CHAPTER 7
BENCHMARKS AND NEXT STEPS

This chapter describes how the City will implement the CAP emissions reduction measures and actions. It reviews strategies for staff to implement the CAP measures and related actions, and then recommends approaches for the City to track its progress in achieving the outcomes identified for each measure in Chapters 3 and 4. Finally, the chapter presents a proposed process for evaluating, updating and amending the document over time to ensure it remains effective, actionable, and current.

Implementation and Monitoring

Ensuring that the CAP measures translate from this document into on-the-ground results is critical to the success of the plan and the City reaching its 2020, 2035, and 2050 emission reduction targets. To facilitate this, each recommended measure and action described in Chapters 3 and 4 contains an associated table that identifies the estimated greenhouse gas reduction potential in 2020, implementation actions that help to achieve those reduction levels, current implementation status of those steps, department responsible for implementing those actions, performance indicators used to quantify emissions reductions (where applicable), implementation timeline, and additional co-benefits (see graphic example below for review).

ACTION		
Implementation Steps	**Status**	**Responsibility**
• Implementation Step • Implementation Step • Implementation Step	P	Public Works Department
Progress Indicator (2020) Update x, y, and z by 2020	**Reduction Potential** (MT CO2e/yr) **100**	
Co-Benefits	**Implementation Timeline**	
		

These tables enable City staff, the City Council, and the public to track measure implementation and monitor overall CAP implementation progress. The 2020 performance indicators are especially important, as they provide a checkpoint to evaluate if a measure is on target to achieving its anticipated longer-term emission reductions.

Each measure's estimated GHG emissions reductions are based on that measure's quantified performance indicator, which will help City staff track progress toward the GHG reduction targets. For example, Measure M-F-2 (shown in Table 7.1) focuses on the installation of renewable energy systems. The measure's estimated GHG emissions reductions are based on various assumptions, including the generation capacity of new solar photovoltaic systems installed on City buildings and parking lots by the 2020 target year. The 2020 performance goals are based on installation of approximately 500 kW of photovoltaic (PV) capacity at five City facilities, including rooftops and parking lot carport structures. If the City is able to install more renewable energy capacity than estimated in this measure, additional emissions reductions will occur. Likewise, if the amount of renewable energy installed is less than the amount indicated in the performance indicator, then this measure will achieve less than its stated GHG reductions.

Table 7.1
Measure Implementation Tracking Template

MEASURE M-F-2 Renewable or Low-Carbon Electricity Generation

Develop renewable energy facilities at municipal buildings and facilities.

Actions and Implementation Steps	Department and Division Responsible	Phasing
A. Solar PV Installations on City Buildings / Property		
▪ Based on results of City's previous solar feasibility study, pursue PV installations at City Hall complex, Quinlan Community Center, Cupertino Library, Corporation Yard, and Civic Center carports through Santa Clara County Regional PPA or other financing option (e.g., City procurement, lease-to-own)	Department, Division	Establish a target date or timeframe for Implementing each action, (e.g., September 2015, Fall 2015, or FY 2015-16.)
▪ Review future potential for additional PV installations at sites associated with implementation of Civic Center Master Plan (e.g., Teen Center, new City Hall, Sheriff's Office)	Department, Division	Establish a target date or timeframe for Implementing each action, (e.g., September 2015, Fall 2015, or FY 2015-16.)
B. Solar Thermal Installations on City Facilities		
▪ Following implementation of other energy audit improvement opportunities, conduct further feasibility analysis for primary solar thermal systems identified in audit (i.e., Blackberry Farm Pool and Sports Center)	Department, Division	Establish a target date or timeframe for Implementing each action, (e.g., September 2015, Fall 2015, or FY 2015-16.)
▪ Identify funding / financing source to implement cost-effective solar thermal options at opportunity sites, either through ESCO contract or direct City install	Department, Division	Establish a target date or timeframe for Implementing each action, (e.g., September 2015, Fall 2015, or FY 2015-16.)
▪ Annually review hot water usage at City buildings and facilities to identify additional cost-effective opportunities for solar thermal installations	Department, Division	Establish a target date or timeframe for Implementing each action, (e.g., September 2015, Fall 2015, or FY 2015-16.)

