California Environmental Quality Act (CEQA) Greenhouse Gas (GHG) Emissions Thresholds and Guidance

Final

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1 Introduction

1.1 GHG Emissions Analyses Under CEQA

The California Environmental Quality Act (CEQA) requires discretionary plans and projects to undergo an environmental review process, which includes an evaluation of plan- or project-related greenhouse gas (GHG) emissions.[1] Section 15183.5 of the CEQA Guidelines establishes a framework for developing a *qualified GHG reduction plan*[2] to cumulatively reduce GHG emissions and allow lead agencies to analyze and mitigate the effects of plan- and project-level GHG emissions. This GHG Thresholds and Guidance Document is intended to provide methodological guidance and quantitative thresholds of significance for use by City planners, applicants, consultants, agencies, and members of the public in the preparation of GHG emissions analyses under CEQA for plans and projects located within the City of Pinole.

The City of Pinole (City) is preparing a CEQA Guidelines Section 15183.5-consistent GHG reduction plan titled as a Climate Action and Adaptation plan (CAAP), with the goal of achieving a 40 percent reduction in GHG emissions compared to 1990 levels by 2030, and carbon neutrality by 2045.[3] While the City Council, City staff, and community will continue to develop an approach to the longer-term goal of carbon neutrality, the CAAP includes specific actions to achieve the shorter-term communitywide emissions reduction target of 40 percent below 1990 level emissions (or 47,389 metric tons of carbon dioxide equivalents [MT of CO_2e][4]) by 2030, which is consistent with California's goal of reducing GHG emissions to 40 percent below 1990 levels by 2030 (per Senate Bill [SB] 32). The City has also adopted a goal to achieve carbon neutrality by 2045, consistent with Assembly Bill ([AB] 1279). Implementation of the Pinole CAAP actions would result in GHG emissions reduction in a manner that aligns with the State 2030 goal and makes substantial progress towards the 2045 goal of carbon neutrality. See Figure 1 for a representation and comparison of Pinole and State GHG emissions reduction targets.

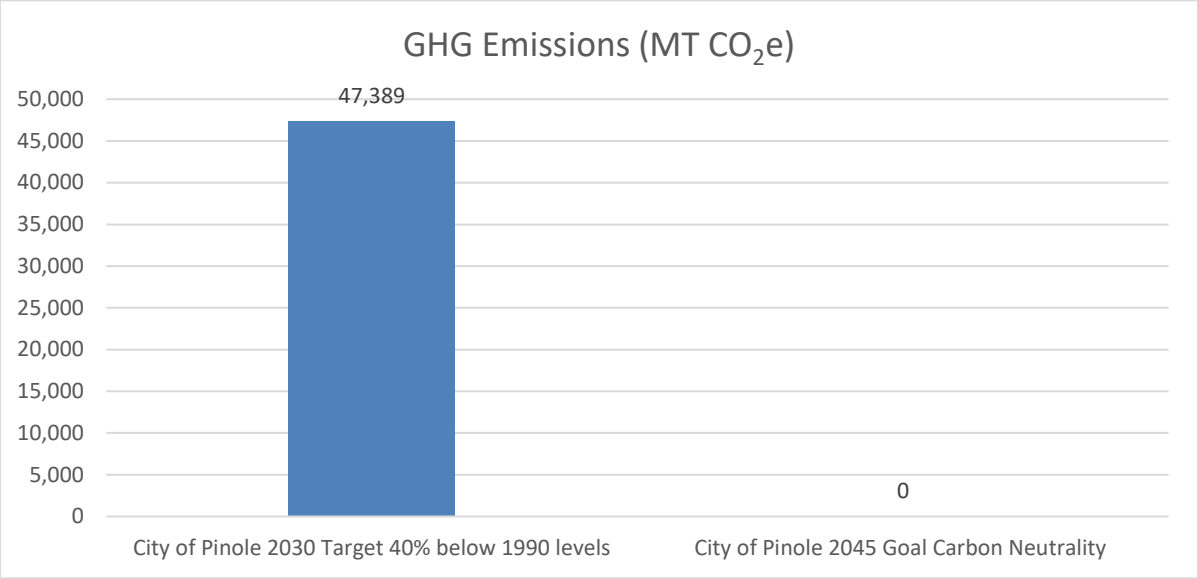
[1] Refer to Appendix A for an overview of GHG emissions and climate change.

[2] To be a qualified CAAP, a CAAP must meet the requirements of CEQA Guidelines Section 15183.5, as further discussed in Section 1.2.

[3] Carbon neutrality is defined as net zero carbon emissions, which is achieved either by balancing carbon emissions with carbon removal or by completely eliminating carbon emissions.

[4] Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas, CO_2, is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as carbon dioxide equivalent (CO_2e), and is the amount of a GHG emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, methane has a GWP of 28, meaning its global warming effect is 28 times greater than CO_2 on a molecule per molecule basis (Intergovernmental Panel on Climate Change Fifth Assessment Report).

Figure 1 Pinole 2030 and 2045 GHG Emissions Targets



The City's 2030 target and the associated GHG emissions reduction measures and actions were developed to provide substantial progress towards the City's longer-term carbon neutrality target (consistent with AB 1279) and achieve the State's GHG reduction goal identified in SB 32. Consistent with this process, the Pinole CAAP includes procedures to track and evaluate Pinole's progress in achieving the trajectory of the CAAP's targets to assess the "substantial progress" toward achieving long-term reduction targets identified in the CAAP and State legislation. The CAAP also includes commitments and mechanisms to achieve further GHG emissions reduction necessary to avoid interference with, and make substantial progress toward, long-term City targets and State goals. This approach is important, because the City targets have been set at levels that achieve California's fair share of international emissions reduction targets that will stabilize global climate change effects and avoid the adverse environmental consequences of climate change.

To support progress toward the City's longer-term carbon neutrality goal, plans and projects within the City that undergo CEQA review will need to demonstrate consistency with targets in the CAAP, which is a Qualified GHG Emissions Reduction Plan (consistent with CEQA Guidelines Section 15183.5) upon adoption of the CEQA review document, specifically the CAAP Initial Study-Negative Declaration (IS-ND), and approval of the CAAP by City Council. Chapter 2, *Climate Action and Adaptation* Plan Summary, provides an overview of the CAAP and the associated GHG emissions inventories, reduction measures, and forecasts included therein. In addition, Chapter 3, *Regulatory and Legal Setting*, offers an overview of relevant regulations and case law pertaining to the analysis of GHG emissions consistent with CEQA and the CEQA Guidelines.

Plans and projects that are consistent with the CAAP demographic (i.e., residents and employees) projections and land use assumptions, which are based on the Association of Bay Area Governments (ABAG) Plan Bay Area 2040 and 2050 (PBA 2040 and 2050) projections, and in alignment with the City's 2010 General Plan and updated 2023-2031 Housing Element, will be able to tier from the adopted CAAP IS-ND pursuant to CEQA Guidelines Section 15183.5. To streamline this CEQA GHG emissions analysis process, the City has prepared a CEQA GHG Emissions Analysis Compliance Checklist that can be utilized in plan- and project-level CEQA review documents to confirm that such proposed plans and projects are consistent with the CAAP GHG emissions reduction strategy.

Chapter 4, *Determining Consistency with the CAAP*, includes guidance on how to navigate this consistency determination process.

For plans or projects that are not consistent with the CAAP's demographic projections and land use assumptions, a different methodology and assessment utilizing quantitative thresholds of significance would be necessary to evaluate GHG emissions impacts. Chapter 5, *Utilizing Quantitative CEQA GHG Thresholds*, includes guidance on how to utilize the quantitative thresholds that were developed for purposes of evaluating the level of significance of GHG emissions impacts.[5] Furthermore, Chapter 6, *Quantifying GHG Emissions*, provides direction regarding how to quantify a plan or project's GHG emissions for comparison to the applicable threshold of significance.

The CAAP acknowledges that additional actions beyond those identified in the plan will be required to achieve the long-term goal of carbon neutrality by 2045. As a result, the plan provides a mechanism for monitoring CAAP progress by providing City Council with an annual update on progress through annual communitywide GHG emission inventories and evaluating measure implementation progress against the CAAP's measure schedule. The City will also review and update the CAAP in five years (with opportunities to adjust as needed based on CAAP progress) in order to incorporate new measures and technologies that will further move the City toward meeting the longer-term carbon neutrality target. Chapter 7, *Moving into the Future*, offers further explanation of how CEQA review of plans and projects could be affected by future updates and/or iterations of the Pinole CAAP.

1.2 Qualified GHG Emissions Reduction Plan

According to CEQA Guidelines Section 15183.5, project-specific environmental documents can tier from, or incorporate by reference, the existing programmatic review in a qualified GHG emissions reduction plan, which allows for project-level evaluation of GHG emissions through the comparison of the project's consistency with the GHG emissions reduction strategy included in the qualified GHG emissions reduction plan. To meet the requirements of CEQA Guidelines Section 15183.5, a qualified GHG emissions reduction plan must include the following:

A. Quantify existing and projected GHG emissions within the plan area;
B. Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;
C. Identify and analyze sector specific GHG emissions within the plan's geographic area;
D. Specify strategies or a group of strategies, including performance standards, that if implemented, would collectively achieve the specified emissions level;
E. Establish a tool or mechanism to monitor progress and to require amendment if the plan is not achieving specified levels; and
F. Be adopted in a public process following environmental review.

[5] In compliance with CEQA Guidelines Section 15064.7(b), this guidance document and the quantitative thresholds contained herein will be presented to the City Council for formal adoption via resolution, which includes a public input opportunity.

Development projects can demonstrate consistency with a qualified GHG emissions reduction plan if they are consistent with the plan's assumptions regarding future growth projections and consistent with the plan's GHG emissions reduction measures.[6] Projects consistent with the qualified GHG reduction plan, including conformance with performance measures applicable to the project, would not require additional GHG emissions analysis or mitigation under CEQA Guidelines Sections 15064(h) and 1513.5(b)(2). The City of Pinole has developed the CEQA GHG Emissions Analysis Compliance Checklist (Checklist) to assist with determining project consistency with the CAAP. The Checklist is intended to provide individual projects the opportunity to demonstrate that they are minimizing GHG emissions while ensuring new development achieves their proportion of emissions reduction consistent with the assumptions of the CAAP. Project consistency with a GHG emissions reduction plan can also be demonstrated through a quantitative analysis that demonstrates the project will not impede (or will facilitate) the City's ability to meet the GHG emissions reduction targets.

Table 1 summarizes the consistency of the CAAP with these requirements for year 2030 (the next state milestone target year for GHG emissions reduction). As shown in Table 1, upon adoption of the IS-ND and approval of the plan by City Council, the Pinole CAAP will meet the requirements of a qualified GHG emission reduction plan per CEQA Guidelines Section 15183.5(b)(1) for projects with buildout years through 2030.

Table 1 CAAP Consistency with CEQA Guidelines Section 15183.5(b)(1) for 2030

CEQA Guidelines Section 15183.5(b)(1) Requirement[1]	Climate Action and Adaptation Plan Consistency
Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area.	**Consistent.** The CAAP includes a communitywide GHG emissions inventory for 2017 and forecasts GHG emissions for years 2030 and 2045, including all relevant sources within the community. The GHG emissions inventory was developed following Local Governments for Sustainability's (ICLEI) U.S. Community Protocol (Community Protocol) version 1.2[7].
Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable.	**Consistent.** The Association of Environmental Planners (AEP, 2016) Beyond Newhall and 2020 white paper identifies this threshold as being a local target that aligns with the State legislative targets. The CAAP establishes a long-term aspirational goal of carbon neutrality by 2045, and as discussed in Section 2, *GHG Emissions and Targets*, implementation of the plan will achieve a 40 percent reduction in total emissions compared to 1990 emissions levels by 2030, in line with State targets codified by SB 32.
Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area.	**Consistent.** Following ICLEI's Community Protocol, the CAAP breaks down the inventory and forecasts into sectors under the jurisdictional control of the City: passenger transportation, commercial transportation, off-road equipment, residential energy (electricity and natural gas), non-residential energy (electricity and natural gas), water, wastewater, and solid waste. No other significant sources exist within the city.
Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would	**Consistent.** The CAAP specifies measures and actions that the City will enact and implement between 2024 and 2030 to meet the 2030 GHG emissions target. As discussed in Section 2, *GHG Emissions and Targets*, implementation of the plan will achieve a 40 percent reduction in 1990 emissions levels by 2030, which demonstrates substantial progress by 2030 toward achieving the City's longer-term goal of carbon neutrality by 2045. A key aspect of a

[6] CAAPs typically utilize growth projections from the local jurisdiction's General Plan or applicable Metropolitan Planning Organization's regional demographic forecast.

