

An Analysis of Selected Climate Action Plans in California

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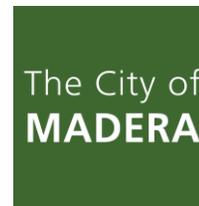
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Chris

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Introduction

My understanding of climate change and its anthropogenic influences has improved as my education at Cal Poly has progressed. The urgency of these issues related to climate change has become more apparent to me and has caused me to prioritize climate action planning and its closely related and integrated fields. I have had several internship experiences that were incredibly valuable and allowed me to observe and participate in different aspects of planning. They also helped me identify aspects of planning I am less interested in. I continue to want to learn about case studies and best practices that have tangible results, from a scientific and community standpoint. Familiarizing myself with and analyzing various climate action plans will increase my exposure to actions, policies, and their many levels of associated effectiveness/impact. I see meaningful policy creation and implementation as one of planning's biggest challenges, but it also leads to solutions and impacts I want to experience and contribute to.

Methodology and Executive Summary

This project involves the research and comparison of seven cities' climate action plans, each from its own region within California. Each city contains populations of approximately 60,000-67,000 residents, except Chico, which represents the Northernmost region of California. The cities chosen include Chico (Northern California), Lodi (Sacramento), Cupertino (Bay Area), Santa Cruz (Central Coast), Madera (Central Valley), La Habra (Los Angeles), and National City (San Diego). The regions selected were roughly based on general population distributions and differences in geographical and climate implications throughout California. After the regions were selected, cities with adopted climate action plans within those areas were identified. Amongst cities with adopted climate action plans, the populations of these cities were assessed. The range of populations acts as an equalizer in the comparison of cities. This ensures that a climate action plan from a city of 250,000 residents is not being compared to a climate action plan from a city of 15,000 residents. Cities with approximate populations will generally equate to similar levels of resources for the climate action plan creation process. The selected range is one of the most common ranges of city



Map of Locations of Selected Cities and Regions

populations of cities with adopted climate action plans in California. This range is approximately between 60,000 and 67,000 residents. Each region had a city that fit within this range, except for Northern California (Chico). Chico has close to 95,000 residents. It was chosen to ensure the representation of the large geographical area of Northern California (North of Sacramento Area roughly), even if the area has few cities with adopted climate action plans and no cities with adopted climate action plans that fit into the selected range.

This analysis will identify similarities in framework and content among each plan, highlighting organizational differences, some generalized observations, and the consistency of topics covered and not covered within the plans. This project reviews the California Office of Planning & Research’s General Plan Guidelines Chapter 8, the California Office of Emergency Services’ California Adaptation Planning Guide, and California’s 2017 Climate Change Scoping Plan. Each climate action plan will be analyzed through the lens of state guidelines and its perceived level of effectiveness in terms of greenhouse gas reductions through programs targeted in the plan. The areas selected roughly represent major California regions, each with unique characteristics that will impact the characteristics of the climate action plan’s framework and contents.

City	County	Region	Population	Year of CAP Adoption
Chico	Butte	Northern California	94,776	2012
Lodi	San Joaquin	Sacramento	66,995	2014
Cupertino	Santa Clara	Bay Area	60,170	2015
Santa Cruz	Santa Cruz	Central Coast	64,725	2012
Madera	Madera	Central Valley	65,706	2015
La Habra	Orange	Los Angeles	62,183	2014
National City	San Diego	San Diego	61,431	2011

Literature Review

California's 2017 Climate Change Scoping Plan provides strategies for achieving California's 2030 greenhouse gas target (California Air Resources Board, 2017). The relationship of the selected plans to this framework will be analyzed, even with the selected plans being adopted before 2017. This will help illuminate differences between the plans and possible recent climate capacity growth in creating easily implementable policy and programs across the state.

The 2017 Climate Change Scoping Plan acts as the state's climate action plan (California Air Resources Board, 2017). The 2017 Climate Change Scoping Plan highlights five climate change strategy "pillars" from Executive Order B-30-15 needed to meet California's ambitious climate change goals (California Air Resources Board, 2017). The five pillars are: reducing today's petroleum use in cars and trucks by up to fifty-percent, increasing from one-third to fifty-percent electricity derived from renewable sources, doubling the efficiency savings achieved at existing buildings and making heating fuels cleaner, reducing the release of methane, black carbon, and other short-lived climate pollutants, and managing farm and rangelands, forests, and wetlands, so that they can store carbon (California Air Resources Board, 2017). This project will analyze how the selected climate action plans address these goals and greater emissions reduction targets, and how policy can be more effective in relation to meeting these goals moving forward.

The Scoping Plan also includes details about key sectors and a table about cross-sector relationships (California Air Resources Board, 2017). The inclusion or lack thereof of these sectors and strategies in the plans chosen will be assessed. Also, interactions between sectors will be analyzed based on the status of those sectors for each city and any associated strategies. The Scoping Plan references the five primary pillars of the California Air Resources Board's approach to environmental justice: Transparency, Integration, Monitoring, Research, and Enforcement (California Air Resources Board, 2017). These pillars will also be integral to each jurisdiction's plan. Examining the plans in relation to these pillars will aid in the analysis of some elements of effectiveness and level of success.

