Projects | Staff available | On-going | This is an on-going effort to implement the updated Tree Ordinance (effective July 21, 2022) |
| 8.Q | Reduce Pesticide Use in Parks and Open Space Preserves | N3 | 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 | Staff available as time permits | On-going | This is an on-going effort |
| 8.R | Coordinate Implementation of City Natural Environment-Related Plans | N7 | Coordinate implementation of the Urban Forest Master Plan, Parks Master Plan, Green Stormwater Infrastructure Plan and other citywide planning efforts through interdepartmental collaboration | Staff available as time permits | On-going | This is an on-going effort |
| 8.S | Support the Green Stormwater Infrastructure (GSI) Plan and incorporate GSI in Municipal Projects | N10  N11 | Establish policies and ordinance changes as needed to support the Green Stormwater Infrastructure Plan as required due to Municipal Regional Stormwater Permit | Staff available as time permits; Partially funded through GSI | On-going | This is an on-going effort to achieve a 10% increase in land area that uses green stormwater infrastructure to treat urban water runoff |
| 8.T | Encourage Food Waste Prevention and Require Food Recovery from Commercial Food Generators | ZW1 | Encourage food waste prevention and require edible food recovery for human consumption from commercial food generators | Staff and County funded program staff available; Funded for FY 2023, may need funding for FY 2024 | On-going | Began 1/1/2022 per SB1383 requirements |
| 8.U | Promote Residential Food Waste Reduction | ZW2 | Create a new campaign to promote residential food waste reduction | Existing outreach funding | Launch by July 2023 | Campaign strategy in development, for launch by July 2023 |
| 8.V | Champion Waste Prevention, Reduction, Reusables, and the Sharing Economy | ZW3 | Promote adoption of a “Zero Waste lifestyle”, stimulate value of reuse, repair | Existing outreach funding for initial promotion of a “Zero Waste lifestyle”; may need future funding for stimulating reuse, repair | On-going | This is an on-going effort |
| 8.W | Provide Waste Prevention Technical Assistance to the Commercial Sector | ZW4 | Develop an outreach tool and technical assistance to the commercial sector | Existing outreach funding | Launch in 2023 | Outreach tool and technical assistance in development, for launch in 2023 |
| 8.X | Prioritize Domestic Processing of Recyclable Materials | ZW5 | Prioritize domestic processing of recyclable materials | Request for additional $500,000 | On-going | Domestic processing for Mixed Paper and Mixed Rigid Plastics began April 2022.  Went to Council in November 2022 to request additional funding |
| 8.Y | Eliminate Single-Use Disposable Containers | ZW6 | Eliminate single-use disposable containers by expanding the Disposable Foodware Ordinance | Funded for Ordinance Requirement, need additional funding for infrastructure and implementation of future requirements | Launch in 2024 | Strategy and timeline in development, for launch in 2024 |
| 8.Z | Expand the Deconstruction and Construction Materials Management Ordinance | ZW7 | Expand the Deconstruction and Construction Materials Management Ordinance | Additional staff and funding needed | Launch by January 2026 | Expand types of covered projects or increase diversion requirements, collaborate with other Departments; consider including in next Reach Code Cycle to be implemented in January 2026 |
| 8.aa | Implement Reach Code standard for Low Carbon Construction Materials | ZW8 | Implement Reach Code standard for low carbon construction materials | If approved, additional staff and funding needed | Launch January 1, 2023 | Reach Code going to Council for approval in October 2022. If approved, will go into effect January 1, 2023 |

## Appendix A: S/CAP Work Plan Timeline

[2023-2025 Sustainability Workplan.xlsx](https://paloalto365.sharepoint.com/:x:/r/sites/SIPWorkingGroups/Shared Documents/Sustainability Work Plan/2023-2024 Sustainability Workplan.xlsx?d=wdcf209ad035a457aaba3c41cd7af1730&csf=1&web=1&e=au99hE)

## Appendix B: How Climate Actions were Prioritized

The chart below gives an overview of how various emissions reduction activities were prioritized based on various factors. Activities were divided up into four priority tiers:

1. Prioritize for immediate action
2. Prioritize in areas where grid modernization has been completed
3. Requires additional study or stakeholder engagement to determine priority
4. Prioritize only if resources are available