[7] ICLEI. 2019. *U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions*. July 2019. https://icleiusa.org/us-community-protocol/

CEQA Guidelines Section 15183.5(b)(1) Requirement[1]	Climate Action and Adaptation Plan Consistency
collectively achieve the specified emissions level.	qualified GHG emissions reduction plan is substantial evidence that clearly identifies that the approach and assumed GHG reduction is reasonable for the community
Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels.	**Consistent.** Section 5, *Implementation and Monitoring*, includes a process to complete annual community GHG emissions inventories, with the first inventory to be completed for calendar year 2024, which will be the first full year after CAAP adoption. The inventories will allow the City to measure progress towards meeting the CAAP goals. The CAAP includes the commitment to update the CAAP if an inventory indicates that the City is not on track to meet the CAAP GHG emissions goals The updates will include additional measures required at that time to increase emissions reductions and maintain the CAAP status as a CEQA qualified GHG emissions reduction plan.
Be adopted in a public process following environmental review.	**Consistent.** The City is preparing an IS-ND for the CAAP that will be circulated for public review and comment and adopted prior to approval of the CAAP and CEQA GHG Emissions Thresholds and Guidance by City Council.

Source: Compiled by Rincon in 2024.

2 Climate Action and Adaptation Plan Summary

The following sections provide an overview of the Pinole CAAP, including the 2017 communitywide GHG emissions inventories, and the communitywide GHG emissions forecast for years 2030 and 2045, and the proposed GHG emission reduction strategy.

2.1 Communitywide GHG Emissions Inventories

The City has completed a communitywide GHG emissions inventory for year 2017, which is summarized in Table 2. Table 2 also provides estimated 1990 emissions levels for informational purposes.

Table 2 Pinole 1990 and 2017 Communitywide GHG Emissions Levels

Sector	1990[1] (MT of CO_2e)	2017 (MT of CO_2e)
On-Road Transportation	N/A	30,483
Off-road Transportation	N/A	5,236
Non-residential Energy	N/A	11,210
Residential Energy	N/A	21,878
Water & Wastewater	N/A	165
Solid Waste	N/A	3,300
Total	**78,982**	**72,273**

MT = metric tons; CO_2e = carbon dioxide equivalents

Note: Numbers are rounded to the nearest ten.

[1]1990 GHG emissions were estimated by back-casting Pinole's total 2017 GHG emissions based on the change in the State's GHG emissions between 2017 and 1990, excluding sectors that are not within Pinole. It is assumed that the change in Pinole's GHG emissions from 2017 to 1990 is equal to the State's change in GHG emissions of the same time period. 1990 GHG emissions for Pinole were not estimated at the individual sector level.

Source: Pinole, City of. 2023. Pinole 2017 Community GHG Inventory.

2.2 GHG Emission Reduction Strategy

To achieve the City's long-term aspirational goal of carbon neutrality by 2045, the Pinole CAAP includes a series of measures and actions that are intended to reduce communitywide GHG emissions by just over 40 percent below 1990 levels by 2030 (equivalent to 47,273 metric tons of carbon dioxide equivalents [MT of CO_2e] in 2030). This provides substantial progress toward meeting the City's longer-term carbon neutrality goal while also aligning with the State's 2030 target. The CAAP acknowledges that additional actions beyond those identified in the plan will be necessary to achieve the long-term aspirational goal of carbon neutrality and therefore provides a mechanism for tracking performance over time, reporting annual progress to the City Council, conducting annual GHG emission inventory updates, and updating the CAAP in five years (with the ability to adjust as needed based on progress) in order to incorporate new measures and

technologies that will further the City towards meeting the long-term aspirational goal of carbon neutrality.

As part of the CAAP process, the City of Pinole has developed a set of measures reducing communitywide GHG emissions in all sectors to achieve the City's climate action targets. Each measure is supported by a set of actions that provide a measurable GHG emissions reduction that is supported by substantial evidence. Measures and actions are organized according to the following hierarchy:

- **Strategy** – Strategies describe an overall approach for reducing GHG emissions and building climate resilience.
  - **Measure** – Measures are long-range policies that the City has established to ultimately reduce emissions in line with the state and increase resilience to climate change.
    - **Action** – Actions are the discrete steps the City will take to achieve the established Measures. Over time, the Plan will be reviewed, and additional actions will need to be added to make greater progress on the established Measures, as appropriate. This CAAP serves as the City's first step in climate action planning and will be continuously refined.

Table 3 summarizes the GHG emissions reductions that are anticipated to be achieved by 2030 by the identified measures in the CAAP, in addition to State laws and programs. As shown therein, implementation of State laws and programs as well as the CAAP measures would reduce 2030 absolute communitywide emissions by approximately 40 percent below 1990 levels, to approximately 47,273 MT of CO_2e in 2030.

Table 3 Pinole GHG Emissions Reduction by 2030

Source	Annual Emissions Reductions (MT of CO_2e)
1990 Baseline Emissions[1]	78,982
Business-as-Usual 2030 Emissions[2]	84,515
State Legislation/Existing City Programs	15,613
Energy CAAP Measures	10,484
Transportation CAAP Measures	7,743
Waste CAAP Measures	3,359
Total Emissions Reduction (from BAU)	**37,198**
Remaining 2030 Emissions	**47,316**
Percent Reduction below 1990 Levels	**40.1%**

Note: numbers in table may not add to the total exactly due to rounding.

MT = metric tons; CO_2e = carbon dioxide equivalents

[1] See Table 2.

[2] See Table 4.

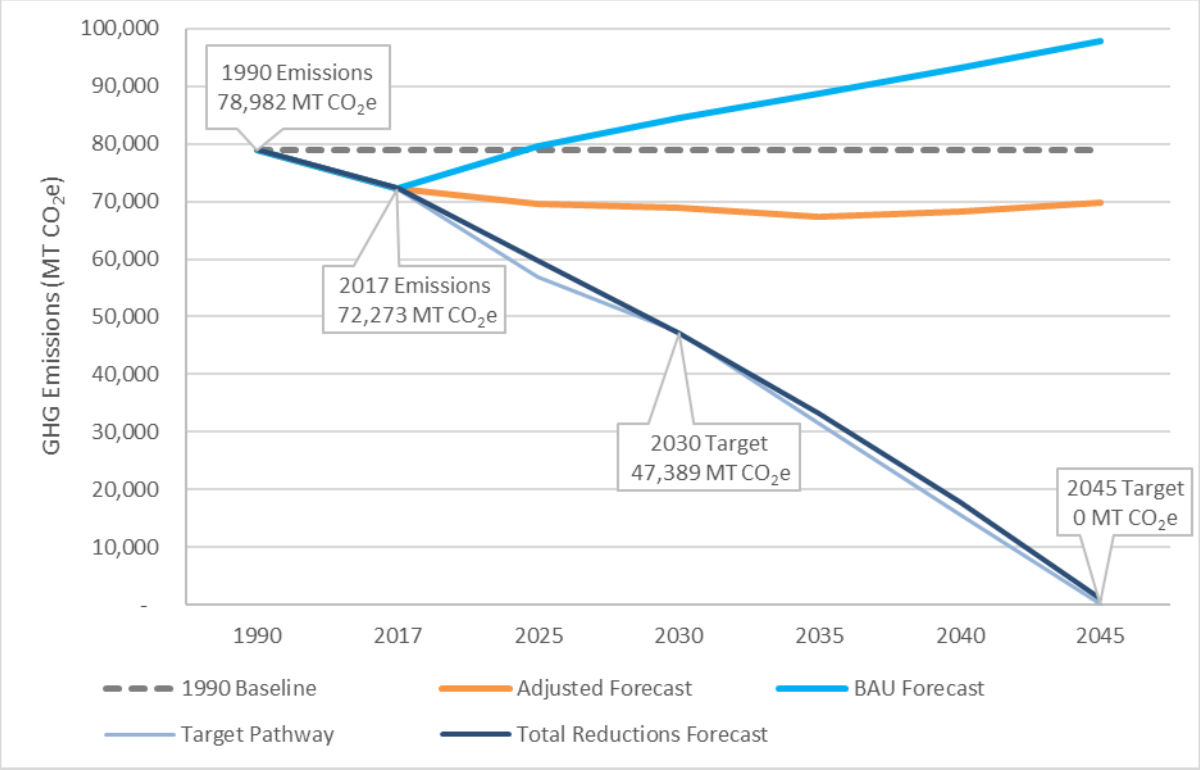
Source: City of Pinole *Draft Climate Action and Adaptation Plan* and *GHG Emissions Reduction Technical Evidence*

2.3 GHG Emissions Forecast

Figure 2 and Table 4 summarize the communitywide GHG emissions forecast under three scenarios: 1) business-as-usual, 2) adjusted (implementation of State legislation/existing City programs), 3) total reduction (implementation of State legislation/existing City programs, and the CAAP measures and actions.)

As shown therein, under the business-as-usual scenario, communitywide GHG emissions are forecasted to increase by approximately 35 percent between 2017 and 2045 based on economic and population growth. However, with implementation of State laws and existing City programs, communitywide GHG emissions would decline by approximately 3 percent between 2017 and 2045. Furthermore, full implementation of the CAAP alongside State laws and existing City programs would reduce absolute communitywide GHG emissions by approximately 40 percent below 1990 levels by 2030 and by approximately 98 percent below 1990 levels by 2045.[8]

Figure 2 Pinole Total GHG Emissions Forecast, 2017 to 2045



[8] This represents significant progress towards the City's long-term goal of carbon neutrality by 2045. The City will rely on new measures in the form of regular CAAP updates, new State legislation and new technological advances to achieve this target.

Table 4 Pinole GHG Emissions Forecast Through 2045

Sector	2017 (MT of CO_2e)	2030 (MT of CO_2e)	2045 (MT of CO_2e)
Business-as-Usual GHG Emissions			
Transportation	35,719	42,076	47,413
Energy	33,088	38,331	45,359
Water & Wastewater	165	196	239
Solid Waste	3,300	3,912	4,761
Total	**72,273**	**84,515**	**97,772**
GHG Emissions After Implementation of State Legislation/Existing City Programs			
Transportation	35,719	34,860	33,890
Energy	33,088	29,960	31,102
Water & Wastewater	165	169	148
Solid Waste	3,300	3,912	4,761
Total	**72,273**	**68,902**	**69,901**
GHG Emissions After Implementation of State Legislation/Existing City Programs and Pinole CAAP			
Transportation	35,719	27,117	329
Energy	33,088	19,477	0
Water & Wastewater	165	169	148
Solid Waste	3,300	553	678
Total	**72,723**	**47,316**	**1,155**

MT = metric tons; CO_2e = carbon dioxide equivalents

State legislation and existing programs include State vehicle fuel efficiency standards, the Renewable Portfolio Standard, triennial updates of Title 24, and community-wide enrollment in Marin Clean Energy (MCE).

Source: Pinole, City of. 2023. Pinole Forecasts and Targets.

At this time, the State has codified a target of reducing emissions to 40 percent below 1990 emissions levels by 2030 (SB 32) and has developed the 2022 Climate Change Scoping Plan to demonstrate how the State will achieve carbon neutrality by 2045 set by AB 1279.

While State and regional regulations related to energy and transportation systems, along with the State's Cap-and-Trade program, are designed to be set at limits to achieve most of the GHG emissions reduction needed to achieve the State's long-term targets, local governments can do their fair share toward meeting the State's targets by siting and approving projects that accommodate planned population growth and projects that are GHG-efficient. The Association of Environmental Professional (AEP) Climate Change Committee recommends that CEQA GHG analyses evaluate project emissions in light of the trajectory of State climate change legislation and assess their "substantial progress" toward achieving long-term reduction targets identified in available plans, legislation, or Executive Orders (EO).

The City has adopted a longer-term goal of achieving carbon neutrality by 2045 and has proposed the CAAP as a pathway to make progress toward this goal. Implementation of the CAAP would achieve an approximately 40 percent reduction in communitywide GHG emissions below 1990 levels by 2030.[9] Therefore, the City's longer-term target of carbon neutrality and the associated CAAP

[9] (78,982 MT of CO_2e – 47,273 MT of CO_2e) / 78,982 MT of CO_2e = 40 percent reduction

establish a trajectory that provides GHG emissions reduction equal to those required by SB 32 for 2030. Because SB 32 is considered an interim target toward meeting the State's long-term goals, implementation of the Pinole CAAP would make substantial progress toward meeting the State's long-term goal. Avoiding interference with, and making substantial progress toward, these long-term State targets is important because these targets have been set at levels that achieve California's fair share of international emissions reduction targets that will stabilize global climate change effects and avoid the adverse environmental consequences described in Appendix A (AB 1279).

3 Regulatory and Legal Setting

The following regulations, EOs, and case law pertain to the analysis of GHG emissions consistent with CEQA and the CEQA Guidelines.

3.1 Relevant CEQA Guidelines Sections

Pursuant to the requirements of SB 97, the California Natural Resources Agency has adopted amendments to the CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted CEQA Guidelines, which were last updated in December 2018, provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG emissions and climate change impacts.

Based on Appendix G of the CEQA Guidelines, impacts related to GHG emissions generated by a proposed plan/project would be significant if the plan/project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; and/or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

The vast majority of individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a plan/project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a plan/project are limited. As discussed in Appendix A, the adverse environmental impacts of cumulative GHG emissions, including sea level rise, increased average temperatures, more drought years, and more wildfires, are already occurring. As a result, cumulative impacts related to GHG emissions and climate change are significant. Therefore, per CEQA Guidelines Section 15064.4(b), the analysis of GHG emissions under CEQA typically involves an analysis of whether a plan or project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines Section 15064[h][1]).

The following sections of the CEQA Guidelines (last updated on December 28, 2018) pertain to the creation of significance thresholds and the analysis of a plan/project's GHG emissions.