The California Adaptation Planning Guide includes guiding principles for local governments to utilize for adaptation and resiliency efforts (California Governor's Office of Emergency Services, 2020). The document provides information in the form of a step-by-step process that communities can refer to in creating their own adaptation plans (California Governor's Office of Emergency Services, 2020). The Guide also highlights statewide information and the location of key planning tools for local governments. It describes four distinct phases of the adaptation planning process (California Governor's Office of Emergency Services, 2020). Addressing climate change requires adaptation and mitigation, or the reducing of GHG emissions (California Governor's Office of Emergency Services, 2020). The Guide lists a large range of possibilities for communities to take on climate change adaptation (California Governor's Office of Emergency Services, 2020). Climate action plans are second on this list, with a description of stand-alone climate adaptation plans and their necessary contents, which include background, strategies, and implementation programs (California Governor's Office of Emergency Services, 2020).

Types of equity in adaptation planning include procedural equity, distributional equity, and structural equity (California Governor's Office of Emergency Services, 2020). Adaptation planning is reliant on four possible groups of participants: community stakeholders, local agency stakeholders, national, state, and regional stakeholders, and partner organizations (California Governor's Office of Emergency Services, 2020). Adaptation planning must be focused on utilizing the best available science and best practices, while also not conflicting with existing city plans, laws, and regulations (California Governor's Office of Emergency Services, 2020). Inspiration for adopting an adaptation planning process is rooted in stressors, general community concern, regulatory requirements, and opportunities through grants and other funding sources (California Governor's Office of Emergency Services, 2020).

The Guide lists co-benefits of any city action that results in increased resiliency, or a reduction in GHGs as also possibly resulting in cost-savings, air quality improvements, water quality protections, stormwater management, increased public safety, recreation, open space, public health improvements, and economic continuity (California Governor's Office of Emergency Services, 2020). The appendices of the Guide include overviews of sectors impacted by climate change and their respective vulnerabilities, including: agriculture, biodiversity and habitat, emergency management, energy, forests, land use and community development, ocean and coast, parks, recreation, public health, transportation, and water (California Governor's Office of Emergency Services, 2020).

Chapter 8 of the Office of Planning and Research's General Plan Guidelines summarizes how a climate action plan can work alongside CEQA Guidelines section 15183.5 (Governor's Office of Planning and Research, 2017). However, the chapter qualifies that local governments have the discretion to choose appropriate and city-specific methodology and methods to address climate change (Governor's Office of Planning and Research, 2017). It also describes the relationship between CEQA and the impacts of climate change, highlighting CEQA's role in helping to address climate change impacts (Governor's Office of Planning and Research, 2017).

Another resource mentioned in Chapter 8 is the Statewide Energy Efficiency Collaborative (SEEC), which is a partnership between statewide non-profit organizations and California's four investor-owned utilities (Governor's Office of Planning and Research, 2017). This alliance works to streamline the processes of local governments related to saving energy, reducing GHGs, and accelerating climate action (Governor's Office of Planning and Research, 2017).

Chapter 8 also discusses the benefits of synchronizing climate action plans alongside general plan updates (Governor's Office of Planning and Research, 2017). Benefits include a wider range of mitigation measures in creating GHG reduction strategies, a wider range of CEQA streamlining measures, the ability to streamline environmental review for GHG reduction strategies, and the ability to create consistent baseline and growth conditions and assumptions (Governor's Office of Planning and Research, 2017). Analysis of emissions on a variety of levels may allow for a more complete understanding of community emissions, including mass emissions at the community, state, per capita, and service population levels (Governor's Office of Planning and Research, 2017). Long-term trajectory goals need to be included as well, which help to analyze long-term societal changes that impact the feasibility of emissions reductions (Governor's Office of Planning and Research, 2017).

Local climate action plans must examine the role that state programs will play in local emissions reductions, while also focusing on ways to reduce emissions beyond what the state programs will achieve (Governor's Office of Planning and Research, 2017). CEQA Guidelines sections 15168(b)(4) and 15168(c)(3) require climate action plans to include measures that will help reach reduction targets (Governor's Office of Planning and Research, 2017). Climate action plans must provide for mitigation plans to apply on a project-specific basis (Governor's Office of Planning and Research, 2017). This includes methodology and calculations that are transparent and replicable to support the assumptions, analysis, and conclusions described in the plan (Governor's Office of Planning and Research, 2017). Environmental review of CAPs is also necessary - new projects may require the analysis of impacts to species or habitats, etc. (Governor's Office of Planning and Research, 2017). Tools listed for addressing climate change include a variety of process guidance, GHG emissions, and climate adaptation resources for local governments (Governor's Office of Planning and Research, 2017).

Narrative and Evaluation Tables

Initial analysis of the seven selected climate action plans identified a variety of integral concepts, processes, details, and other observations that constitute the strengths and weaknesses of these plans and their framework. Major questions regarding the effectiveness of these plans include: “Who is in charge? How did the plan get put together? How was the report developed? Was there key input from community members? Is there a process to revisit the plan? What are the measures to be implemented? How will it be implemented and reviewed?” These questions represent some of the main concepts and analysis criteria that will help identify the strengths and weaknesses of each plan, while also considering how they could be attributed to other analyzed plans, existing plans, and future plans.

This project aims to identify and provide an agglomeration of strong elements of existing climate plans. It strives to discuss and analyze how cities can achieve or will achieve those elements. This project draws from the contents of each of the seven selected CAPs to create a set of recommendations for these plans, climate action plans in general, and cities looking to enact climate action plans in the future. This project seeks to highlight examples of ideas, concepts, framework, and procedural details that ensure effectiveness, thoroughness, and transparency in the climate action plan creation, implementation, and monitoring process.