A fuller blue bubble denotes a program that ranks more favorably when considering S/CAP implementation efforts. For example, a program with a full blue bubble in the “Total emissions reduction potential” column has more emissions reduction potential than one with a partially filled bubble. See next page for more detail.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Activity** | **Cost effective (per metric ton basis)** | **Total emissions reduction potential** | **Minimizes Electric Utility Impacts** | **Policy leverage – City ability to impact** | **Funding Source Availability** | **Priority Tier** |
| **Mobility – Bicycling / Alternative Modes** |  |  |  |  |  | C |
| **Visitor EV adoption** |  |  |  |  |  | D |
| **New buildings/ADU** |  |  |  |  |  | A |
| **Single-Family** | | | | | | |
| **Water Heating** |  |  |  |  |  | A |
| **Space Heating (w/ A/C)** |  |  |  |  |  | B |
| **Space Heating (w/o A/C)** |  |  |  |  |  | B |
| **Other Building Equipment** |  |  |  |  |  | B |
| **Electric Vehicles** |  |  |  |  |  | A |
| **Multi-Family** | | | | | | |
| **Building retrofits** | (1) |  |  |  |  | C |
| **Electric Vehicles** |  |  |  |  |  | A |
| **Non-Residential** | | | | | | |
| **Rooftop HVAC** |  |  |  |  |  | A |
| **Other building equipment** | (2) |  |  |  |  | C |
| **Fleet Electrification** |  |  |  |  |  | D |
| **Commuter EVs** |  | | | | | |
| **Small/Med Business** |  |  |  | (1) |  | B |
| **Major Facilities** |  |  |  | (1) |  | B |

*1. Tentative ranking based on some preliminary ideas that need more exploration, which will take staff time*

*2. Tentative conclusion based on initial impact analysis, needs more study*

#### Insights:

* Mobility and EVs are the most cost-effective actions and the City has significant policy leverage in the Mobility area.
* The City has less policy leverage to drive EV adoption, but there are a few areas where it has potential policy leverage, such as increasing EV charger access.
* Electrification of single-family building equipment is worth prioritizing under most criteria. Heat pump water heaters can be promoted citywide. Other equipment should be promoted primarily in neighborhoods with upgraded utility infrastructure.
* Commercial building rooftop packaged HVAC units are worth prioritizing and may have fewer electric utility impacts than other electrification measures.
* More study is needed to identify other viable building electrification actions in the commercial sector.
* More study is also needed on multi-family building electrification.

#### How to Ratings were Determined:

- Rating, high (filled bubble) to low (empty bubble)