CEQA Guidelines Section 15064(b)

(1) The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting. For example, an activity which may not be significant in an urban area may be significant in a rural area.

(2) Thresholds of significance, as defined in Section 15064.7(a), may assist lead agencies in determining whether a project may cause a significant impact. When using a threshold, the lead agency should briefly explain how compliance with the threshold means that the project's impacts are less than significant. Compliance with the threshold does not relieve a lead agency of the obligation to consider substantial evidence indicating that the project's environmental effects may still be significant.[10]

CEQA Guidelines Section 15064.4

(a) The determination of the significance of GHG emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to

(1) Quantify GHG emissions resulting from a project; and/or

(2) Rely on a qualitative analysis or performance-based standards.

(b) In determining the significance of a project's GHG emissions, the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental contribution may be cumulatively considerable even if it appears relatively small compared to Statewide, national, or global emissions. The agency's analysis should consider a timeframe that is appropriate for the project. The agency's analysis also must reasonably reflect evolving scientific knowledge and State regulatory schemes. A lead agency should consider the following factors, among others, when determining the significance of impacts from GHG emissions on the environment:

(1) The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting.

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

(3) The extent to which the project complies with regulations or requirements adopted to implement a Statewide, regional, or local plan for the reduction or mitigation of GHG emissions (see, e.g., section 15183.5[b]). Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project. In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.

[10] 2022 CEQA Guidelines.

(c) A lead agency may use a model or methodology to estimate GHG emissions resulting from a project. The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change. The lead agency must support its selection of a model or methodology with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use.[11]

CEQA Guidelines Section 15064.7

(a) A threshold of significance is an identifiable quantitative, qualitative, or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant.

(b) Each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects. Thresholds of significance to be adopted for general use as part of the lead agency's environmental review process must be adopted by ordinance, resolution, rule, or regulation, and developed through a public review process and be supported by substantial evidence. Lead agencies may also use thresholds on a case-by-case basis as provided in Section 15064(b)(2).

(c) When adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.

(d) Using environmental standards as thresholds of significance promotes consistency in significance determinations and integrates environmental review with other environmental program planning and regulation. Any public agency may adopt or use an environmental standard as a threshold of significance. In adopting or using an environmental standard as a threshold of significance, a public agency shall explain how the particular requirements of that environmental standard reduce project impacts, including cumulative impacts, to a level that is less than significant, and why the environmental standard is relevant to the analysis of the project under consideration. For the purposes of this subdivision, an "environmental standard" is a rule of general application that is adopted by a public agency through a public review process and that is all the following:

(1) a quantitative, qualitative or performance requirement found in an ordinance, resolution, rule, regulation, order, plan or other environmental requirement;

(2) adopted for the purpose of environmental protection;

(3) addresses the environmental effect caused by the project; and,

(4) applies to the project under review.[12]

[11] Ibid.

[12] Ibid.

CEQA Guidelines Section 15183.5

(a) Lead agencies may analyze and mitigate the significant effects of GHG emissions at a programmatic level, such as in a general plan, a long-range development plan, or a separate plan to reduce GHG emissions. Later project-specific environmental documents may tier from and/or incorporate by reference that existing programmatic review. Project-specific environmental documents may rely on an EIR containing a programmatic analysis of GHG emissions as provided in section 15152 (tiering), 15167 (staged EIRs) 15168 (program EIRs), 15175–15179.5 (Master EIRs), 15182 (EIRs Prepared for Specific Plans), and 15183 (EIRs Prepared for General Plans, Community Plans, or Zoning).

(b) Plans for the Reduction of GHG Emissions. Public agencies may choose to analyze and mitigate significant GHG emissions in a plan for the reduction of GHG emissions or similar document. A plan to reduce GHG emissions may be used in a cumulative impacts analysis as set forth below. Pursuant to sections 15064(h)(3) and 15130(d), a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project complies with the requirements in a previously adopted plan or mitigation program under specified circumstances.

(1) Plan Elements. A plan for the reduction of GHG emissions should:

(A) Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area;

(B) Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;

(C) Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;

(D) Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;

(E) Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels;

(F) Be adopted in a public process following environmental review.

(2) Use with Later Activities. A plan for the reduction of GHG emissions, once adopted following certification of an EIR or adoption of an environmental document, may be used in the cumulative impacts analysis of later projects. An environmental document that relies on a GHG reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project. If there is substantial evidence that the effects of a particular project may be cumulatively considerable, notwithstanding the project's compliance with the specified requirements in the plan for the reduction of GHG emissions, an EIR must be prepared for the project.

(c) Special Situations. As provided in Public Resources Code sections 21155.2 and 21159.28, environmental documents for certain residential and mixed use projects, and transit priority projects, as defined in section 21155, that are consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in an applicable sustainable communities strategy or alternative planning strategy need not analyze global warming impacts resulting from cars and light duty trucks. A lead agency should consider whether such projects may result in GHG emissions resulting from other sources, however, consistent with these Guidelines.[13]

CEQA Guidelines Section 15126.4(c)

Consistent with section 15126.4(a), lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of GHG emissions. Measures to mitigate the significant effects of GHG emissions may include, among others:

(1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;

(2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures, such as those described in Appendix F of the CEQA Guidelines;

(3) Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions;

(4) Measures that sequester GHGs;

(5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of GHG emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.[14]

3.2 Relevant State and Regional GHG Reduction Targets

Executive Order S-03-05

On June 1, 2005, the governor issued EO S-03-05, which established a statewide goal of reducing GHG emissions to 1990 levels by 2020 and created the Climate Action Team. The 2020 GHG reduction target contained in EO S-03-05 was later codified by Assembly Bill (AB) 32.

Assembly Bill 32

California's major initiative for reducing GHG emissions is outlined in AB 32, the "California Global Warming Solutions Act of 2006," which was signed into law in 2006. AB 32 codifies the State's goal of reducing Statewide GHG emissions to 1990 levels by 2020 and requires the California Air Resources Board (CARB) to prepare a Scoping Plan that outlines the main State strategies for

[13] Ibid.

[14] Ibid.

reducing GHG emissions to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of Statewide GHG emissions. Based on this guidance, CARB approved a 1990 Statewide GHG level and 2020 limit of 427 million metric tons (MMT) of CO_2e. The Scoping Plan was approved by CARB on December 11, 2008, and included measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since approval of the Scoping Plan.[15]

2014 Assembly Bill 32 Scoping Plan Update

In May 2014, CARB approved the first update to the AB 32 Scoping Plan. The 2013 Scoping Plan update defined CARB's climate change priorities for the next five years and set the groundwork to reach post-2020 Statewide goals. The update highlighted California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluated how to align the State's longer-term GHG reduction strategies with other State policy priorities, including those for water, waste, natural resources, clean energy, transportation, and land use.[16]

Executive Order B-30-15

On April 29, 2015, the governor issued EO B-30-15, which established Statewide GHG emission reduction targets of 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. The 2030 GHG emissions reduction target contained in EO B-30-15 was later codified by SB 32.

Senate Bill 32

On September 8, 2016, the governor signed SB 32 into law, extending AB 32 by requiring the Statewide reduction of GHG emissions to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). The bill charges CARB to adopt the regulation so that the maximum technologically feasible emissions reductions are achieved in the most cost-effective way.

2017 Scoping Plan Update

On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 goal set by SB 32. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of recently adopted policies, such as SB 350 and SB 1383 .

The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2014 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally appropriate quantitative thresholds consistent with statewide per capita goals of six metric tons (MT) CO2e by 2030 and two MT CO2e by 2050. As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city,

[15] CARB. 2008. *Climate Change Scoping Plan*. December 2008. https://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf.

[16] CARB. 2014. *First Update to the Climate Change Scoping Plan*. May 15, 2014. https://ww3.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf.

county, subregional, or regional level), but not for specific individual projects because they include all emissions sectors in the State (CARB 2017).

Senate Bill 375

SB 375, signed in August 2008, enhances the state's ability to reach AB 32 goals by directing CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. SB 375 aligns regional transportation planning efforts, regional GHG reduction targets, and affordable housing allocations. Metropolitan Planning Organizations (MPOs) are required to adopt a Sustainable Communities Strategy (SCS), which allocates land uses in the MPO's Regional Transportation Plan (RTP). Qualified projects consistent with an approved SCS or Alternative Planning Strategy categorized as "transit priority projects" would receive incentives to streamline CEQA processing.

On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The Association of Bay Area Governments (ABAG) was assigned targets of a 7 percent reduction in GHGs from transportation sources by 2020 and a 15 percent reduction in GHGs from transportation sources by 2035. ABAG adopted the 2050 RTP (Plan Bay Area 2050) in October 2021, which includes the region's SCS and meets the requirements of SB 375.[17]

Executive Order B-55-18

On September 10, 2018, the governor issued Executive Order B-55-18, which established a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

2022 Scoping Plan Update

Provides a framework for achieving the 2030 goal and working towards carbon neutrality by 2045 set by SB 32. The 2022 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of recently adopted policies. The 2022 Scoping Plan also puts an increased emphasis on economic, environmental, energy security, environmental justice, and public health priorities.

Assembly Bill 1279

On August 31, 2022, the California Legislature passed AB 1279, which established a new Statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. The bill also requires statewide anthropogenic GHG emissions to be reduced to at least 85% below 1990 levels. This goal is in addition to the existing Statewide GHG emission reduction targets established by SB 375, SB 32, SB 1383, and SB 100. AB 1279 also tasked CARB with including a pathway toward the AB 1279 carbon neutrality goal, which was developed as part of the 2022 Climate Change Scoping Plan.

[17] Association of Bay Area Governments. October 2021. Plan Bay Area 2050.

3.3 Relevant GHG Emissions Analysis Case Law

Friends of Oroville v. City of Oroville (Case No. 070448)

The Third District Court of Appeal decision in the *Friends of Oroville v. City of Oroville* case was published on August 19, 2013. This decision evaluated the methodology used to analyze GHG emissions in an Environmental Impact Report (EIR) prepared for a Wal-Mart Supercenter development project that included replacing an existing Wal-Mart store with a Wal-Mart Supercenter in Oroville in Butte County. The EIR used consistency with the AB 32 emissions reduction target as the significance threshold for evaluating the project's GHG emissions and compared the magnitude of the proposed project's emissions to statewide 2004 emission levels as part of the analysis. The Court found that EIR applied "a meaningless, relative number to determine insignificant impact" rather than evaluating the project's emissions in light of the AB 32 emissions reduction target. The Court also found that the EIR "misapplied the [AB] 32 threshold-of-significance standard by [1] failing to calculate the GHG emissions for the existing Wal-Mart and [2] failing to quantitatively or qualitatively ascertain or estimate the effect of the Project's mitigation measures on GHG emissions." The Court determined that the EIR could and should have performed these quantifications to adequately evaluate the project's GHG emissions using the AB 32 emissions reduction target.

Sierra Club v. County of San Diego (Case No. 37-2018-00043084-CU-TT-CTL)

The Fourth District Court of Appeal decision in the *Sierra Club v. County of San Diego* case was published on October 29, 2014. This decision evaluated the adequacy of the Climate Action Plan prepared by the County of San Diego to satisfy Mitigation Measure CC-1.2 of the program EIR prepared for the 2011 General Plan. To reduce GHG emissions impacts of the 2011 General Plan to a less-than-significant level, Mitigation Measure CC-1.2 required the preparation of a CAP that would include "more detailed GHG emissions reduction targets and deadlines" and that would "achieve comprehensive and enforceable GHG emissions reduction of 17 percent (totaling 23,572 MT of CO_2e) from County operations from 2006 by 2020 and 9 percent reduction (totaling 479,717 MT of CO_2e) in community emissions from 2006 by 2020." The Court found the CAP did not include enforceable and feasible GHG emission reduction measures that would achieve the necessary emissions reduction; therefore, the CAP did not meet the requirements of Mitigation Measure CC-1.2 and would not ensure that the mitigation measure would reduce GHG emissions to a less-than-significant impact. In addition, the Court found that the County failed to evaluate the environmental impacts of the CAP and the associated thresholds of significance under CEQA.

Center for Biological Diversity v. California Department of Fish and Wildlife (Case No. 217763)

The California Supreme Court's decision in the *Center for Biological Diversity v. California Department of Fish and Wildlife* case was published on November 30, 2015. This decision evaluated the methodology used to analyze GHG emissions in an EIR prepared for the Newhall Ranch development project that included approximately 20,885 dwelling units with 58,000 residents on 12,000 acres of undeveloped land in Los Angeles County. The EIR used a business-as-usual approach to evaluate whether the project would be consistent with the AB 32 Scoping Plan. The Court found there was insufficient evidence in the record of that project to explain how a project that reduces its GHG emissions by the same percentage as the business-as-usual reduction identified for the State to

meet its Statewide targets supported a conclusion that project-level impacts were below the level of significance.

The California Supreme Court suggested regulatory consistency as a pathway to compliance by stating that a lead agency might assess consistency with the State's GHG reduction goals by evaluating for compliance with regulations designed to reduce GHG emissions. This approach is consistent with CEQA Guidelines Section 15064.4(b), which provides that a determination of an impact is not cumulatively considerable to the extent to which the project complies with regulations or requirements implementing a Statewide, regional, or local plan to reduce or mitigate GHG emissions. The Court also found that a lead agency may rely on numerical and efficiency-based thresholds of significance for GHG emissions, if supported by substantial evidence.