The narrative and evaluation tables below are the main criterion of analysis for each of the selected climate action plans. The tables below illustrate key elements of CAPs and if and how each plan described, addressed, or included each element or factor. The written pages before each table provide added details to the contents of the tables and highlight unique characteristics of some of the plans. Each page correlates to the table on the following page.

The superscripts above each element create a numerical system for all elements. The descriptions of specific elements within the later Summary of CAP Elements and CAP Recommendations sections are numbered in accordance to the related element.

Most of the plans included work from a contractor. For example, the City of Madera CAP was submitted by Rincon Consultants (Rincon Consultants, Inc., 2015). The descriptions of who holds responsibility for the implementation and monitoring of the plans varies, but all plans describe a specific person, or position, in charge. Some plans go into detail about the delegation of the responsibility of measures and their associated steps. The City of Santa Cruz hired a Climate Action Program Coordinator to lead their plan (City of Santa Cruz, 2012). Other cities put this responsibility in the hands of their community development directors.

While it can be inferred that all climate action plans have a relationship with the General Plan and other documents, the plans go into varying detail, with some not including explicit discussion.

Almost all plans follow International Council for Local Environmental Initiatives (ICLEI) Protocol in using the five-step development process to create the Greenhouse Gas Emissions Inventory. ICLEI Protocol provides a five-milestone framework for reducing GHG emissions and addressing climate change, acting as a model for the development of GHG inventories and climate action plans (City of Chico General Services Department, 2012).

Most plans included an executive summary, with some including a discussion of co-benefits of the plan and its implementation measures. However, some plans described co-benefits in other parts of the plan, or focused co-benefits on addressing the negative impacts of climate change and how they would impact the specific city.

Selected Cities	Contractor¹	Who is in Charge?²	Mention of Relationship to GP/ Other Documents³	Follows ICLEI Protocol for GHG Emissions Inventory?⁴	Discussion of co-benefits of CAP⁵
Chico	In-House	Unclear - mentions Implementation Plan	Yes	Yes	Yes
Lodi	AECOM	City Staff in each department (not specified)/ Board of Supervisors/ public	Yes	Yes	Yes
Cupertino	AECOM	By division, no specific department head listed as leader	Yes	Yes	Yes
Santa Cruz	In-House	Sustainability & Climate Action Coordinator/ Manager & Sustainability Team	Yes	Yes	Yes
Madera	Rincon	CAP Coordinator	Yes	Yes	Yes
La Habra	Atkins	Implementation Coordinator, City GHG Reduction Team	Yes	Yes	Yes, but only briefly
National City	Design, Community, & Environment	Planning Division	Yes	Yes	No, but it states its consideration in the selection of actionable measures

All plans include and state some version of goals and reduction targets, with differing layouts for how they will address each, broken down by sector. Sectors are not uniform, varying for each city in number and contents. Some plans included implementation phases and their associated time frames, while others included expected dates for actionable measures to be completed. Some plans described the costs of actionable measures, while the City of Chico went as far as to include a Cost-Benefit Analysis for each sectors' reduction-measure actions (City of Chico General Services Department, 2012). The City of Cupertino included an incentives-based approach that was woven into their implementation measures and aimed at boosting proposed strategies and actions (City of Cupertino, 2015). The City of Lodi included the relative cost of measure implementation and participation for each implementation measure, while also analyzing costs of the public (city) and private (residents, businesses) sectors (AECOM Design + Planning, 2014).

Most of the plans at least minimally discussed the relationship between the CAP and local climate action, along with the relationship between the CAP and regional and state climate actions and legislation. The City of Chico integrated relevant regional documents and necessary framework within the plans' objectives and corresponding actions (City of Chico General Services Department, 2012).

The California Environmental Quality Act (CEQA) was mentioned in several of the plans. Some did not go into detail, while others more closely explained its potential role in new projects and its role in reaching specific reduction targets. The City of Cupertino described potential CEQA streamlining benefits for climate-friendly projects as a part of Santa Clara County's Silicon Valley 2.0 Initiative (City of Cupertino, 2015).

Selected Cities	Inclusion of Cost-Benefit Analysis⁶	Discussion of CEQA⁷	Discussion of State & Regional Actions & Implications⁸	Inclusion of Incentives for Actionable Measures⁹
Chico	Yes	Yes	Yes	Yes - Individually by Measure
Lodi	Yes (Public & Private)	Yes	Yes	Yes - Individually by Measure
Cupertino	Yes, within specific actionable measures	Yes	Yes	Yes - Individually by Measure
Santa Cruz	Yes, within specific actionable measures	No, it only discusses general compliance with state CEQA Climate Change requirements	Yes, it was briefly mentioned before stating SC's precedent to act	Yes - Individually by Measure
Madera	Yes	Yes	Yes	Yes - Individually by Measure
La Habra	Yes, it focuses on financial benefits and savings of actionable measures	No, it only mentions it within its description of state climate actions	Yes	Yes - Individually by Measure
National City	Yes, within specific actionable measures	Yes	Yes	Yes - Individually by Measure

While all plans included GHG reduction goals and targets, the level of detail and type of framework deviates. All plans do include some form of performance indicators or performance measures, milestones, and other forms of framework.

The City of National City's Chapter 5 describes the process and elaborates on the specifics of implementation, performance standards, and its monitoring program (Design, Community, & Environment, 2011). National City also outlines how the plan must adapt, re-inventory, and monitor to allow for the appropriate evolution of the plan to meet changing city and CAP standards and characteristics (Design, Community, & Environment, 2011). The way implementation measures are delegated and prioritized is unique for each city. The City of Santa Cruz prioritized measures into three phases: short-term (2012-2014), medium-term (2014-2016), and long-term (2017-2020) (City of Santa Cruz, 2012).