Performance Indicator	Year	Tracking Mechanisms
▪ Assumes five solar sites are developed for total installed capacity of 508 kW generating 818,000 kWh/yr ▪ Assumes no solar thermal systems are pursued prior to 2020	2020	Collect installation data from renewable energy project contracts (or meters) and analyze to gauge progress toward goals: Examples: What was the total installed generation capacity (in kW) for the photovoltaic systems? How many kWh/yr of electricity are generated from the photovoltaic systems? How many therms of natural gas will be reduced by the solar hot water systems?

Upon adoption of the CAP, the City departments identified in the implementation tables shown in Chapters 3 and 4 will have responsibility for investigating or implementing their assigned actions. Sustainability staff will work with key staff in each department to facilitate the measures and actions. To assess the status of City efforts, CAP implementation meetings should take place on a regular basis. Some actions will require inter-departmental cooperation, and appropriate partnerships will need to be established.

Implementation Timeline – Near-Term Actions

Table 7.2 provides a summary of all community-wide and municipal operations actions that are identified for near-term implementation. While community and agency priorities will likely shift in the future, this table provides a quick reference for where implementation can begin today.

Table 7.2
Summary of Near-Term Reduction Actions

Reduction Measures / Actions	2020 Reductions (MT CO2e/year)
COMMUNITY-WIDE REDUCTION STRATEGIES	
Facilities Strategy	
C-E-1 Energy Use Data and Analysis A. Work with PG&E to facilitate aggressive implementation of PG&E's Home and Business Area Network (HAN) program within Cupertino	
C-E-2 Retrofit Financing B. Continue to participate in effort with other Santa Clara County local governments to establish countywide PACE financing district available for residential property owners (could also provide another source of commercial financing to compliment California FIRST program)	
C-E-3 Building Retrofit Outreach A. Partner with local realtor community to develop and implement a building owner outreach campaign that targets new building owners to provide information on available building energy efficiency audit and retrofit programs, as well as locally-available financing options (including PACE financing)	

Table 7.2
Summary of Near-Term Reduction Actions

Reduction Measures / Actions	2020 Reductions (MT CO2e/year)
C-E-5 Community-wide Solar Photovoltaic Development	
F. Work with PG&E to share information about PG&E's Community Solar program	
L. Instruct building and plan check officials to provide information to customers on the benefits of pre-wiring / pre-plumbing for solar applications at the time of new construction or substantial retrofits, including lower up-front costs as compared to retrofitting buildings in the future	
Transportation and Land Use Strategies	
C-E-7 Community Choice Energy Option	
A. Work with other Santa Clara County partners to conduct feasibility study of developing multi-jurisdiction CCA program	
C-T-3 Transportation Demand Management	
A. Support regional efforts to implement SB 1339 commute benefit requirements for employers with more than 50 employees	
C-T-7 Community-wide Alternative Fuel Vehicles	
B. Work with MTC and Bay Area local governments to develop informational brochures and technical support for developers / contractors interested in providing public electric vehicle (EV) charging ports in new projects	
C. Identify regional partners for collaboration on multi-family EV charging station retrofit program to develop strategies for installing EV chargers in existing multi-family buildings/apartment developments	
E. Provide links on City's website to sources of cash rebates or other financial incentives for purchase and/or lease of alternative fuel vehicles	
Water Strategies	
C-W-1 SB-X7-7	
B. Implement process to track and report community-wide water usage through quarterly staff reports; explore options to make information publicly available through an open data portal system	
C. Partner with community/neighborhood groups to promote existing water conservation programs and participation in voluntary turf-removal programs	
C-W-2 Recycled Water Irrigation Program	
C. Identify City-owned site to install educational demonstration project that showcases water-efficient landscaping strategies, alternative irrigation options, and/or low-impact landscape design techniques	
Solid Waste Strategies	
C-SW-1 Zero Waste Goal	
A. Continue to implement City's goal to divert 75% of community-wide solid waste through franchise waste hauling contract	