Golden Door Properties, LLC v. County of San Diego/Sierra Club, LLC v. County of San Diego (Case No. 072406)

The Fourth District Court of Appeal decision in the *Golden Door Properties, LLC v. County of San Diego* case (published on September 28, 2018) evaluated the County of San Diego's 2016 Guidance Document's GHG efficiency metric, which establishes a generally applicable threshold of significance for proposed projects. The Court held that the County of San Diego is barred from using its 2016 Guidance Document's threshold of significance of 4.9 MT of CO_2e per service person per year for GHG analysis. The Court stated that the document violated CEQA because it was not adopted formally by ordinance, rule, resolution, or regulation through a public review process per CEQA Guidelines Section 15064.7(b). The Court also found that the threshold was not supported by substantial evidence that adequately explained how a service population threshold derived from Statewide data could constitute an appropriate GHG metric to be used for all projects in unincorporated San Diego County. Nevertheless, lead agencies may make plan- or project-specific GHG emissions threshold determinations.

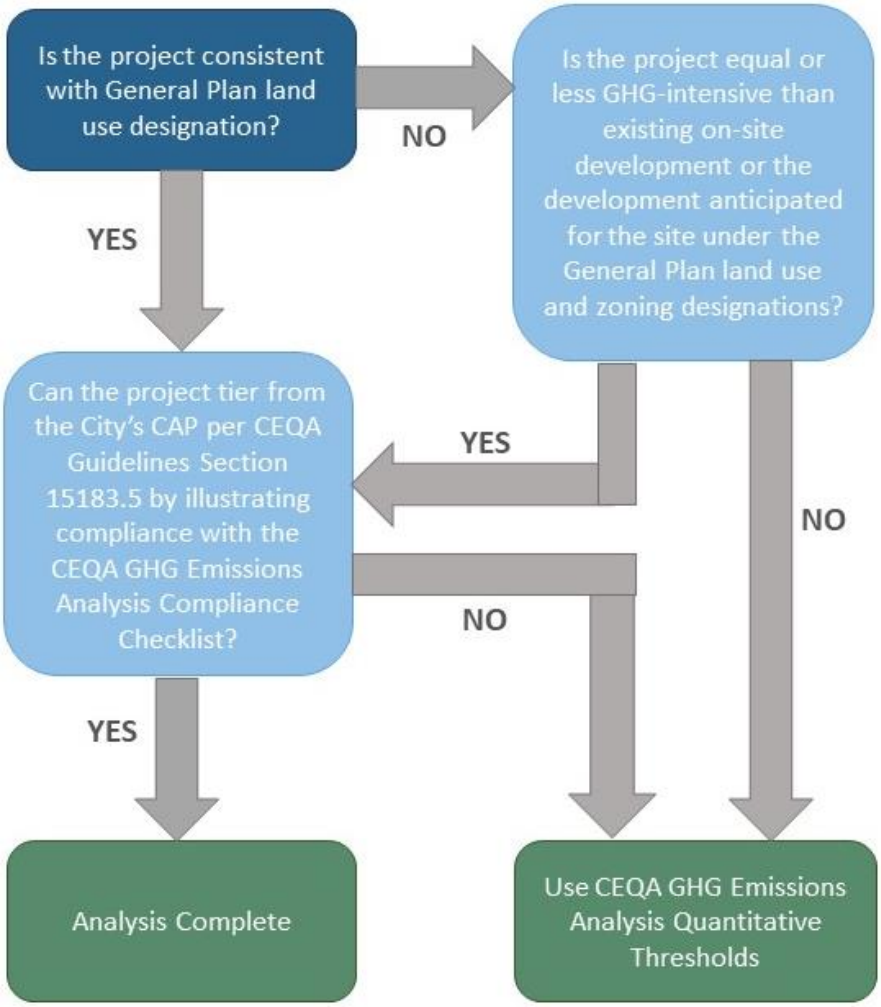
Climate Action Campaign v. City of San Diego (Case No. 37-2022-00036430-CU-TT-CTL)

The Superior Court of California in the *Climate Action Campaign v. City of San Diego* case is currently evaluating the City of San Diego's compliance with CEQA as part of their Climate Action Plan (the case was filed on September 12, 2022). The Climate Action Campaign alleges that the City of San Diego failed to comply with CEQA because the City of San Diego failed to adequately analyze or mitigate significant impacts and failed to specify criteria or standards to ensure the Climate Action Plan's emission reductions would be achieved. The Climate Action Campaign accordingly request that the Superior Court of California issue a writ of mandate under California Code of Civil Procedure sections 1085 and 1094.5 directing the City of San Diego to vacate and set aside its previous approvals as part of the Climate Action Plan. A verified petition for writ of mandate has been filed, with a final decision by the Superior Court of California pending.

4 Determining Consistency with the CAAP

As discussed in Chapter 2, *Climate Action Plan Summary*, the Pinole CAAP is a qualified GHG emission reduction plan per the requirements of CEQA Guidelines Section 15183.5 for year 2030 and can, therefore, be utilized to streamline the GHG emissions analysis for plans and projects with buildout years through 2030. Projects that are consistent with the demographic forecasts and land use assumptions in the CAAP can utilize the City's CEQA GHG Checklist to demonstrate consistency with the CAAP GHG emissions reduction strategy, and if consistent, can tier from the environmental review contained in the CAAP IS-ND. In doing so, these projects would result in less-than-significant GHG emissions and not result in a cumulatively considerable GHG emissions impact. The following process (see Figure 3) shows how to demonstrate a plan/project's consistency with the CAAP's GHG emissions reduction strategy and, thereby, tier from the IS-ND for the CAAP. This approach is consistent with the recommendations of the AEP Climate Change Committee for tiering from qualified GHG reduction plans that demonstrate substantial progress toward meeting the next milestone Statewide planning reduction target (i.e., a 40 percent reduction below 1990 levels by 2030 as set forth by SB 32).

Figure 3 Determining Consistency with the Pinole CAAP



Step 1: Consistency with Demographic Forecasts and Land Use Assumptions

The demographic forecasts of the CAAP are based on ABAG's demographic forecasts (PBA 2040 and PBA 2050) and the growth projected in the City's 2010 General Plan with 2023-2031 Housing Element Update. If a plan/project is consistent with the existing (2010) General Plan land use of the plan area/project site as identified in the Pinole General Plan, then the plan/project is consistent with the Business as Usual (BAU) demographic forecasts and land use assumptions of the CAAP and can move on to Step 2. In such cases, the plan/project's associated GHG emissions were accounted for in the GHG emissions forecasts included in the CAAP and, therefore, are within the scope of this plan's analysis of communitywide GHG emissions. Accordingly, the analysis of the plan/project's GHG emissions in its CEQA document should include a reference to the plan/project's consistency with the existing (2010) General Plan land use of the plan area/project site and should explain the connection between the existing (2010) General Plan land use and the GHG emissions forecasts in the CAAP. Then, proceed to Step 2. Note that this general methodology can also be utilized for projects with a post-2030 buildout year; however, the CEQA GHG thresholds would need to be updated to match the latest, adopted General Plan land use designations as well as the latest, adopted CAAP.

If a plan/project is not consistent with the existing (2010) General Plan land use of the plan area/project site but would result in equivalent or fewer GHG emissions as compared to existing on-site development or the development anticipated for the site under the City's existing (2010) General Plan, then the plan/project would still be within the demographic forecasts and land use assumptions of the CAAP and can move on to Step 2. To provide substantial evidence for this determination, GHG emissions generated under existing conditions/existing (2010) General Plan buildout and the proposed project need to be quantified and included in the CEQA analysis. See Chapter 6, *Quantifying GHG Emissions*, for guidance on quantifying GHG emissions for existing conditions/existing (2010) General Plan buildout and the proposed plan/project. In this case, the analysis of the plan/project's GHG emissions in its CEQA document should include a quantitative comparison of the proposed plan/project's GHG emissions and GHG emissions generated by existing on-site development, or the development anticipated for the site under the City's existing (2010) General Plan. The analysis should clearly explain how the plan/project's emissions are equivalent or less than those generated by existing on-site development, or the development anticipated for the site under the City's existing (2010) General Plan.

If a plan/project is not consistent with the existing (2010) General Plan land use of the plan area/project site and would result in either new development of undeveloped land or redevelopment with higher GHG emissions than existing on-site development or than the development anticipated for the site under the City's existing (2010) General Plan, the plan/project cannot use the CEQA GHG Emissions Analysis Compliance Checklist to tier from the adopted IS-ND for the CAAP. Instead, the plan/project's GHG emissions can be evaluated using the quantitative GHG thresholds described in Chapter 5, *Utilizing Quantitative CEQA GHG Thresholds*, to evaluate the significance of the plan/project's GHG emissions.

Step 2: Consistency with CEQA GHG Emissions Analysis Compliance Checklist

The City has prepared the CEQA GHG Emissions Analysis Compliance Checklist for plans and projects to confirm they are consistent with the strategies of the CAAP. A project applicant can utilize the checklist to show that a plan/project includes all applicable strategies of the CAAP. Projects that use the CEQA GHG Emissions Analysis Compliance Checklist are not required to quantify reductions

from the strategies included on the checklist, because the reductions from applicable strategies have already been quantified at a programmatic level in the CAAP.

If a plan/project is consistent with the applicable strategies on the CEQA GHG Emissions Analysis Compliance Checklist, then the plan/project can streamline from the plan/project-level CEQA GHG emissions analysis utilizing the programmatic GHG emissions environmental review included in the adopted IS-ND for the CAAP pursuant to CEQA Guidelines Section 15183.5(b)(1).

A plan/project that is consistent with all applicable strategies of the CEQA GHG Emissions Analysis Compliance Checklist would result in less-than-significant GHG emissions and would not result in a cumulatively considerable impact related to GHG emissions and climate change. In this case, the analysis of a plan or project's GHG emissions in its respective CEQA review document should include a qualitative summary of the plan/project's consistency with applicable measures of the CEQA GHG Emissions Analysis Compliance Checklist and an explanation with substantial evidence of why any strategies in the checklist are not applicable to the plan/project.

5 Utilizing Quantitative CEQA GHG Thresholds

As discussed in Chapter 4, *Determining Consistency with the CAAP,* if a plan/project is not consistent with the existing (2010) General Plan land use of the plan area/project site or has a post-2030 buildout year or is not consistent with all applicable GHG reduction strategies of the CAAP as listed in the CEQA GHG Emissions Analysis Compliance Checklist, then that plan/project cannot utilize the CEQA GHG Emissions Analysis Compliance Checklist to streamline its project/plan-level GHG emissions analysis in a qualitative manner. Instead, the significance of that plan/project's GHG emissions can be evaluated using quantitative GHG thresholds derived from the assumptions of the CAAP. If that plan/project's GHG emissions are at or below the applicable quantitative threshold and it has a pre-2030 buildout year, it can be determined that the project/plan would result in a less than significant GHG emissions impact. Similarly, if a CAAP-specific project can tier from the existing programmatic environmental review contained in the adopted programmatic IS-ND for the CAAP, GHG emissions impacts associated with that project would also be considered less than significant. In doing so, such plans/projects would not result in a cumulatively considerable impact related to GHG emissions and climate change. In addition, plans/projects with post-2030 buildout year and GHG emissions at or below the quantitative thresholds for 2045, which equate to net zero MT of CO_2e per year, would be considered less-than-significant and would not result in a cumulatively considerable GHG emissions impact. Note that the CEQA GHG thresholds need to be updated for consistency when new General Plan land use designations and new CAAP updates are adopted. The following sections provide an explanation of the methodology used to calculate the quantitative GHG emissions thresholds, guidance on how to utilize the thresholds, and justification for use of the thresholds.

5.1 Thresholds Calculation Methodology

CEQA Guidelines Section 15064.4 does not establish a specific quantitative threshold of significance for evaluating GHG emissions associated with a proposed plan or project. As mentioned above, lead agencies have the discretion to establish significance thresholds for their respective jurisdictions, and in establishing those thresholds, a lead agency may appropriately look to thresholds developed by other public agencies, or suggested by other experts, if the threshold chosen is supported by substantial evidence (CEQA Guidelines Section 15064.7[c]). The following methodology is consistent with guidance provided by the AEP Climate Change Committee in 2016 for establishing GHG emissions efficiency thresholds using the local jurisdictional GHG inventory and demographic forecasts.[18]

An efficiency threshold is a threshold expressed as a per-person metric (e.g., per resident, per employee, or per service person). Efficiency thresholds are calculated by dividing the allowable GHG emissions inventory in a selected calendar year by the resident, employee, or service population in that year. The efficiency threshold identifies the quantity of GHG emissions that can be generated on a per-person basis without significantly impacting the environment.

[18] AEP. 2016. Final White Paper Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California. https://califaep.org/docs/AEP-2016_Final_White_Paper.pdf.