Some cities only briefly introduced the elements of the CAP development process. The City of Cupertino followed the most comprehensive approach in cataloging its six-step CAP development process, relating it to their five CAP objectives and GHG emissions & targets (City of Cupertino, 2015).

The City of Santa Cruz was the only plan to deliver a list of climate action partners internal and external to the city (City of Santa Cruz, 2012). The plan also discussed the corresponding roles of the partners in the GHG reduction process (City of Santa Cruz, 2012).

Another major aspect and strength in some plans was a specific description of how the plan would be monitored and if a biannual, annual, or monthly, etc. report would be created to address the plans' progress in relation to its goals and timelines. The cities of La Habra and Santa Cruz did an exemplary job of designating how staff resources would be prioritized and describing the proper tracking and reporting procedures (Atkins, 2014) (City of Santa Cruz, 2012).

Selected Cities	Discussion of CAP Development Process¹⁰	Mention of CAP Partners¹¹	Delegation of Responsibility (Actionable Measures)¹²	Reporting System (Monitoring)¹³
Chico	Somewhat – it discusses the creation of task forces, does not directly mention the dev. process	Yes	Somewhat – it vaguely designates the city’s responsibilities	“Milestone IV: Implementation Plan” to be repeated annually
Lodi	No – it only mentions CAP purpose	Yes - within introduction & actionable measures	Yes - individually by measure	CAP Implementation Meetings, 3-5 Year Community Inventories on Emissions Reduction Targets
Cupertino	Yes	Yes - throughout document and within actionable measures, sometimes vague	Yes - individually by measure	CAP Implementation Meetings, Appendix C - Tracking Framework, Performance Indicators by responsible department
Santa Cruz	Yes	Yes	Yes - individually by measure	Meetings at least 4x a year hosted by Climate Action Coordinator, semi-annual reports by Community Partnership Committee
Madera	Yes	Somewhat, partners are mentioned in implementation matrix	Yes - individually by measure	Annual CAP Implementation Team meeting to assess status
La Habra	No	Yes, but only in the discussion of actionable measures	Unclear	Discusses the need to create a monitoring and reporting program, development steps for post-2020 plan
National City	No	Yes, but only in the discussion of actionable measures	None listed	Require review every three years of implementation and achievement of reductions and plan update needs

Some of the more technical aspects of the climate action plans were very distinct and had unique features and framework. All plans involved some form of designated baseline years. For example, the City of Madera produced a 2007 baseline, 2020 and 2030 forecasts for emissions sources, and a description of how they relate to each of their five described sectors (Rincon Consultants, Inc., 2015). Several cities included business-as-usual (BAU) and adjusted business-as-usual (ABAU) emissions projections for future target years. The City of Lodi and City of La Habra both included these measures and the City of Lodi also discussed service population considerations and how they may impact these measures and the greater city reduction target goals and measures (AECOM Design + Planning, 2014) (Atkins, 2014).

Most plans characterized climate change impacts within the jurisdictional area of the plan. This was generally a part of the introductory portion of the plans, except for the City of La Habra, which discussed it as a part of Appendix A (Atkins, 2014). The City of Santa Cruz began its plan by addressing sea level rise, the results of its vulnerability assessment, and the local impacts of climate change on weather, plants, animals, ecosystems, ocean acidification, and the economy (City of Santa Cruz, 2012). The City of Lodi was the only city to include the entirety of its initial study, negative declaration, public review draft, and mitigated negative declaration within the actual plan itself (AECOM Design + Planning, 2014).

The cities of Madera and La Habra both incorporated technical assumptions, assumptions, and data sources in their GHG reduction calculations, with La Habra providing specific appendices to illustrate the calculations and data summaries (Atkins, 2014) (Rincon Consultants, Inc., 2015). Appendices were utilized in a variety of ways by cities, with some plans not including appendices. Other plans used them for a variety of purposes such as GHG reduction calculations, a discussion of climate change impacts, maps and tables, details of implementation measures and steps, responsibilities, timelines, phasing, and tracking mechanisms. The City of Madera used an appendix for a CAP consistency worksheet designed to help the city determine if a project and its characteristics are consistent with the CAP, while still allowing variance based on the nature of the project (Rincon Consultants, Inc., 2015).

Selected Cities	Inclusion of Appendices¹⁴	Use of BAU/ABAU in Emissions Reduction Calculations¹⁵	Details/ Explanation of Emissions Reduction Calculations¹⁶	Discussion of Vulnerability Assessment / Climate Change Impacts¹⁷
Chico	Yes	Yes	Yes	Yes
Lodi	No, but it does include Initial Study at the end of the document	Yes	Yes	Yes
Cupertino	Yes	Yes	Yes	Yes
Santa Cruz	No	Yes	Some, with limited details	Yes
Madera	Yes	Yes	Yes	Yes
La Habra	Yes	Yes	Yes	Yes, in Appendix A
National City	Yes	Yes	Yes	Yes

The cities of La Habra and Santa Cruz incorporated the community participation process into their chapters dedicated to CAP implementation (Atkins, 2014) (City of Santa Cruz, 2012). In more specific and personal terms, the City of Cupertino included a chapter titled “What’s My Role?”, which considered the details of how to take personal climate action, following the motto of “Learn, Leverage, Lead” (City of Cupertino, 2015).