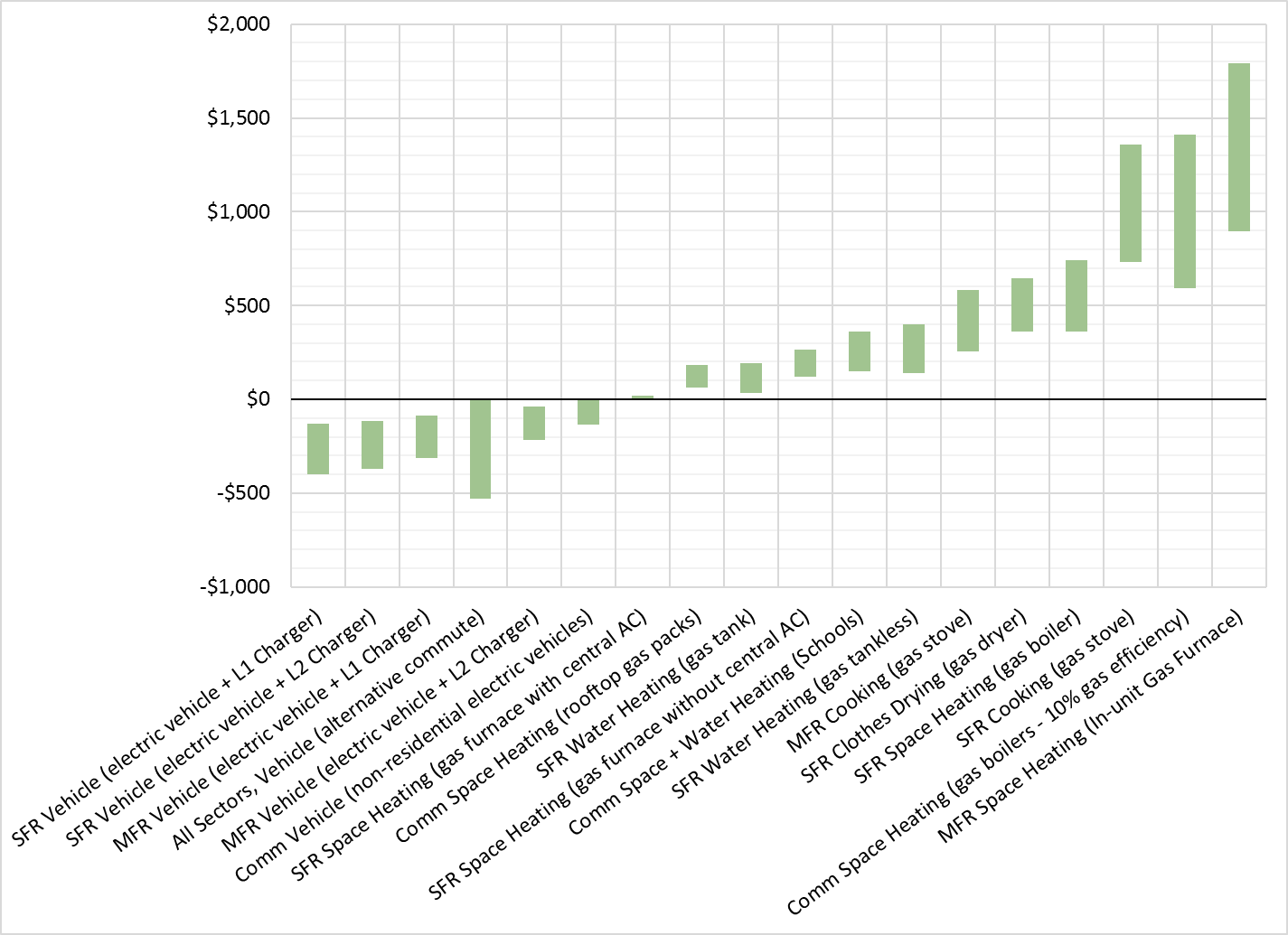
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Cost effective (MT CO2-e)[[3]](#footnote-4) | Total emissions reduction potential\*\* | Minimizes Electric Utility Impacts | Policy leverage – City ability to impact | Funding Source Availability\* |
|  | Deep cost savings | >25,000 MT/yr | No permit review, does not impact utilities | City policy has high impact | Resources / staffing available in existing budget, no added funds needed |
|  | Modest cost savings | 15,000 – 25,000 MT/yr | Permit review, but rare utility upgrades |  | Dedicated funding source under City control, sufficient for pilot programs |
|  | Break even | 10,000 – 15,000 MT/yr | Permit review, causes some utility upgrades |  |  |
|  | Lower cost  ($0/MT -$200/MT) | 5,000 – 10,000 MT/yr | Frequent utility impacts, must develop programs to limit impact. |  | No dedicated funding source for S/CAP pilots, grants may be available |
|  | High cost  (>$200/MT) | Minimal potential | Utility upgrades often needed, cannot be avoided | Little or no ability to impact | No dedicated funding source for S/CAP pilots |

\* It may not be possible to use the same funding source to achieve all goals using the same funding source. For example, Low Carbon Fuel Standard revenue might be available to fund residential EV programs or workplace charging programs, but not both.