Locally appropriate, plan- and project-specific GHG emissions efficiency thresholds were derived from the GHG emissions forecasts calculated for the CAAP. These thresholds were created to comply with CEQA and the CEQA Guidelines and interpretive GHG emissions analysis case law, which are summarized in Chapter 3, *Regulatory and Legal Setting*. The City of Pinole GHG emissions efficiency thresholds were calculated using the emissions forecasts with all local emissions sectors included, because plans and projects would generate vehicle trips, consume energy and water, and produce wastewater and solid waste, thereby generating emissions in all categories. Efficiency thresholds were calculated for the year 2030 to provide GHG emissions thresholds for new development in line with the State's next milestone target for year 2030.

GHG emissions efficiency thresholds would be used during the CEQA review process for new residential, non-residential, and mixed-use plans and projects. Therefore, forecasted GHG emissions in the 2030 CAAP were disaggregated into existing development and new development for each threshold year. Forecasted GHG emissions for new development were further disaggregated into residential and non-residential development for each threshold year for the purpose of calculating thresholds specific to residential, non-residential, and mixed-use projects. The results of the disaggregation of the GHG emissions forecast are presented in Figure 4 and Table 5, which summarizes the total amount of GHG emissions expected to be generated by existing, new residential, and new non-residential development for threshold year 2030.

Figure 4 Allowable GHG Emissions from Existing and New Development in 2030

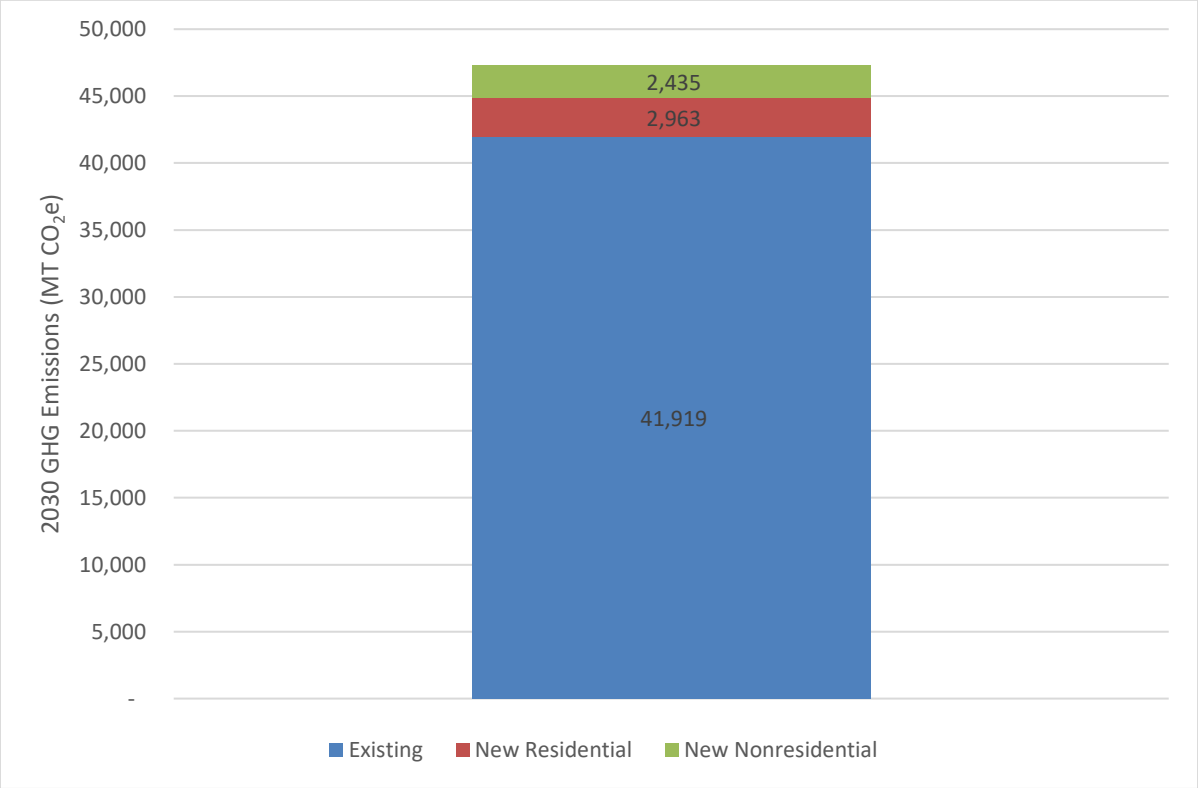


Table 5 GHG Emissions Reductions for Year 2030 by Type of Development (MT of CO2e)

Source	Existing Development	New Development	
		Residential	Non-Residential
Baseline GHG Emissions	72,273	6,654	5,588
State Legislation/Existing City Programs	(12,552)	(1,430)	(1,631)
2030 CAAP Energy Measures	(8,475)	(1,329)	(680)
2030 CAAP Transportation Measures	(6,493)	(579)	(670)
2030 CAAP Waste Measures	(2,834)	(354)	(172)
Remaining Total GHG Emissions	**41,919**	**2,963**	**2,435**

Note: ( ) denotes a negative number

See Appendix B for calculations.

Table 6 summarizes the demographic projections for the City of Pinole that were used in calculating GHG efficiency thresholds for year 2030. As shown below, the numbers of residents, employees, and service persons are all anticipated to increase between 2017 and 2030.

Table 6 Pinole Demographic Projections

Metric	2017 Estimate	2030 Forecast	Net Increase from New Development (2017-2030)
Residents	19,663	23,110	3,447
Employees	7,970	9,645	1,674
Service Population[1]	27,633	32,755	5,122

[1] Service population is equal to residential population plus the number of employees.

Source: Pinole, City of. 2022. *Community Greenhouse Gas Emissions Inventory and Forecast*.

5.2 Thresholds and Use

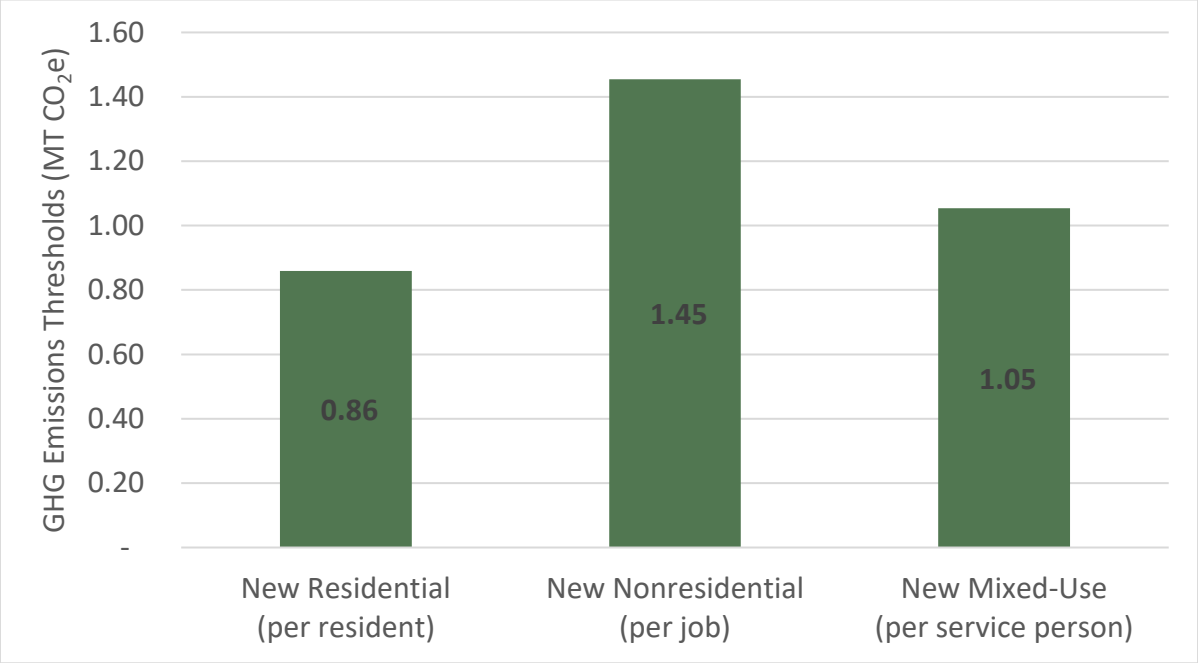
The GHG efficiency thresholds for residential, non-residential, and mixed-use projects built prior to December 31, 2030 are presented in Figure 5 and Table 7. If a plan or project's emissions do not exceed the applicable threshold, then it is considered consistent with the Pinole CAAP and its GHG emissions impacts (both project- and cumulative-level) would not result in a cumulatively considerable impact related to GHG emissions and climate change and would, therefore, be less than significant. If a plan/ project's emissions exceed the applicable threshold, then mitigation measures must be identified, and respective GHG emissions reduction calculations included within the CEQA review document in order to reduce plan or project GHG emissions to at or below the applicable threshold level. These thresholds are applicable to the following plan and project types proposed in Pinole:

- **Residential.** Single-family dwellings, multi-family dwellings, accessory dwelling units, boarding house, caretaker quarters, fraternities and sororities, high-occupancy residential uses, continuing care communities, mobile-home parks, or any combination of these uses.
- **Non-residential.** All commercial uses (including office and retail uses), all lodging uses, all public and quasi-public uses, older adult and long-term care, hospice in-patient facilities, family day cares, residential care facilities, supportive and/or transitional housing, sports and entertainment assembly facilities, all industry, manufacturing and processing, and wholesaling

uses that are not subject to Bay Area Air Quality Management District's (BAAQMD) stationary source permitting or the State Cap-and-Trade program, or any combination of these uses.

- **Mixed-use.** A combination of at least one residential and at least one non-residential land use specified above.

Figure 5 Pinole GHG Efficiency Thresholds



Source: Appendix B, CEQA GHG Thresholds Calculations

Table 7 Pinole Locally Applicable Plan/Project CEQA GHG Emissions Thresholds

	2030 New Development		
	Non-Residential	**Residential**	**Mixed-Use**
GHG Emissions Forecast (MT of CO_2e per year)[1]	2,556	3,059	5,626
Demographic Metric[2]	1,674 new employees	3,447 new residents	5,122 new service persons
GHG Efficiency Threshold (MT of CO_2e per year)	1.45 per employee	0.86 per resident	1.05 per service person

MT = metric tons; CO_2e = carbon dioxide equivalents

[1] Emissions from new mixed-use development would count against the total remaining GHG budget for both new residential and new non-residential development rather than as a function of the number of new service people expected in 2030. This avoids double counting.

[2] Demographic estimates were calculated using the forecasts in Table 6.

Source: Appendix B, CEQA GHG Thresholds Calculations

5.3 Justification for Thresholds

Per CEQA Guidelines Section 15064(b)(1), "the determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data." In addition, CEQA Guidelines Section 15064(b)(2) states, "When using a threshold, the lead agency should briefly explain how compliance with the threshold means that the project's impacts are less than significant." Furthermore, CEQA Guidelines Section 15064.7(b) states, "Thresholds of significance to be adopted for general use as part of the lead agency's environmental review process must be adopted by ordinance, resolution, rule, or regulation, and developed through a public review process and be supported by substantial evidence." Therefore, the key considerations when developing thresholds of significance are 1) the thresholds' basis on scientific and factual data; 2) demonstration of how compliance with the thresholds reduces project impacts to a less than significant level; 3) support of the thresholds by substantial evidence; and 4) adoption of the thresholds by ordinance, resolution, rule, or regulation, and developed through a public review process. The following subsections address these four key considerations.

Basis of Scientific and Factual Data

As discussed in Section 5.1,*Thresholds Calculation Methodology*, the quantitative thresholds were developed using data from the City's 2017 communitywide GHG inventories and the GHG emissions forecasts for year 2030. These inventories and forecasts were developed by the City in compliance with all relevant protocols and guidance documents, including the U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions, Local Government Operations Protocol, the Global Protocol for Community Scale GHG Emissions, and the Intergovernmental Panel on Climate Change (IPCC) Guidelines for National GHG Inventories. Furthermore, the inventories and forecasts are based on locally appropriate data for Pinole provided by Marin Clean Energy (MCE), Pacific Gas & Electric (PG&E), Bay BAAQMD, CARB, solid waste management providers, and water providers.[19] Therefore, the emissions inventory and forecast data underlying the thresholds is both scientific and factual.

As discussed in Section 2.3, *GHG Emissions Forecast*, implementation of the Pinole CAAP will achieve a 40 percent reduction in 1990 emissions levels by 2030 (equivalent to 47,273 MT of CO_2e 2030). Therefore, this local target makes substantial progress toward achieving the State's long-term goal of carbon neutrality by 2045. The quantitative thresholds are tied directly to the level of GHG emissions anticipated for new development in the CAAP for year 2030. As a result, because the CAAP is consistent with the State's 2030 GHG emission target, the quantitative thresholds are also consistent with the next State milestone GHG emission reduction target for 2030. The State's GHG emission reduction targets for 2030 and 2045 are set at the levels scientists say are necessary to meet the Paris Agreement goals to reduce GHG emissions and limit global temperature rise below two degrees Celsius by 2100 in order to avoid dangerous climate change (CARB 2022; AB 1279). Therefore, the City's emission reduction targets that inform the CAAP and the associated quantitative thresholds are based on scientific and factual data on the level of emissions reduction necessary to avoid a cumulatively considerable contribution to the cumulative impact of climate change.