There was a fair amount of parity in how and if the topic of adaptation was addressed. The City of Cupertino emphasized adaptation through a specific Adaptation & Resiliency section, while the City of Madera covered the topic of adaptation within its climate action measures (City of Cupertino, 2015) (Rincon Consultants, Inc., 2015).

Most plans did not describe many of the existing climate action plan efforts in the city. However, the City of National City summarized existing and completed efforts and introduced them alongside climate action science, its impacts, and relevant legislation to the plan within its introductory chapter (Design, Community, & Environment, 2011).

Selected Cities	Discussion of Community Participation¹⁸	Mention of Existing or Completed Climate Efforts¹⁹	Inclusion of an Adaptation Discussion or Section²⁰	Discussion of Personal Role of Each Citizen²¹
Chico	Yes, but with limited details, it focuses on Ad-Hoc Committees	Yes	Yes	Somewhat, not directly
Lodi	Yes	Not directly, but some are mentioned in the discussion of actionable measures	No	Somewhat, not directly
Cupertino	Yes	Yes	Yes	Yes
Santa Cruz	Yes	City environmental programs are mentioned by sector within actionable measures	Somewhat, it is briefly mentioned in-document; also states that the city's Climate Adaptation Plan was in-progress	Yes
Madera	Yes, potential outreach techniques are listed within each sector as a policy or implementation action	Yes, they are listed for each sub-sector (within each sector) of implementation actions	Yes, it has its own specific section of implementation measures	No
La Habra	Yes	Yes, as existing actionable measures	No, it only mentions statewide climate adaptation strategy	Somewhat, not directly
National City	Yes, it is briefly mentioned within actionable measures	Yes	No, it is only mentioned in the discussion of relevant legislation	No

Relationship of CAP Analysis to Literature

The 2017 Climate Change Scoping Plan highlights five pillars the California Air Resources Board has established as central to environmental justice (California Air Resources Board, 2017). These five pillars are transparency, integration, monitoring, research, and enforcement (California Air Resources Board, 2017). My analysis of the seven selected climate action plans indicates that these pillars are necessary to creating effective climate action plans, framework for implementation, and thorough monitoring systems. This connection helps explain the relationship between climate change, environmental justice, and local government action. There is a greater need for intersectionality among these topics, city documents, and city actions. The most productive elements of the plans analyzed were those that created built-in opportunities for cross-sector action and interdepartmental work within climate action framework. None of the plans were exceptional at all five pillars, but many included elements that helped follow principle for several of the five pillars. The strengths and capacities of some plans highlighted the weaknesses of other plans.

All seven plans analyzed were created in the earlier stages (2015 or earlier) of the formation of California's climate action policy, in comparison to the guideline documents analyzed within the Literature Review section. Future general plan updates and climate action plans from cities that do not currently have plans should be aware of how past cities within their county, region, or state have acted and created framework that was successful and less successful. The ways the five pillars are most effective and climate framework is most effective will continually change, but the pillars from the 2017 Scoping Plan help provide a part of a short-term standard that illustrates how plans can best follow-through with implementation measures and reach long-term GHG reduction targets.

The California Adaptation Guide focuses on several key topics that overlap with the 21 analyzed elements in this project. Some plans failed to define and provide details for what adaptation means to their specific community. While tailored specifically to adaptation, the four possible stakeholder groups mentioned in the guide (community, local agency, national, and regional) parallels the stakeholders in climate action and those who should be involved with the creation, implementation, and monitoring of climate action plans (California Governor's Office of Emergency Services, 2020). This connection overlaps with the analyzed elements related to the personal role of the citizen, the need for local climate change impacts to be highlighted, and the need for a discussion of the role of community participation in the CAP process.

The Guide emphasizes that adaptation must not conflict with existing plans (California Governor's Office of Emergency Services, 2020). This correlates to the need for the inclusion of existing and completed climate efforts and a description of how they relate to existing city documents within each CAP. The Guide also describes the need for the effective communication of the co-benefits of increased resiliency and reductions of GHGs (California Governor's Office of Emergency Services, 2020). Correspondingly, effectively communicating the co-benefits of the implementation measures of climate action plans will help to improve public knowledge, ensure transparency, and likely lead to a greater percentage of the city's population being involved in the community participation process.

Chapter 8 of the General Plan Guidelines stresses a variety of concepts and techniques meant to guide local government action on climate policy (Governor's Office of Planning and Research, 2017). CEQA Guidelines section 15183.5 discusses streamlining opportunities for projects that will further climate action goals (Governor's Office of Planning and Research, 2017). CEQA Guidelines sections 15168(b)(4) and 15168(c)(3) require the inclusion of measures within projects that help reach reduction targets (Governor's Office of Planning and Research, 2017). These CEQA sections and GPG Chapter 8 illustrate the ability of CEQA to be used as an

asset for climate action plans and their implementation measures. There is a need for sections and resources within CAPs dedicated to explaining the connection between CEQA and CAPs on the local level.

Chapter 8 also discusses the benefits of synchronizing climate action plans with general plan updates (Governor's Office of Planning and Research, 2017). This connects back to the principle that the framework of climate action plans should cater to existing city documents and policy. The chapter highlights that this connection will allow for a greater range of mitigation measures, CEQA streamlining measures, and consistent baseline growth conditions and assumptions (Governor's Office of Planning and Research, 2017). The use of BAU and ABAU in emissions reductions calculations would be bolstered by improved cohesion between general plans and climate action plans. Chapter 8 highlights the necessity of transparent and replicable calculations and methodology (Governor's Office of Planning and Research, 2017).