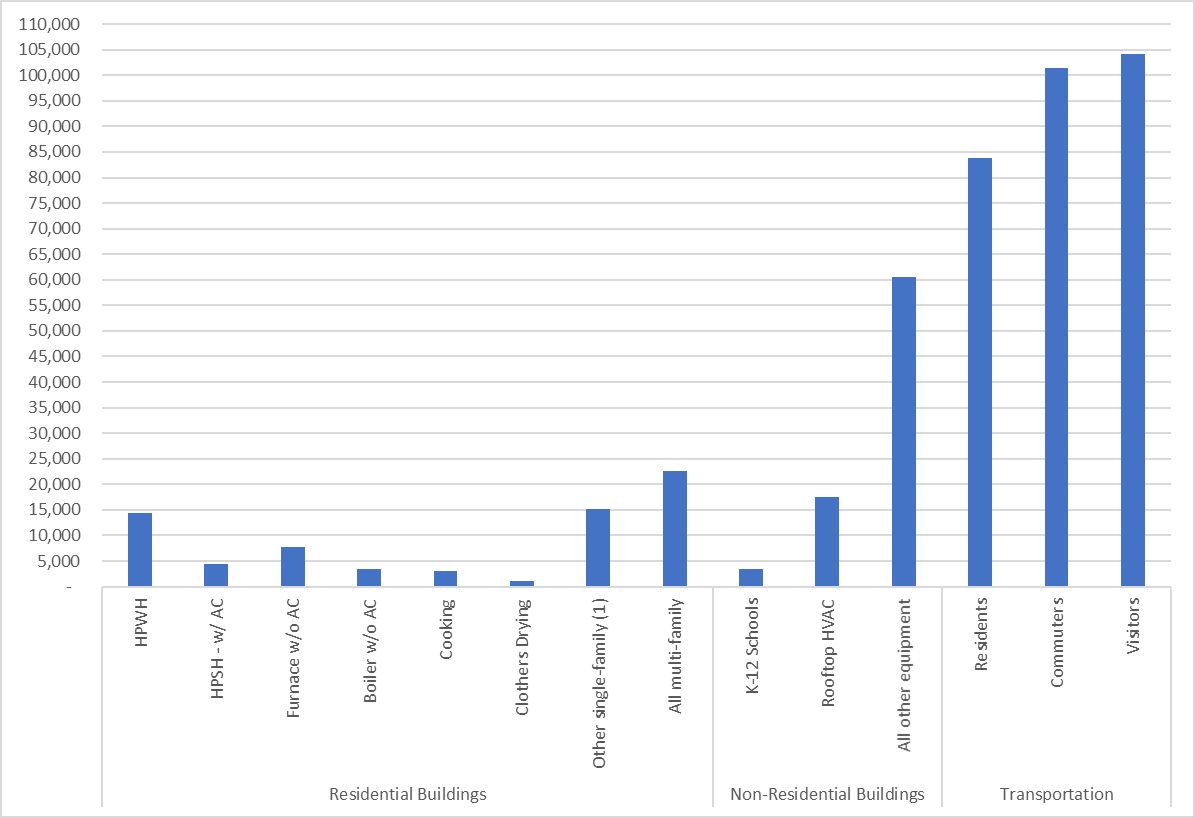
\*\* This represents the full potential contribution of this type of activity to achieving the 80x30 goals, not just the emissions reductions associated with the 2022-2024 work plan.

#### Climate Actions by Individual Prioritization Criteria

**Key Actions by Cost per Metric Ton of Carbon Dioxide Equivalent Reduced[[4]](#footnote-5)**



**Total Citywide Emissions by Source (MT CO2-e)[[5]](#footnote-6)**



## Appendix C: Policy Guidelines for Electric Vehicle Strategic Plan Development

Work item 2.5A calls for the development of an electric vehicles strategic plan, which would guide implementation of several work items. The strategic plan would also relate to a reliability and resiliency strategic plan to be developed in parallel.

#### Objectives

1. Promote residential, workplace, and visitor electric vehicle adoption
2. Lower the cost and carbon emissions of EV charging as much as possible
3. Decrease the impact of electric vehicle charging on the local electric distribution system
4. Explore how electric vehicles could contribute to the efficient and reliable operation of the statewide and local electric system
5. Explore the use of electric vehicles for increased home resiliency
6. Evaluate the reliability and resiliency needs of an electrified transportation system and the City’s role in fulfilling those needs

#### Concepts to explore adding to Strategic Plan

* Scalable programs to provide charging for multi-family and income-qualified households
* Scalable programs to provide workplace and visitor charging
* The role of publicly-owned charging in providing multi-family, income-qualified, workplace, and visitor charging
* How much high-speed charging is needed in Palo Alto and where it should be located
* Business models to make commuter and visitor mid-day low-cost, low-carbon charging more attractive than overnight home charging
* New technologies such as vehicle to load, vehicle to home, and vehicle to grid and their roles in providing home resiliency and improving the efficiency and reliability of the statewide and local electric systems
* Lower wattage chargers and charging behaviors
* Time of day pricing and other ways to encourage off-peak and mid-day charging
* The role of smaller electric vehicles such as e-bikes and e-scooters in transportation emissions reduction
* The role of regional partnerships in driving electric vehicle adoption for commuters and visitors

## Appendix D: Policy Guidelines for Reliability and Resiliency Strategic Plan Development

Work item 1B calls for the development of a reliability and resiliency strategic plan, which would guide implementation of reliability and resiliency work items. This would be coordinated with development of an electric vehicle strategic plan.