Table 7.2 Summary of Near-Term Reduction Actions	
Reduction Measures / Actions	**2020 Reductions (MT CO2e/year)**
MUNICIPAL OPERATIONS REDUCTION STRATEGIES	
Facilities Strategies	
M-F-1 Sustainable Energy Portfolio A. Support utility enhanced clean generation portfolio B. Create a community choice energy option	
M-F-6 Complete Citywide Public Realm Lighting Efficiency B. Retrofit remaining parking lot and park facility lighting	
M-F-7 Conserve Water through Efficient Landscaping C. Adopt water budget and green grounds policy	
Solid Waste Strategies	
M-SW-1 Waste Reduction D. Conduct waste characterization audits and track materials/diversion	

Plan Evaluation and Evolution

The CAP represents the City's first comprehensive plan to reduce municipal operations GHG emissions in alignment with short- and long-term reduction targets. Staff will need to evaluate the CAP's performance over time and be ready to alter it if the City is not achieving its reduction targets, as directed by the City's General Plan, and to ensure future project CEQA streamlining benefits described in previous chapters.

Plan Evaluation: Ongoing Monitoring for Continued Success

Two types of performance evaluation are important: (a) evaluation of the City's overall ability to reduce GHG emissions, and (b) evaluation of the performance of individual CAP measures. Future emissions inventory updates will provide the best indication of CAP effectiveness. Conducting these inventories periodically will enable direct comparison to the 2010 baseline inventories and measurement of progress toward meeting the City's adopted reduction targets.

While GHG inventories provide information about overall emission reductions, it will also be important to understand the effectiveness of each measure. Evaluation of the emissions reduction progress of individual measures will improve staff and decision makers' ability to manage and implement the CAP. The City can reinforce successful measures and reevaluate or replace under-performing ones.

To track measure performance, City staff will need to collect important data that are related to the performance indicators shown in the measure tables. While much of the data is already available from existing reports or processes, some improvements in data collection will be needed. It is therefore important that Sustainability staff and key staff from relevant departments establish methods of data collection in a consistent, simplified, and ideally, centralized way. The implementation tables from Chapters 3 and 4 have been expanded and collected in Appendix C as the basis for a CAP Implementation Tracking Framework. Table 7.1 (included above) presents a sample from this appendix to show the types of information that will need to be collected in order for the City to monitor and track measure implementation progress.

Similar to the implementation tables, Table 7.1 presents the Measure, Actions, and Implementation Steps. It also provides a space to designate responsibiltiy for individual implementation steps, establish phasing timelines, and track important data related to the Performance Indicator. The Phasing column allows each responsible department to identify internal timelines for implementing specific action steps, which could be expressed as specific target years or more generally as short-, medium-, and long-term actions. The Tracking Mechanisms specify how implementation of the Performance Indicators will be monitored. The Performance Indicators should be evaluated regularly to ensure each measure is on track to achieve its stated emissions reductions. If during the implementation review process a measure is found to be falling short of its performance goals, then additional attention can be given to modifying the implementation actions. Further, if implementation review indicates that a measure will be unable to achieve its stated reduction level, then new CAP measures would need to be developed to make up the difference, or other existing measures could be enhanced to increase their emissions reduction potential. CAP implementation should be an iterative process to reflect future changes in technology, available budget, and staff resources. City staff will use the Implementation Tracking Framework from Appendix C to develop a performance tracking system that covers each CAP measure and action and fits within existing City procedures.

Sustainability staff will collaborate with staff from responsible departments to evaluate measure performance on a regular, defined basis. Sustainability staff will also prepare a periodic summary report that outlines progress toward CAP measures and actions. The report could cover areas such as estimated GHG emissions reductions to date, progress toward the next reduction target, progress toward implementation of the actions, achievement of measure performance indicators, implementation challenges, and recommended next steps. Staff may want to deliver this report in conjunction with the state-required annual report to the City Council regarding implementation of the City's General Plan.