[19] Pinole, City of. 2022. Community Greenhouse Gas Emissions Inventory and Forecast.

Reduction of Plan or Project Impacts to a Less-than-Significant Level

The quantitative GHG thresholds shown in Section 5.2, *Thresholds and Use*, are tied directly to the level of GHG emissions anticipated for new development in the CAAP for year 2030. Therefore, the thresholds are consistent with the City's local emission reduction target, which is consistent with the State's GHG emission reduction targets. As mentioned in the preceding subsection, the State's GHG emission reduction targets for 2030 and 2045 are set at the levels scientists say are necessary to meet the Paris Agreement goals to reduce GHG emissions and limit global temperature rise below two degrees Celsius by 2100 in order to avoid dangerous climate change (CARB 2022; AB 1279). Therefore, the quantitative thresholds are set at the level necessary to ensure the City does not have a considerable contribution to the cumulative impact of climate change. As a result, plans and projects with GHG emissions at or below the quantitative thresholds would also not have a considerable contribution to the cumulative impacts of climate change, and plan/project impacts would be less than significant.

Support of Substantial Evidence

Substantial evidence regarding the calculation of the quantitative GHG emissions thresholds is provided in Section 5.1, *Thresholds Calculation Methodology*. The following subsections provide additional evidence of how the GHG emissions thresholds are locally appropriate and plan- or project-specific and how the thresholds distinguish between existing and new development.

Use of Local Data

The quantitative thresholds were developed using the City's communitywide GHG emissions forecast for year 2030 and are therefore specific to the City of Pinole. The thresholds are directly tied to the population and employment growth anticipated by the Association of Bay Area Governments (ABAG) and in alignment with the Pinole 2010 General Plan Land Use/Community Character and updated Housing Elements as well as to the City-specific GHG emission reduction measures that the City has proposed to reduce communitywide emissions. In addition, the magnitude of local GHG emission reduction achieved by State legislation/policies (i.e., vehicle fuel efficiency standards, the Renewable Portfolio Standard [RPS], and Title 24) was estimated based on City-specific growth and vehicle miles travelled (VMT) forecasts. As a result, these locally appropriate thresholds directly address the concerns raised in the *Golden Door Properties, LLC v. County of San Diego/Sierra Club, LLC v. County of San Diego* (2018) case, because they are based on local GHG emissions data rather than Statewide GHG emissions data.

Disaggregation of Existing versus New Development

The quantitative thresholds were developed by disaggregating the County's business-as-usual GHG emissions forecasts for year 2030 into emissions forecasts for existing and new development, as shown in Table 5. The emissions reductions specific to new development achieved by State legislation/policies and the 2030 CAAP were then subtracted from the business-as-usual forecast to determine the maximum limit of emissions from new residential and new non-residential development for year 2030. These limits were then divided by the numbers of residents, employees, and service persons forecasts for new development to determine efficiency thresholds for residential, non-residential, and mixed-use development, respectively. Therefore, these thresholds directly address the concerns raised in the *Center for Biological Diversity v. California Department of Fish and Wildlife* (2015) case regarding the different rates of GHG emissions reductions anticipated

for new development as compared to existing development in order to meet the specified GHG reduction target.

Selection of Sector-Specific Thresholds

The quantitative thresholds are separated into three categories – residential, non-residential, and mixed-use – which are intended to apply to the three main types of development projects in Pinole. These thresholds were calculated by disaggregating the City's business-as-usual GHG emissions forecasts for residential and non-residential development. The emissions reduction specific to residential and non-residential development achieved by State legislation/existing City programs and the CAAP were then subtracted from the business-as-usual forecast to determine the maximum limit of emissions for new residential and new non-residential development for year 2030. These emissions limits were then divided by the numbers of residents and employees forecast for the year 2030 to determine efficiency thresholds for residential and non-residential projects, respectively. For mixed-use development, the residential and non-residential emissions limits were summed, then divided by the service population forecast for 2030 to determine an efficiency threshold for mixed-use projects. As a result, these project-specific thresholds directly address the concerns raised in the *Center for Biological Diversity v. California Department of Fish and Wildlife* (2015) case, because they are specific to each development project type.

Adoption via Public Review Process

In compliance with CEQA Guidelines Section 15064.7(b), this guidance document and the quantitative thresholds contained herein will be presented to the City Council for formal adoption via resolution through a public review process, which will include an opportunity for public input. The public review process for these City of Pinole CEQA GHG Thresholds and Guidance will specifically occur via public availability to comment on the draft resolution item during a public meeting (i.e., Board of Supervisors hearing). This process directly addresses the concerns raised in the *Golden Door Properties, LLC v. County of San Diego/Sierra Club, LLC v. County of San Diego* (2018) case regarding formal adoption of new CEQA thresholds.

6 Quantifying GHG Emissions

There are a variety of analytical tools available to estimate project-level GHG emissions, including the California Emissions Estimator Model (CalEEMod),[20] which is a free, publicly available computer model developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with various air quality districts throughout the State. Alternative tools may be used to quantify emissions if they can be substantiated. In general, the most current version of CalEEMod should be used to calculate total emissions for discretionary development projects. The analysis should focus on carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) because these are the GHGs that most development projects would generate in the largest quantities. Fluorinated gases, such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluorides, should also be considered for the analysis as reported in CalEEMod from refrigerants used in air conditioning and refrigeration equipment. Emissions of all GHGs should be converted into their equivalent global warming potential in terms of CO_2 (CO_2e). Calculations should be based on the current methodologies recommended by the CAPCOA and the BAAQMD.[21], [22]

6.1 Construction GHG Emissions

Construction activities emit GHGs primarily though combustion of fuels (mostly diesel) in the engines of off-road construction equipment, in on-road construction vehicles, and in the commute vehicles of the construction workers. Smaller amounts of GHGs are emitted indirectly through the energy required for water used for fugitive dust control and lighting for the construction activity. Every phase of the construction process, including demolition, grading, paving, and building, emits GHG emissions in volumes proportional to the quantity and type of construction equipment used. Heavier equipment typically emits more GHGs per hour than lighter equipment because of its engine design and greater fuel consumption.

BAAQMD recommends quantifying and disclosing construction related GHG emissions and making an impact level determination. CalEEMod generates a default construction schedule and equipment list based on the plan/project-specific information, including land use, project size, location, and construction timeline.[23] In general, if specific applicant-provided information is unknown, the default construction equipment list and phase lengths are the most appropriate inputs. However, if more detailed site-specific equipment and phase information (i.e., data from the project applicant) is available, the model's default values can (and should) be overridden.[24]

[20] The most current available version of CalEEMod should be used. As of February 2022, CalEEMod version 2020.4.0 is the most current version and should be used to quantify project-level emissions.

[21] California Air Pollution Control Officers Association. 2008. CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA). January 2008.

[22] BAAQMD. 2022. "CEQA Thresholds and Guidelines Update." https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines.

[23] CAPCOA. 2020. California Emissions Estimator Model User Guide: Version 2020.4.0. Prepared by BREEZE Software, A Division of Trinity Consultants in collaboration with South Coast Air Quality Management District and the California Air Districts. http://www.aqmd.gov/caleemod/user's-guide.

[24] Ibid.

6.2 Operational GHG Emissions

CalEEMod estimates operational emissions of CO_2, N_2O, and CH_4 generated by area sources, energy use, vehicle trips (i.e., mobile sources), waste generation, and water use and conveyance. Operational emissions should be calculated for the year 2030, rather than the plan/project buildout year, in order to provide an appropriate comparison of project emissions to the year 2030 threshold.

Area Source Emissions

Area sources include GHG emissions that would occur from the use of landscaping equipment, hearths, and woodstoves, which emit GHGs associated with the equipment's fuel combustion. The landscaping equipment emission values in CalEEMod are derived from the 2011 Off-Road Equipment Inventory Model.[25] Emission rates for combustion of wood and natural gas for wood stoves and fireplaces are based on those published by the U.S. EPA in Chapter 1.9 of AP-42. Typically, no adjustments to landscaping equipment inputs are necessary. The number of hearths and woodstoves should be adjusted in CalEEMod to reflect the project design.

Energy Use Emissions

GHGs are emitted on-site during the combustion of natural gas for cooking, space and water heating, and decorative uses, as well as off-site during the generation of electricity from fossil fuels in power plants. CalEEMod estimates GHG emissions from energy use by multiplying average rates of residential and non-residential energy consumption by the quantities of residential units and non-residential square footage entered in the land use module to obtain total projected energy use. This value is then multiplied by electricity and natural gas GHG emission factors applicable to the plan/project location and utility provider. Building energy use is typically divided into energy consumed by the built environment and energy consumed by uses that are independent of the building, such as plug-in appliances. Non-building energy use, or "plug-in energy use," can be further subdivided by specific end-use (refrigeration, cooking, office equipment, etc.). In California, Title 24 governs energy consumed by the built environment, mechanical systems, and some types of fixed lighting.

Electricity emissions are calculated by multiplying the energy use by the carbon intensity of the utility district per kilowatt hour.[26] Projects would be served either by MCE or by PG&E. The specific energy intensity factors (i.e., the amount of CO_2, CH_4, and N_2O per kilowatt-hour) for the applicable utility should be used in the calculations of GHG emissions.

As of publication of this guidance document, the current iteration of Title 24 included the 2019 Building Energy Efficiency Standards. In accordance with Section 150.1(b)14 of the 2019 Building Energy Efficiency Standards, all new residential uses three stories or less must install photovoltaic (PV) solar panels that generate an amount of electricity equal to expected electricity usage. The calculation method contained in Section 150.1(b)14 of the 2019 Building Energy Efficiency Standards should be utilized to estimate the number of kilowatts from PV solar panels would be required for a residential project three stories or less. In addition, modeling should account for local regulations

[25] Ibid.
[26] Ibid.

pertaining to mandatory solar provisions.[27] Online resources can be used to determine the amount of kilowatt-hours that would be generated per year by the required PV system.[28] The energy reduction achieved by on-site PV panels should be included in CalEEMod. Future updates to Title 24 as they relate to the Building Energy Efficiency Standards should be incorporated into CalEEMod as applicable.

Mobile Source Emissions

CalEEMod quantifies mobile source emissions generated by vehicle trips associated with the proposed plan/project. If available, plan/project-specific trip generation rates or VMT data should be input in CalEEMod.

Water and Wastewater Emissions

The amount of water used, and the amount of wastewater generated by a plan/project generate indirect GHG emissions. These emissions are a result of the energy used to supply, convey, and treat water and wastewater. In addition to the indirect GHG emissions associated with energy use, the wastewater treatment process itself can directly emit both CH_4 and N_2O.

The indoor and outdoor water use consumption data for each land use subtype comes from the Pacific Institute's (2003) *Waste Not, Want Not: The Potential for Urban Water Conservation in California*.[29] Based on that report, a percentage of total water consumption is dedicated to landscape irrigation, which is used to determine outdoor water use. Wastewater generation is similarly based on a reported percentage of total indoor water use.

New development will be subject to the California Green Building Standards Code (CALGreen), which currently requires a 20 percent increase in indoor water use efficiency and the use of water-efficient irrigation systems. Thus, to account for compliance with CALGreen, a 20 percent reduction in indoor water use and the use of water-efficient irrigation systems should be included in the water consumption calculations for new residential, non-residential, and mixed-use development. Future updates to Title 24 as they relate to CALGreen water efficiency requirements should be incorporated into CalEEMod as applicable.

Solid Waste Emissions

The disposal of solid waste produces GHG emissions from the transportation of waste, anaerobic decomposition in landfills, and incineration. To calculate the GHG emissions generated by solid waste disposal, the total volume of solid waste is calculated using waste disposal rates identified by CalRecycle. The methods for quantifying GHG emissions from solid waste are based on the IPCC method, using the degradable organic content of waste. CEQA document preparers should contact the City's Community Development Department to obtain the City's most recent solid waste diversion rate to be included in the calculation of solid waste GHG emissions.

[27] In 2020, the City Council will consider adoption of the Clean Energy Choice Program for New Buildings, which may include solar requirements for other types of land uses.

[28] Zientara, Ben. 2019. How much electricity does a solar panel produce? Last updated: November 6, 2019. https://www.solarpowerrocks.com/solar-basics/how-much-electricity-does-a-solar-panel-produce/.

[29] CAPCOA. 2017. California Emissions Estimator Model User Guide: Version 2016.3.2. Prepared by BREEZE Software, A Division of Trinity Consultants in collaboration with South Coast Air Quality Management District and the California Air Districts. http://www.aqmd.gov/caleemod/user's-guide.