The chapter also emphasizes the need for an analysis of emissions on a wide variety of levels (Governor's Office of Planning and Research, 2017). This relates to the need for climate action plans to discuss state and regional actions and their implications on the local process. Climate action plans must also be aware of how these actions will impact local emissions levels. Long-term trajectory (of climate change and related impact mitigation goals) is also a point of emphasis in the chapter (Governor's Office of Planning and Research, 2017). This idea broadly relates to the need for implementation and monitoring to be detailed throughout climate action plans. It also relates to the need for the delegations of responsibility, goals, implementation measures, and monitoring timelines to be adequately described. All these elements must be looked at in a detailed manner and must be followed up on consistently with appropriate staff and other contributors to reach long-term goals.

Summary of CAP Elements

Based on the review of the seven selected climate action plans, here are conclusions drawn from each of the 21 analyzed elements. These conclusions describe how or if all plans, some plans, or, in some cases, only one plan addressed each element well. The numbers for each conclusion correspond to the element numbers in the above tables.

1. Most cities contracted a private firm to assist with the creation of their plan, while Santa Cruz and Chico both completed the plans in-house with the appropriate allocation of staff and resources.
2. There is a lot of parity in terms of who the person given the most responsibility is in monitoring the implementation of the plan. Some plans clearly state it, while others do not designate a specific person to be the most responsible person to the implementation process.
3. All plans had some description of how the CAP relates and will relate to the General Plan and other existing documents, adding to the framework for effective implementation.
4. All plans follow ICLEI (International Council for Local Environmental Initiatives) Protocol for Greenhouse Gas Emissions Inventories.
5. Almost all CAPs discuss the co-benefits of CAP creation and of the individual implementation measures. This provides added reasoning for their implementation measure choices, while also illustrating the overlapping benefits of some of the actions.
6. A cost-benefit analysis of some sort is provided within each of the plans, but the contents and details varied for many of the CAPs. The most effective cost-benefit analyses were focused on the costs and benefits of specific actionable measures.
7. Most plans use CEQA as a tool for furthering implementation measures and streamlining projects that would help reach CAP goals.
8. All plans discuss how state and regional actions will impact the goals of the CAPs in some way, with the plans going into varying detail on the potential impacts of specific legislation.
9. Incentives are clearly described within individual actionable measures for each plan.

10. Only three plans thoroughly discuss the CAP development process. Other plans mention the purpose of the process or/and people that played an influential role, but they do not relate them to the process and steps that led to CAP creation.
11. CAP partners are stated in some way in every CAP, but the description of their role in the plan and in the implementation and monitoring process can be vague, unclear, or unorganized.
12. Four out of seven CAPs described in an easily understandable way who individually oversees the actionable measures, while three were more unclear.
13. The reporting systems for all plans vary heavily. Some systems emphasize a need for meetings after a certain date, some emphasize implementation monitoring teams and integral personnel, and others established a baseline procedure of eventually creating monthly, semi-annual, annual, or tri-annual status reports.
14. Appendices were included for most CAPs and provide a wide range of supplementary information, including emissions calculations, discussions of specific topics addressed within the plan, and an entire Environmental Impact Report.
15. All plans described Business-As-Usual (BAU) and Adjusted-Business-As-Usual (ABAU) scenarios for emissions reductions calculations and projections, which follows ICLEI Protocol for GHG Emissions Inventories.
16. All CAPs included some further detail and explanation of emissions reductions calculations, including within appendices, tables, graphs, charts, and visual tools. There were few commonalities for illustrating the specific methods of calculations.
17. All CAPs incorporated some dialogue about the impacts of climate change locally, regionally, and nationally. Some plans described the results of the city's vulnerability assessment. This dialogue is in a range of locations and serves several purposes.
18. All CAPs at least introduce how the community participation process factors into the CAP and its corresponding role in the implementation process. However, this is vague in some circumstances and there is a lot of parity in these explanations.
19. Most CAPs detailed or listed existing and completed climate efforts, although in some cases it was unclear how they would be used in supplementing the implementation and monitoring goals of the CAPs.

20. Adaptation discussions or sections are incorporated into most plans. In some CAPs they were only briefly mentioned, and there were also many differing organizational types and purposes.

21. Only two CAPs examine the personal role of each citizen and associated actions that can be taken to aid in the CAP goal creation and implementation process. This section could be a valuable element in CAPs because of its ability to ground implementation into personal actions as opposed to focusing on its association with governmental policy. It can also help highlight individual implementation goals and policies.

CAP Recommendations

This section incorporates information from the above conclusions, other aspects of CAP analysis, and the literature review. These are recommendations for climate action plans moving forward. These recommendations are more in-depth than the above conclusions and describe the interconnectedness of some of the elements and other factors described. They draw from the strengths and weaknesses of the plans analyzed and discuss ways to ensure CAP effectiveness.

1. Cities need to allocate as much staff time and resources as is realistic and possible to the CAP creation process. They must also seek out aid from private firms when necessary. Cities with smaller populations will be generally more dependent on the work of private firms. However, if assistance from a private firm is needed, cities must ensure that there is no disconnect between the work of private firms and the public agency's ability to implement and monitor the plan effectively.
2. The lead-person in the implementation and monitoring process needs to be transparent and explicit about future steps within the plan. This can include a graphic and/or written representation of the responsibilities of those assisting the lead-person. This will help ensure that the implementation process runs smoothly and is organized in a way that is easily understandable for city officials and various department heads, as well as all readers of the document.
3. Climate action plans need to describe their relationship to the General Plan and other integral documents. This description must be tailored to the specific implementation process detailed by the city and must also consider the role it plays in enhancing the framework for effective implementation and monitoring.
4. It is best that all climate action plans follow, as the seven CAPs analyzed in this report do, ICLEI Protocol for Greenhouse Gas Emissions Inventories. The Protocol provides a structure that allows for consistency across plans and analyses of CAP effectiveness.
5. All climate action plans need to include a discussion of the co-benefits of adopting a climate action plan. This discussion must highlight the positive impacts of the implementation measures of the plan and describe how these measures will benefit the city beyond fulfillment of the plan's goals.