PLAN EVOLUTION: ADAPTING FOR CONTINUOUS IMPROVEMENT

For it to remain relevant, the CAP also needs to be adapted over time. It is likely that new GHG reduction technologies and strategies will be developed, new financing mechanisms will be available, and state and federal legislation will change. It is also possible that future GHG emission inventories will indicate that the City is not on track toward achieving its adopted GHG reduction targets. If this is the case, the City can assess the implications of new scientific findings, explore new emission reduction technologies, respond to changes in state and federal climate change policy, and modify the CAP accordingly to help the City get back on track toward meeting its GHG reduction targets.

Following the 2020 CAP target year, the City should also begin to define the priority measures and implementation action steps that it will pursue to help achieve the 2035 reduction target. This process should begin with preparation of a 2020 emissions inventory that can be used to compare progress made since the baseline 2010 inventory. The updated inventory will also be helpful in identifying priorities for new City actions. The City can refer to the 2035 and 2050 target achievements sections in Chapters 3 and 4 for guidance on the types of strategies that should be included in future CAP revisions. However, it will be important to consider the City's current emissions inventory, ongoing City actions, new state legislation, and emerging technologies to define the specific pathway towards achieving the next emissions reduction target.

Inventory Updates

As mentioned throughout this document, the City's ability to track implementation success is best achieved through regular emissions inventory updates (e.g., every 3-5 years). These updates will allow the City to compare its actual future emissions levels to those forecasted in Chapter 2, and track the long-term trajectory of the City's emissions. As part of the future inventorying process, the City should also develop a procedure to share this new information with the public and City Council, report on progress made towards the next target, and compare the updated inventories to previous estimates presented in this CAP.

There are various challenges inherent when inventorying emissions, which can make it difficult to allow for direct comparisons from one inventory year to the next. For example, the state of the climate science industry is perpetually advancing and shifting, leading to revisions in inventory methodologies. Similarly, the emissions factors upon which inventories are developed are constantly being refined by various agencies and entities (e.g., California Air Resources Board, International Panel on Climate Change). There are also instances in the inventory process where judgment calls must be made in order to interpret and apply the best available data at the time. While the Local Government Operations Protocol and ICLEI have developed guidance on how local governments should prepare their inventories, inconsistencies can arise and practitioners do have nuanced approaches to applying this guidance.

In order to best position itself to produce future inventories that can be compared to past inventories with relative consistency, the City should continue to develop its institutional

knowledge in the area of emissions generation sources, reduction opportunities, and emissions inventory variables. Whether through a strong leadership role in preparing its own updates (possibly using ICLEI's online resources) or through a partnership with other area jurisdictions, the City should remain engaged in the inventorying process so that City staff can provide a level of consistency from one update period to the next. Additionally, Appendix B provides the inventory methodology used to prepare the community-wide and municipal operations inventories and forecasts presented in this CAP. This appendix should serve as a reference for future inventory updates to provide as much consistency as possible.

Reporting Progress and Celebrating Successes

Monitoring and updating the plan are only beneficial exercises if shared with the broader community to ensure ongoing effort transparency and staff accountability in achieving the objectives of this CAP. As mentioned throughout this document, the CAP is a living document that will be most successful when provided consistent attention and care. City staff already provides annual updates to the City Council regarding implementation of the General Plan. A similar reporting schedule should be developed for the CAP to celebrate the numerous successes that will occur following implementation, and as a way to formally recognize the hard work of staff and community members in cultivating that success. One consideration to prioritize this timeline is to partner with a third-party to elevate agency accountability and expand acknowledgement of the City's emissions reduction efforts (e.g, the Institute for Local Government's Beacon Award (http://californiaseec.org/beacon-award) or a broader community sustainability initiative called the STAR Community Rating System (http://www.starcommunities.org)).

This plan was developed through collaboration with residents, businesses, City staff, and elected officials, and represents a shared vision for Cupertino's sustainable future. Together, we can bring life to this bold vision and share in its rewards.

Endnotes

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