Plan or Project Design Features

CEQA document preparers should use the "Mitigation" tabs in CalEEMod to include project design features applicable to the plan/project.[30] These features often include increased density, improved destination accessibility, proximity to transit, integration of below market rate housing, unbundling of parking costs, provision of transit subsidies, implementation of alternative work schedules, use of energy- and/or water-efficient appliances, use of reclaimed and/or grey water, and installation of water-efficient irrigation system. Users should consider the applicability of these features to the plan/project and review the CAPCOA *Quantifying Greenhouse Gas Mitigation Measures* (2010) publication to ensure that the chosen features are relevant and feasible considering the plan/project.[31]

Residents, Employees, and Service Populations

The quantitative thresholds presented in Chapter 5, *Utilizing Quantitative CEQA GHG Thresholds*, are expressed in terms of per resident for residential projects, per employee for non-residential projects, and per service person for mixed-use projects. Estimates of the resident, employee, or service population for a plan/project should be based on substantial evidence. Data provided by the applicant as well as the following resources may be utilized in estimating resident and employee populations:

- **Persons per Household.** Users should refer to the California Department of Finance website (https://www.dof.ca.gov/Forecasting/Demographics/Estimates/e-5/) for the most recent estimate of persons per household in Pinole. This estimate can be multiplied by the number of proposed residential units to estimate a plan/project's resident population.
- **Proposed Number of Beds.** For projects such as group homes, assisted living facilities, nursing homes, or similar uses, the number of beds can be used to determine the resident population.
- **United States Green Building Council.** The United States Green Building Council has published a summary of building area per employee by business type. These rates, which are expressed in terms of square feet per employee, can be utilized to estimate the number of employees a plan/project would require. This document is included as Appendix C.

6.3 Modeling GHG Emissions from Existing Land Use

For a plan/project that would result in a change in the plan area/project's site General Plan land use designation, emissions anticipated for the existing (2010) General Plan land use designation must be calculated in conjunction with emissions for the proposed plan/project to demonstrate whether the plan/project would be more or less GHG-intensive than development anticipated for the existing (2010) General Plan land use designation for the site. In this case, GHG emissions should be reported for both the existing and proposed scenarios.

Emissions anticipated for the existing land use should be quantified using the methods described in Section 6.1, *Construction Emissions*, and Section 6.2, *Operational Emissions,* with consistent assumptions between the two scenarios as applicable. Any emission reduction credits applied to the proposed plan/project scenario that are related to State legislation/policies (e.g., the RPS, vehicle

[30] "Mitigation" is a term of art for the modeling input and is not equivalent to mitigation measures that may apply to the CEQA impact analysis.

[31] CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. August 2010. http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

standards, Title 24) or the plan area/project site location (e.g., proximity to transit, destination accessibility, etc.) should also be applied to the existing scenario.

Emission reduction credits that are specific to the proposed plan/project (e.g., use of recycled water, increased density, installation of energy and/or water-efficient appliances, integration of below market rate housing, etc.) should only be included for the proposed plan/project scenario. In addition, care should be taken to identify any emission reduction credits that might be unique to the existing land use designation that would not apply to the proposed plan/project. For example, if the existing land use designation allows for single-family residences and the proposed land use designation would allow for only commercial uses, then the existing scenario should include the emission reduction credit associated with the 2019 Building Energy Efficiency Standards requirements for PV solar panels on residential uses that are three stories or less whereas the proposed plan/project scenario should not include this credit unless PV solar panels are included as a plan/project design feature.

7 Moving into the Future

Full implementation of the Pinole CAAP will reduce communitywide GHG emissions by approximately 40 percent below 1990 levels by 2030 and 98 percent by 2045, which would leave a gap of approximately 1,155 MT of CO_2e per year in 2045 that will need to be addressed to achieve carbon neutrality. This gap represents emissions that could be addressed by laws, regulations, policies, programs, and ordinances set forth by the federal and State governments, regional agencies, and local partners. The gap also represents the uncertainty that the City faces in taking a leadership role in addressing a challenge that has not been previously solved.

Pinole is committed to embracing that uncertainty, striving toward constant learning, engaging in systemic change using the tools and actions that local governments are uniquely suited to carry out, and positioning itself to take full advantage of future innovations, technologies, and policies and legislation that may be undertaken at the State and federal level through adaptive management techniques. Technological innovation and changes to climate related policy and regulation occur rapidly. Several of the State's most successful environmental policy initiatives, including the RPS, also had a gap between what was known at the time of adoption and eventual successful implementation. By committing to the ambitious target of carbon neutrality by 2045, Pinole intends to catalyze innovation, invite and acquire resources from funding sources and partners, and provide climate leadership.

The CAAP acknowledges that additional actions beyond those identified in the plan will be necessary to achieve carbon neutrality and, therefore, provides a mechanism for updating and adopting a new climate action plan every five years (with annual assessment of progress) in order to incorporate new measures and innovative technologies that will further Pinole toward meeting its goal of carbon neutrality. As the CAAP is updated, the associated CEQA GHG Emissions Analysis Compliance Checklist will also be updated as needed to incorporate new strategies, measures, and/or foundational actions that discretionary development projects will need to incorporate, as applicable, to demonstrate consistency with the latest CAAP. At the time at which the City identifies measures to achieve its carbon neutrality goal in totality, the City will adopt those measures in a public process following CEQA review, at which time that updated CAAP will become a qualified GHG emission reduction plan for projects with post-2030 buildout years. However, the quantitative thresholds included in this guidance document will need to be updated, because residential, non-residential, and mixed-use projects with post-2030 buildout years will still need to achieve GHG emissions equivalent to zero MT of CO_2e per year to demonstrate consistency with the Pinole CAAP.

Finally, if future amendments or updates of the Pinole Land Use and Economic Development/Community Character Element and/or Housing Element occur, then such amendments or updates will be incorporated into future updates of the Pinole CAAP to allow project applicants to continue to utilize the streamlining process, which is partly dependent on a plan/project's consistency with the demographic forecasts and land use assumptions based on the General Plan Land Use/Community Character and Housing Elements to the greatest extent practicable.

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Appendix A

Overview of GHG Emissions and Climate Change

Overview of GHG Emissions and Climate Change

Climate Change and Greenhouse Gases

Climate change is the observed increase in the average temperature of Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period. The term "climate change" is often used interchangeably with the term "global warming," but "climate change" is preferred to "global warming" because it helps convey other changes in addition to rising temperatures. The baseline against which these changes are measured originates from historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. The global climate changes continuously, as evidenced by repeated episodes of substantial warming and cooling documented in the geologic record. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed substantial acceleration in the rate of warming during the past 150 years. The United Nations Intergovernmental Panel on Climate Change (IPCC) expressed that the rise and continued growth of atmospheric CO_2 concentrations is unequivocally due to human activities in the IPCC's Sixth Assessment Report from 2021. Human influence has warmed the atmosphere, ocean, and land, which has led the climate to warm at an unprecedented rate in the last 2,000 years. It is estimated that between the period of 1850 through 2019, that a total of 2,390 gigatonnes of anthropogenic CO_2 was emitted. It is likely that anthropogenic activities have increased the global surface temperature by approximately 1.07 degrees Celsius between the years 2010 through 2019.[32] Furthermore, since the late 1700s, estimated concentrations of CO_2, methane, and nitrous oxide in the atmosphere have increased by over 43 percent, 156 percent, and 17 percent, respectively, primarily due to human activity.[33] Emissions resulting from human activities are thereby contributing to an average increase in Earth's temperature. Further, in 2023, Earth's average land and ocean surface temperature was 2.12 degrees F (1.18 degrees C) above the 20th century — the highest global temperature among all years in National Oceanic and Atmospheric Administration's (NOAA) 1850-2023 climate record and the 10 warmest years on record have all occurred in the past decade.[34]

Gases that absorb and re-emit infrared radiation in the atmosphere are called GHGs. The gases widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of

[32] IPCC. 2021. Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)] Cambridge University Press. https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf

[33] United States Environmental Protection Agency (U.S. EPA). 2021. Climate Change Indicators: Atmospheric Concentrations of Greenhouse Gases. Last updated April 2021. https://www.epa.gov/climate-indicators/climate-change-indicators-atmospheric-concentrations-greenhouse-gases

[34] NOAA. January 12, 2024. 2023 was the world's warmest year on record, by far. https://www.noaa.gov/news/2023-was-worlds-warmest-year-on-record-by-far#:~:text=Earth's%20average%20land%20and%20ocean,0.15%20of%20a%20degree%20C).

GHGs because it is short-lived in the atmosphere, and natural processes, such as oceanic evaporation, largely determine its atmospheric concentrations.

GHGs are emitted by natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are usually by-products of fossil fuel combustion, and CH_4 results from off-gassing associated with agricultural practices and landfills. Human-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and SF_6.[35]

Different types of GHGs have varying global warming potentials (GWP). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emitted, referred to as "carbon dioxide equivalent" (CO_2e), which is the amount of GHG emissions emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, methane has a GWP of 28, meaning its global warming effect is 28 times greater than CO_2 on a molecule per molecule basis.[36]

The accumulation of GHGs in the atmosphere regulates the Earth's temperature. Without the natural heat-trapping effect of GHGs, the earth's surface would be about 33 degrees Celsius (°C) cooler.[37] GHG emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, are believed to have elevated the concentration of these gases in the atmosphere beyond the level of concentrations that occur naturally.

Greenhouse Gas Emissions Inventories

Global Emissions Inventory

Worldwide anthropogenic emissions of GHGs were approximately 54,593 million metric tons (MMT) of CO_2e in 2021[38] Carbon dioxide emissions from fossil fuel combustion and industrial processes contributed about 67 percent of total emissions in 2021[39]. Of anthropogenic GHGs, CO_2 was the most abundant, accounting for about 75 percent of total 2021 emissions. Methane emissions accounted for 19 percent of the 2021 total, while N_2O accounted for 9 percent.[40]

United States Emissions Inventory

Total U.S. GHG emissions were 6,340 MMT of CO_2e in 2021. Emissions increased by 6 percent from 2020 to 2021 (after accounting for sequestration from the land sector); since 1990, total U.S. emissions have increased by an average annual rate of 0.06 percent for a total increase of 1.8 percent between 1990 and 2019. The increase in total greenhouse gas emissions was driven largely

[35] U.S. EPA. 2021. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019. April 2021. https://www.epa.gov/system/files/documents/2022-02/us-ghg-inventory-2022-main-text.pdf

[36] IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp. https://www.ipcc.ch/site/assets/uploads/2018/05/SYR_AR5_FINAL_full_wcover.pdf

[37] World Meteorological Organization. 2020. "Greenhouse Gases." https://public.wmo.int/en/our-mandate/focus-areas/environment/greenhouse%20gases

[38] Our World in Data. 2020. Greenhouse Gas Emissions. https://ourworldindata.org/greenhouse-gas-emissions

[39] Future Earth. 2021. The Global Carbon Project. https://globalcarbonatlas.org/emissions/carbon-emissions/

[40] Our World in Data. 2020. Greenhouse Gas Emissions. https://ourworldindata.org/greenhouse-gas-emissions

by an increase in CO_2 emissions from fossil fuel combustion. In 2021, CO_2 emissions from fossil fuel combustion increased by 7 percent relative to the previous year. This increase in fossil fuel consumption emissions was due primarily to economic activity rebounding after the height of the COVID-19 pandemic. In 2021, the industrial and transportation end-use sectors accounted for 30 percent and 29 percent, respectively, of nationwide GHG emissions while the commercial and residential end-use sectors accounted 30 percent of nationwide GHG emissions, respectively. Agriculture accounted for 11 percent of nationwide GHG emissions. Electricity emissions were distributed among the various sectors.[41]

California Emissions Inventory

Based on the California Air Resources Board (CARB) California GHG Inventory for 2000-2021, California produced 381.3 MMT CO_2e in 2021.[42] The largest single source of GHG in California is transportation, contributing 39 percent of the State's total GHG emissions. Industrial sources are the second-largest source of the State's GHG emissions, contributing 22 percent of the State's GHG emissions.[43] The magnitude of California's total GHG emissions is due in part to its large size and large population compared to other states. However, a factor that reduces California's per capita fuel use and GHG emissions as compared to other states is its relatively mild climate. In 2014, the State of California achieved its 2020 GHG emission reduction target of reducing emissions to 1990 levels as emissions fell below 431 MMT of CO_2e.[44] The annual 2030 Statewide target emissions level is 260 MMT of CO_2e.[45]

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Long-term trends have found that each of the past four decades has been warmer than all the previous decades in the instrumental record and the decade from 2011 through 2020 has been the warmest. The observed global mean surface temperature (GMST) for the decade from 2011 to 2020 was approximately 1.09°C (0.95°C to 1.20°C) higher than the average GMST over the period from 1850 to 1900. Due to past and current activities, anthropogenic GHG emissions are increasing global mean surface temperature at a rate of 0.2°C per decade. In addition to these findings, the latest IPCC report states that "human-induced climate change is already affecting many weather and climate

[41] U.S. EPA. 2023. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2021. April 2023. https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2021

[42] California Air Resources Board (CARB). 2021. "Current California Greenhouse Gas Emission Inventory – 2000-2021 GHG Inventory (2023 Edition). https://ww2.arb.ca.gov/ghg-inventory-data

[43] Ibid.

[44] Ibid.

[45] CARB. 2017. California's 2017 Climate Change Scoping Plan. December 14, 2017. https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf

extremes in every region across the globe."[46] These climate change impacts include sea level rise, increased weather extremes, and substantial ice loss in the Arctic over the past three decades.