6. A cost-benefit analysis needs to be provided for each climate action plan. The costs and benefits of the plan in general need to be described. The costs and benefits of individual implementation measures ideally would also be incorporated into the plan and can be effective even without a general cost-benefit analysis of the greater plan.
7. Climate action plans need to discuss their relationship with CEQA. They also need to discuss how implementation measures and specific projects that help facilitate implementation can be potentially streamlined through CEQA to reach CAP goals. This discussion can be utilized to guide various staff members on ways they can adjust their jobs and job processes to help reach CAP goals.
8. All climate action plans must examine the state and regional implications of the plan and how existing framework and legislation can be connected to the plans. While CAPs will address the need for local action, a lot of climate goals are also reliant on state and regional legislation and action to reach specified local climate targets. Connecting the implementation measures to existing actions and legal ramifications of the state and regional settings is important. This could also be used to enhance the creation and monitoring process of implementation measures and their associated outcomes.
9. All climate action plans need to describe incentives that are associated with each implementation measure. Incentives can play a significant role in the actualization of implementation measures and can aid in the steps to implement distinct measures. They bring a sense of realism to the implementation and monitoring process, help responsible staff members through the implementing process, and can help entice businesses and residents to take personal actions that help reach CAP goals.
10. The climate action plan development process needs to be reviewed within the plans. This needs to include the step-by-step process to its adoption and the influential role of those who were integral to this process. This must focus on the initial steps that led to its creation and detail aspects of funding and decisions that were effective and ineffective within each step. This can also serve as a blueprint to other cities that do not currently have climate action plans. This discussion would ideally act as a resource and possibly assist cities with reduced resources or populations that have been involved in pre-CAP development.

11. Climate action plan partners need to be discussed and their roles should be enumerated and distinctly stated. This can create an easily identifiable network of contributors that can aid in the implementation and monitoring process. City officials need to be in constant communication with this network.
12. All climate action plans must delegate the responsibilities of different implementation measures. This will help ensure that the proper steps are being taken to implement individual measures. This can also provide more cohesive and easily understandable guidelines for the monitoring of implementation measures. These guidelines would ideally prevent against confusion during the implementation and monitoring process and help to clarify the roles of specific CAP contributors.
13. Reporting systems must be transparent and easily understandable for all involved. This must take the form of a consistent and in-depth progress tracking mechanism and schedule. Schedules need to detail specific meeting times, roles, and time-specific goals of all personnel and other groups or individuals that are facilitating implementation. This will make shorter-term CAP goals clearer and more realistic. Schedules need to also address the nature and frequency of progress meetings, which must fit the needs of the city.
14. Appendices can be applied to supplement the document and provide necessary explanations for a variety of the sections and/or individual items detailed within the plan. Emissions calculations can be placed in appendices but can also be effective in other locations within the document. Appendices can provide supplementary information on topics that are more easily understood within the appendices than in another location within the document.
15. All plans need to continue to use BAU and ABAU as their models for emissions reductions calculations and projections. All plans must be consistent and thorough in their following of ICLEI Protocol for GHG Emissions Inventories.
16. Emissions inventories must include specific and detailed calculations that provide explanation for goals, implementation measures, and the relation of goals and implementation measures to emissions reductions targets. This can be incorporated alongside the sections or chapters of the plan dedicated to the GHG emissions inventories or within the appendices. These calculations aid in the monitoring process, tracking how implementation measures have reduced GHG Emissions or can reduce estimated emissions in the future.

17. Climate change impacts need to be addressed on a local, regional, and national scale. However, the focus must mainly be on the local scale. The climate vulnerability assessment can be described and utilized to make local climate change impacts more palpable and visible to residents. This dialogue can ideally be at the beginning of the plan and act as an engaging portion of the introduction to further emphasize and explain the purpose and contents of the plan.

18. Community participation needs to be discussed and introduced within the plan and within descriptions of the CAP development, implementation, and monitoring processes. The purpose and logistics of possible ways of engagement must be examined and a framework needs to be presented within the plan. This framework must consider how the effectiveness of current participation processes and events will be evaluated and adjusted when needed. Community participation is vital to improving a community's understanding of climate efforts. It can help spread awareness and garner public support for the plan and specific implementation measures.

19. Existing and completed city climate efforts and implementation measures need to be listed within the plan and connected to future implementation measures. This can illustrate methods that have been effective and ineffective in the past and help define certain aspects and steps within specific measures.

20. Climate adaptation needs to be addressed. This discussion must consider the relationship between local climate adaptation, implementation measures, and possibly the results of the climate vulnerability assessment.

21. Climate action plans must elaborate on the role of the individual citizen in the climate action plan creation and implementation process. Implementation must be adequately related to personal actions, and how they can aid the CAP process and contribute to future local benefits.