#### Objectives

1. Maintain and improve electric system reliability
2. Improve utility outage communication
3. Prepare the electric system for increased penetration of solar, batteries, electric vehicles and chargers, electrified building equipment, and similar new technologies
4. Optimize the use of local grid capacity in a cost-effective way
5. Promote technologies and behaviors that contribute to the efficient and reliable operation of the statewide and local electric system

#### Concepts to explore adding to Strategic Plan

* Addressing utility workforce issues
* Replacing aging infrastructure as part of a grid modernization plan
* Installing additional switching and other solutions to improve reliability and recovery from outages as part of a grid modernization effort
* Improving utility outage management system and communications protocols
* Technologies like vehicle to load or vehicle to home for home resiliency
* Equity in resiliency – how to provide resiliency to income-qualified residents
* Neighborhood-level resiliency solutions such as microgrids and local utility-scale battery storage
* Community emergency center resiliency
* Mobile battery strategies, such as large electric vehicles that could double as emergency resiliency solutions
* Promoting low-wattage electrification solutions to reduce grid impacts of vehicle and building electrification
* Time of day pricing and other ways to encourage shifting electric use to times of day with lower emissions, lower utility cost, and lower local grid impact
* Increasing transformer capacity to accommodate higher loads

| **Key Action Title** | **Work Item(s)** |
| --- | --- |
| **C1.** Provide Building and Transportation Emissions Consultations for Residents | P2.1B |
| **C2.** Develop Major Employer Custom Emissions Reduction Plans | P2.2C |
| **C3.** Study Additional Key Actions Needed for 80 x 30 | P4.A, P4.B, P4.C |
| **C4.** Study Staffing and Budgetary Needs | P5.B |
| **C5.** Study Funding Alternatives | P5.C |
| **C6.** Conduct an Electrification Affordability Study | P5.D |
| **C7. S**tudy Carbon Neutrality Options |  |
| **C8.** Accelerate GHG reductions through Mandates or Price Signals | P2.1K, P2.2A, P2.2B, P2.2D |
| **E1.** Reduce GHG emissions in Single-Family Appliances and Equipment | P2.1D, P2.1E, P2.1F, P2.1G, P2.1H |
| **E2.** Reduce GHG emissions in Non-Residential Equipment | P2.2A, P2.2B, P2.2C |
| **E3.** Reduce Gas Use in Major Facilities | P2.2C |
| **E4.** Reduce Natural Gas Use at City facilities | P2.4A, P2.4B, P2.4C |
| **E5.** Support Income-Qualified Residents and Vulnerable Businesses with Electrification | P5.D, P2.1D, P2.1I |
| **E6.** Develop Electric Rate Options | P1.D |
| **E7.** Use Codes and Ordinances to Facilitate Electrification | P2.2A, P2.2B |
| **E8.** Electric Grid Modernization Plan | P1.A, P1.B, P1.C |
| **E9.** Additional Electrification Opportunities in Commercial and Multi-Family Buildings | P4.B |
| **EV1.** Raise Awareness of Alternative Transportation Modes, Micromobility, and EVs. | P2.1A, P2.2D |
| **EV2.** Collaborate to Promote EV Adoption Regionally | P2.2E |
| **EV3.** Promote EV Adoption and Alternative Commutes for Commuters | P2.2C, P2.2D |
| **EV4.** Facilitate the Adoption of EVs, E-bikes and other Light EVs. | P2.1A, P2.1C, P2.2D |
| **EV5.** Promote Alternative Transportation Modes and Infrastructure To Support Adoption | P2.1I, P2.1J |
| **EV6.** Expand EV Charging Access for Multi-Family Residents | P2.1J, P2.1K  P2.4F |
| **EV7.** Improve EV Charging Access for Income-Qualified residents | P2.1I, P2.1J, P2.1K  P2.4F |
| **EV8.** Ensure EV Charging Capacity Supports EV Growth | P2.1K, P2.2D, P2.4C  P2.4F |
| **EV9.** Electrify Municipal Vehicle Fleet | P2.4D, P2.4E |