According to *California's Fourth Climate Change Assessment*, Statewide temperatures from 1986 to 2016 were approximately 0.6 to 1.1°C higher than those recorded from 1901 to 1960. Potential impacts of climate change in California may include reduced water supply from snowpack, sea level rise, more extreme heat days per year, more large forest fires, and more drought years.[47] In addition to Statewide projections, *California's Fourth Climate Change Assessment* includes regional reports that summarize climate impacts and adaptation solutions for nine regions of the State and regionally-specific climate change case studies.[48] However, while there is growing scientific consensus about the possible effects of climate change at a global and Statewide level, current scientific modeling tools are unable to predict what local impacts may occur with a similar degree of accuracy. A summary follows of some of the potential effects that could be experienced in California as a result of climate change.

Hydrology and Sea Level Rise

Climate change could affect the intensity and frequency of storms and flooding.[49] Furthermore, climate change could induce substantial sea level rise in the coming century. Rising sea level increases the likelihood of and risk from flooding. The rate of increase of global mean sea levels between 1993 to 2020, observed by satellites, is approximately 3.3 millimeters per year, double the twentieth century trend of 1.6 millimeters per year.[50,51] Global mean sea levels in 2013 were about 0.23 meter higher than those of 1880.[52] Sea levels are rising faster now than in the previous two millennia, and the rise will probably accelerate, even with robust GHG emission control measures. The most recent IPCC report predicts a mean sea level rise of 11 to 21.5 inches by 2100 under the lowest emissions scenario and a rise of 25 to 40 inches by 2100 under the very high emissions scenario.[53]

A rise in sea levels could erode 31 to 67 percent of California beaches and cause flooding of approximately 370 miles of coastal highways during 100-year storm events. This would also jeopardize California's water supply due to saltwater intrusion and induce groundwater flooding

[46] IPCC. 2021. Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)] Cambridge University Press. https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf

[47] California, State of. 2018. California's Fourth Climate Change Assessment Statewide Summary Report. August 27, 2018. https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf

[48] Ibid.

[49] Ibid.

[50] World Meteorological Organization. 2013. A summary of current and climate change findings and figures: a WMO information note. March 2013. https://library.wmo.int/opac/index.php?lvl=notice_display&id=15892#.Wt9-Z8gvzIU

[51] National Aeronautics and Space Administration. 2020. "Global Climate Change – Vital Signs of the Planet – Sea Level." https://climate.nasa.gov/vital-signs/sea-level/

[52] Ibid.

[53] IPCC. 2021. Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)] Cambridge University Press. https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf

and/or exposure of buried infrastructure.[54] Furthermore, increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Air Quality

Scientists project that the annual average maximum daily temperatures in California could rise by 4.4 to 5.8°F by mid-century (2040 – 2069) and by 5.6 to 8.8°F by late century (2070 – 2100).[55] Higher temperatures are conducive to air pollution formation, and rising temperatures could therefore result in worsened air quality in California. As a result, climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. In addition, as temperatures have increased in recent years, the area burned by wildfires throughout the State has increased, and wildfires have occurred at higher elevations in the Sierra Nevada Mountains.[56] If higher temperatures continue to be accompanied by an increase in the incidence and extent of large wildfires, air quality could worsen. Severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the State. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains could temporarily clear the air of particulate pollution, which would effectively reduce the number of large wildfires and thereby ameliorate the pollution associated with them.[57]

Water Supply

Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the west, including a pattern of recurring and extended droughts. Uncertainty remains with respect to the overall impact of climate change on future precipitation trends and water supplies in California. Year-to-year variability in Statewide precipitation levels has increased since 1980, meaning that wet and dry precipitation extremes have become more common.[58] This uncertainty regarding future precipitation trends complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. The average early spring snowpack in the western U.S., including the Sierra Nevada Mountains, decreased by about 10 percent during the last century. During the same period, sea level rose over 0.15 meter along the central and southern California coasts.[59] The Sierra snowpack provides the majority of California's water supply as snow that accumulates during wet winters is released slowly during the dry months of spring and summer. A warmer climate is predicted to reduce the fraction of precipitation that falls as snow and the amount of snowfall at lower elevations, thereby reducing the total snowpack.[60] Projections indicate that average spring

[54] California, State of. 2018. California's Fourth Climate Change Assessment Statewide Summary Report. August 27, 2018. https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf

[55] Ibid.

[56] Ibid.

[57] California Natural Resources Agency. 2009. 2009 California Climate Adaptation Strategy. March 2009. http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf

[58] California Department of Water Resources. 2018. Indicators of Climate Change in California. May 2018. https://oehha.ca.gov/media/downloads/climate-change/report/2018caindicatorsreportmay2018.pdf

[59] California, State of. 2018. California's Fourth Climate Change Assessment Statewide Summary Report. August 27, 2018. https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf

[60] Ibid.

snowpack in the Sierra Nevada and other mountain catchments in central and northern California will decline by approximately 66 percent from its historical average by 2050.[61]

Agriculture

California has a roughly $49 billion annual agricultural industry that produces nearly a third of the country's vegetables and over half of the country's fruits and nuts.[62] Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, certain regions of agricultural production could experience water shortages of up to 16 percent, which would increase water demand as hotter conditions lead to the loss of soil moisture. In addition, crop yield could be threatened by water-induced stress and extreme heat waves, and plants may be susceptible to new and changing pest and disease outbreaks.[63] Temperature increases could also change the time of year certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality.[64]

Ecosystems and Wildlife

Climate change and the potential resultant changes in weather patterns could have ecological effects on global and local scales. Soil moisture is likely to decline in many regions as a result of higher temperatures, and intense rainstorms are likely to become more frequent. Rising temperatures could have four major impacts on plants and animals: timing of ecological events; geographic distribution and range of species; species composition and the incidence of nonnative species within communities; and ecosystem processes, such as carbon cycling and storage.[65,66]

61 Ibid.
62 California Department of Food and Agriculture. 2021. "California Agricultural Statistics Review." https://www.cdfa.ca.gov/Statistics/PDFs/2020_Ag_Stats_Review.pdf
[63] California, State of. 2018. California's Fourth Climate Change Assessment Statewide Summary Report. August 27, 2018. https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf
64 California Climate Change Center (CCCC). 2006. Climate Scenarios for California.
[65] Parmesan, C. August 2006. Ecological and Evolutionary Responses to Recent Climate Change.
[66] California, State of. 2018. California's Fourth Climate Change Assessment Statewide Summary Report. August 27, 2018. https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf

Appendix B

CEQA GHG Threshold Calculations

1. BAU Forecast Summary					
		Annual 2030 GHG Emissions (MT CO2e)			
Forecast Scenario	**Sector**	**Existing (2017)**	**New (2030-2017)**	**Total (2030)**	
BAU	Residential Energy	21,878	2,829	24,707	Residential
	Nonresidential Energy	11,210	2,415	13,624	Nonresidential
	Passenger Vehicles	18,913	1,927	20,840	Residential/Nonresidential
	Commercial Vehicles	10,868	1,316	12,184	Nonresidential
	Public Transit	701	50	752	Residential/Nonresidential
	Offroad Equipment	5,236	3,063	8,299	Residential/Nonresidential
	Water & Wastewater	165	31	196	Residential/Nonresidential
	Solid Waste	3,300	612	3,912	Residential/Nonresidential
	Consistency Check	-		-	

2. Demographics Forecast Summary					
		Annual 2030 Demographics			
Category	**Sector**	**Existing (2017)**	**New (2030-2017)**	**Total (2030)**	
Demographics	Residents	19,663	3,447	23,110	
	Jobs	7,970	1,674	9,645	
	Service Population	27,633	5,122	32,755	

3. Emissions Savings Summary - Legislative savings + Measure savings				
		2030 GHG Emissions (MT CO2e)		
Category	**Measure**	**Residential**	**Nonresidential**	**Residential/ Nonresidential**
State Legislation/Exisitng City Programs	Transportation Legislation	-	2,111	4,928
	California Green Building Code (Title 24)	417	207	-
	California RPS (SB 100)	1,439	3,056	84
	MCE	1,764	1,538	70
	Pass an electrification ordinance for new construction	992	517	-
	Existing building electrification	5,756	1,466	
	End of flow ordinance	-	-	-

GHG Reduction Measures	95% Community Enrollment in MCE Deep Green	-	-	3,282	
	Implement programs for active transportation that reduce VMT	-	-	107	
	Implement programs for public transportation that reduce VMT	-	-	327	
	Increase Passenger EV Adoption	-	-	3,363	
	Increase Commercial EV Adoption	-	1,750	-	
	Increase Bus EV Adoption	-	-	46	
	Decarbonize Offroad Equipment	-	-	664	
	Achieve or exceed organics diversion requirements of SB 1383	-	-	2,934	
	Achieve compost procurement requirements of SB 1383	-	-	425	
	Plant more trees to sequester carbon (number of trees planted by target year	-	-	-	

				Consistency Check (State Leg)	-
				Consistency Check (MCE)	-
				Consistency Check (Measures)	-

4. Allocate savings between existing/new and residential/nonresidential
* Savings are allocated to existing and new using the existing, new, and total demographics breakdown in section 2 and based on the logic in the Allocation column below
* Residential + Nonresidential savings are allocated to residential and nonresidential separately the population, job, and service population demographics breakdown in section 2

Category	Allocation between existing and new	2030 Emissions (MT CO2e)			
		Existing		New	
		Residential	Nonresidential	Residential	Nonresidential
BAU Forecast					
BAU Forecast	See F4:F11	42,027	30,245	6,654	5,588
Legislative Reductions/Existing City Programs					
Transportation Legislation	Both	2,958	2,944	519	618
California Green Building Code (Title 24)	New Only	-	-	417	207
California RPS (SB 100)	Both	1,274	2,546	223	535
MCE	Both	1,542	1,288	270	271
Measure GHG Reductions					
Pass an electrification ordinance for new construction	New Only	-	-	992	517
Existing building electrification	Existing Only	5,756	1,466	-	-

End of flow ordinance	Both	-	-	-	-
95% Community Enrollment in MCE Deep Green	Both	1,970	799	345	168
Implement programs for active transportation that reduce VMT	Both	64	26	11	5
Implement programs for public transportation that reduce VMT	Both	196	80	34	17
Increase Passenger EV Adoption	Both	2,019	818	354	172
Increase Commercial EV Adoption	Both	-	1,446	-	304
Increase Bus EV Adoption	Both	27	11	5	2
Decarbonize Offroad Equipment	Both	399	162	70	34
Achieve or exceed organics diversion requirements of SB 1383	Both	1,761	714	309	150
Achieve compost procurement requirements of SB 1383	Both	255	104	45	22
Plant more trees to sequester carbon (number of trees planted by target year)	Both	-	-	-	-
Measure-Adjusted Forecast					
Measure-Adjusted Forecast	BAU Forecast - Leg Reductions/City Programs - Measure Reductions	23,804	17,843	3,059	2,567
Percentage reductions in each category		22%	13%	22%	17%

5. 2030 GHG Thresholds

Category	2030 New Growth GHG Threshold	"Existing GHG Thresholds"	2030 Total Population - Per Capita Threshold
New Residential (per resident)	0.89	1.21	1.16
New Nonresidential (per job)	1.53	2.24	2.12
New Mixed-Use (per service person)	1.10	1.51	1.44

6. Summary Table

	Existing	New Residential	New Nonresidential	Total
BAU Forecast	72,273	6,654	5,588	84,515
Legislation/MCE	12,552	1,430	1,631	15,613
CAAP Building Energy Measures	9,991	1,337	684	12,013
CAAP Transportation Measures	5,248	474	534	6,257
CAAP Waste Measures	2,834	354	172	3,359
Emissions Reductions from BAU	30,625	3,595	3,021	37,241
Remaining Total GHG Emissions	41,648	3,059	2,567	47,273
				-

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Appendix C

United States Green Building Council Building Area per Employee by Business Type Rates[67]

[67] United States Green Building Council. 2008. "Building Area per Employee by Business Type." May 13, 2008.

BUILDING AREA PER EMPLOYEE BY BUSINESS TYPE

	ITE		USDOE	SANDAG
Land-Use	Land-Use Code	Sq.Ft./ Employee	Sq.Ft./ Employee	Sq.Ft./ Employee
Commercial Airport	21	224		
General Aviation Airport	22	392		
Truck Terminal	30	427		
General Light Industrial	110	463		
Heavy Industrial	120	549		
Industrial Park	130	500		
Manufacturing	140	535		
Warehousing	150	781	2114	
Elementary School	520	1250	1131	
High School	530	1587		
Hospital	610	372	486	
General Office - Suburbs	710	304		
Corporate HQ - Suburbs	714	260		
Single Tenant Office	715	295		
Medical-Dental Building	720	207		
U.S. Post Office	732	230		
Office Park	750	278		
Research & Development Center	760	405		
Business Park	770	332		249
Building Material - Lumber Store	812	806		
Specialty Retail Store	814	549		
Discount Store	815	654		
Hardware Store	816	1042		
Nursery-Garden Center	817	529		
Quality Restaurant (Sit Down)	831	134		
High Turnover (Sit Down)	832	100		
Fast Food w/o drive-thru	833	70		
Fast Food w/ drive-thru	834	92		
Grocery			938	
Lodging			1124	917
Bank				317
Office under 100,000 sq.ft.				228
Office over 100,000 sq.ft.				221
Neighborhood Retail				588
Community Retail				383

Sources:
ITE -- Institute of Transportation Engineers
USDOE -- U.S. Department of Energy
SANDAG -- San Diego Assn of Governments

5/13/2008

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