Conclusion

Major questions previously identified regarding the effectiveness of plans included: “Who is in charge? How did the plan get put together? How was the report developed? Was there key input from community members? Is there a process to revisit the plan? What are the measures to be implemented? How will it be implemented and reviewed?”. These questions were initially stated at the beginning of the Narrative and Evaluation Tables section. These questions and aspects of these questions were answered in varying ways throughout the Narratives and Evaluation Tables, Relationship of CAP Analysis to Literature, Summary of CAP Elements, and CAP Recommendations sections of this project. This project underlines topics, elements, processes, and connections that enhance or would enhance climate actions plans in general and those analyzed in this report. Elements that were identified as being beneficial to some CAPs also helped identify the deficiencies of other CAPs. This analysis aims to provide a framework and “check-list” for CAPs that can be used to create a more transparent and integrated assessment of climate action plans. This analysis also aims to act as a resource for future CAPs and cities that are in the beginnings of their CAP process.

“Who is in charge?”

The lead person-in-charge is unclear in many of the plans. Some plans state a specific lead position, while others describe responsibilities by division. The lead person needs to be more explicitly stated and a more distinct team must be established and described to ensure the maintaining of a strong network of contributors throughout the CAP creation and implementation process.

“How did the plan get put together?”

The CAP development process is not adequately addressed throughout the selected plans. Climate action plans must be adjusted to the local conditions, resources, and ramifications of the city. Providing insight into how the plan was developed can improve public knowledge and understanding of the plan. It also provides an example for other cities, which can help them start or complete their CAP development process.

“How was the report developed?”

This question overlaps with the above question, “How did the plan get put together?” Descriptions of how the reports were developed are limited. There is little information besides that some cities commissioned an outside firm to help complete the document and a few cities developed the plan internally. Improved information regarding the development process can possibly contribute to increased community support and contribution to the plan. There is a need for greater community participation and general knowledge of global and local climate change impacts and the CAP creation process.

“Was there key input from community members?”

It is unclear whether there was key input from community members. Any instances of key input or decisions impacted by key input made throughout the plans’ creation and development are not communicated effectively within the plans.

“Is there a process to revisit the plan?”

Climate action plans are at their strongest when members of local government are transparent about the process and create an integrated framework that allows for collaboration on a variety of levels. They also are at their strongest when mechanisms for tracking projected timelines and goals are visible and easily understandable across many governmental departments and the public.

“What are the measures to be implemented?”

The measures to be implemented are well-stated throughout the plans and generally easily understandable. However, sometimes the delegated responsibilities of implementation measures and the review procedure are not easily understandable.

“How will measures be implemented and reviewed?”

Responsibility for the oversight of implementation measures must be delegated by measure. This reduces the likelihood of implementation measures being forgotten or phased out. Implementation measures need to be communicated alongside possible incentives and/or a cost-benefit analysis. Another significantly strong element for some plans was the ability to connect CAPs to existing documents or to provide framework for future integration and communication between documents.

The organization of climate action plans and necessary elements naturally present a flurry of challenges to local governments. These challenges must be addressed and accounted for within the CAP development process and within specific implementation measures. These challenges will continue to reappear if the proper implementation steps, monitoring steps, and appropriate staff time and resources are not dedicated. People and members of the public and staff must understand the importance and urgency of local climate change impacts. Education on local climate change impacts and climate efforts by local governments will always work alongside each other.

References

AECOM Design + Planning . (2014, November 24). *City of Lodi Climate Action Plan* . From

<https://www.lodi.gov/DocumentCenter/View/43/Climate-Action-Plan-PDF>

Atkins. (2014, January 21). *City of La Habra Climate Action Plan* . From

<http://www.lahabracity.com/DocumentCenter/View/192/Climate-Action-Plan-PDF?bidId=>

California Air Resources Board. (2017, November). *California's 2017 Climate Change Scoping Plan* . From

https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf

California Governor's Office of Emergency Services . (2020, March). *California Adaptation Planning Guide* . From

<https://www.caloes.ca.gov/HazardMitigationSite/Documents/APG2-FINAL-PR-DRAFTAccessible.pdf>

City of Chico General Services Department. (2012, September 24). *City of Chico 2020 Climate Action Plan* . From

<http://www.chicosustainability.org/documents/ClimateActionPlan.pdf>

City of Cupertino . (2015, January). *City of Cupertino Climate Action Plan* . From

<https://www.cupertino.org/home/showdocument?id=9605>

City of Santa Cruz . (2012, June). *City of Santa Cruz Climate Action Plan* . From

<http://www.cityofsantacruz.com/home/showdocument?id=27824>

Design, Community & Environment . (2011, May). *City of National City Final Climate Action Plan* . From [https://www.ca-](https://www.ca-ilg.org/sites/main/files/file-attachments/climate_action_plan.pdf)

[ilg.org/sites/main/files/file-attachments/climate_action_plan.pdf](https://www.ca-ilg.org/sites/main/files/file-attachments/climate_action_plan.pdf)

Governor's Office of Planning and Research. (2017, July 31). *State of California 2017 General Plan Guidelines*. From Chapter 8:

Climate Change: https://opr.ca.gov/docs/OPR_C8_final.pdf

Rincon Consultants, Inc. (2015, September 2). *City of Madera Climate Action Plan* . From [https://www.cityofmadera.ca.gov/wp-](https://www.cityofmadera.ca.gov/wp-content/uploads/2017/08/Final-Madera-CAP_September-2015.pdf)

[content/uploads/2017/08/Final-Madera-CAP_September-2015.pdf](https://www.cityofmadera.ca.gov/wp-content/uploads/2017/08/Final-Madera-CAP_September-2015.pdf)