| **EV10.** Support Policy to Electrify Fleet Vehicles | P2.2E |
| **M1.** Increase Active Transportation and Transit for Local Work Trips | P2.3A |
| **M2.** Expand Availability of Transit and Shared Mobility Services | P2.3D, P2.3E |
| **M3.** Implement the Bicycle and Pedestrian Transportation Plan | P2.3F, P2.3G |
| **M4.** Improve Transportation Demand Management for Employees and Residents | P2.3H |
| **M5.** Implement Smart Parking Infrastructure in Public Garages and Parking Fees in Business Districts | P5.C, P2.3I, P2.3J |
| **M6.** Study Land Use and Transportation |  |
| **M7.** Continue to Implement the City’s Housing Element | P2.3B, P2.3C |
| **M8.** Improve Transit and Traffic Flow | P2.3K |
| **M9.** Create Housing Density and Land Use Mix that Supports Transit and Non-SOV Transportation | P2.3B, P2.3C |
| **M10.** Encourage Reductions in GHGs and VMT | P4.A, P4.C |
| **W1.** Maximize Water Conservation and Efficiency | 8.A |
| **W2.** Build a Salt Removal Facility | 8.B |
| **W3.** Implement One Water Portfolio Projects | 8.C |
| **W4.** Develop a Dynamic Water Planning Tool | 8.D |
| **S1.** Complete a Sea Level Rise Vulnerability Assessment | 8.E |
| **S2.** Implement a Sea Level Rise Adaptation Plan | 8.F |
| **S3.** Begin Design Process for a Levee Project | 8.G |
| **S4.** Identify Protection Strategies from Significant Flood Events | 8.H, 8.I, 8.J |
| **S5.** Implement the Foothills Fire Management Plan | 8.K |
| **S6.** Minimize Fire Hazards Through Zoning | 8.L |
| **S7.** Collaborate on Reducing Wildfire Hazards | 8.M |
| **S8.** Implement CAL FIRE Public Education Programs | 8.N |
| **N1.** Increase Palo Alto's Tree Canopy | 8.O |
| **N2.**Ensure No Net Tree Canopy Loss for all Projects | 8.P |
| **N3.** Reduce Pesticide Use in Parks and Open Space Preserves | 8.Q |
| **N4.** Enhance Pollinator Habitat |  |
| **N5.** Establish a Carbon Storage of Tree Canopy Baseline and KPI | 8.O |
| **N6.** Maximize Biodiversity and Soil Health |  |
| **N7.** Coordinate Implementation of City Natural Environment-Related Plans | 8.R |
| **N8.** Expand Water Efficient Landscape Ordinance (WELO) Requirements |  |
| **N9.** Phase out Gas-Powered Lawn and Garden Equipment |  |
| **N10.** Support the Green Stormwater Infrastructure Plan | 8.S |
| **N11.** Incorporate Green Stormwater Infrastructure in Municipal Projects | 8.S |
| **ZW1.** Encourage Food Waste Prevention and Require Food Recovery from Commercial Food Generators | 8.T |
| **ZW2.** Promote Residential Food Waste Reduction | 8.U |
| **ZW3.** Champion Waste Prevention, Reduction, Reusables, and the Sharing Economy | 8.V |
| **ZW4.** Provide Waste Prevention Technical Assistance to the Commercial Sector | 8.W |
| **ZW5.** Prioritize Domestic Processing of Recyclable Materials | 8.X |
| **ZW6.** Eliminate Single-Use Disposable Containers | 8.Y |
| **ZW7.** Expand the Deconstruction and Construction Materials Management Ordinance | 8.Z |
| **ZW8.** Implement Reach Code standard for Low Carbon Construction Materials | 8.aa |

1. The 80x30 goal is to reduce Palo Alto greenhouse gas emissions 80% from 1990 levels by 2030 [↑](#footnote-ref-2)
2. Carbon neutrality means that all GHG emissions emitted into the atmosphere are balanced in equal measure by GHGs that are removed from the atmosphere, either through carbon sinks or carbon capture and storage [↑](#footnote-ref-3)
3. Metric tons (MT) of carbon-dioxide equivalent (CO2-e), a common measure of greenhouse gas emissions quantity. [↑](#footnote-ref-4)
4. Cost per metric ton shown as a range from a low-cost scenario to a high-cost scenario [↑](#footnote-ref-5)
5. Metric tons (MT) of carbon-dioxide equivalent (CO2-e), a common measure of greenhouse gas emissions quantity. [↑](#footnote-ref-6)