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

Final Report

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Table of Contents

1 Introduction 1
1.1 GHG Emissions Analyses Under CEQA 1
1.2 Qualified GHG Emissions Reduction Plan 2
2 CAP Summary 5
2.1 Communitywide GHG Emissions Inventory 5
2.2 GHG Emissions Reduction Strategy 5
2.3 GHG Emissions Forecast 8
3 Regulatory and Legal Setting 11
3.1 Relevant CEQA Guidelines Sections 11
3.2 Relevant State and Regional GHG Reduction Targets 15
3.3 Relevant GHG Emissions Analysis Case Law 17
4 Determining Consistency with the San Ramon CAP 20
5 Utilizing Quantitative CEQA GHG Thresholds 24
5.1 Threshold Calculation Methodology 24
5.2 GHG Thresholds and Use 27
5.3 Justification for Thresholds 28
6 Quantifying GHG Emissions 32
6.1 Construction GHG Emissions 32
6.2 Operational GHG Emissions 33
6.3 Modeling GHG Emissions from Existing Land Use 35
7 Moving into the Future 37

Tables

Table 1 CAP Consistency with CEQA Guidelines Section 15183.5(b)(1) for 2030 4
Table 2 San Ramon 1990 and 2019 Communitywide GHG Emissions Levels 5
Table 3 San Ramon Per Capita GHG Emissions Reduction by 2030 7
Table 4 San Ramon Mass GHG Emissions Reduction by 2030 7
Table 5 San Ramon GHG Emissions Forecast Through 2045 9
Table 6 Allowable GHG Emissions for 2030 by Type of Development (MT of CO_2e) 25
Table 7 San Ramon Demographic Projections 26
Table 8 San Ramon 2030 CAP-Adjusted Emissions and Communitywide GHG Thresholds 26
Table 9 GHG Emissions Thresholds Adopted by Other California Bay Area Jurisdictions 27
Table 10 San Ramon Locally Applicable Plan/Project CEQA GHG Emissions Thresholds 28

Figures

Figure 1 San Ramon 2030 and 2045 Mass GHG Emissions Forecast 8
Figure 2 Determining Consistency with the San Ramon CAP 21
Figure 3 Allowable GHG Emissions from Existing and New Development in 2030 25
Figure 4 San Ramon GHG Efficiency Thresholds.....28

Appendices

Appendix A Overview of GHG Emissions and Climate Change
Appendix B GHG Threshold Calculations
Appendix C US Green Building Council Building Area per Employee by Business Type Rates

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[2] GHG reduction plan to cumulatively reduce GHG emissions and allow lead agencies to analyze and mitigate the effects of plan- and project-level GHG emissions. This GHG Emissions 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 San Ramon.

The City's GHG reduction plan, titled the San Ramon Climate Action Plan (CAP), is consistent with the CEQA Guidelines Section 15183.5. The CAP sets the targets of achieving a 53 percent reduction below 1990 per capita GHG emissions levels annually by 2030 and carbon neutrality by 2045.[3] For ease of context and tracking GHG emissions reduction progress, the per capita emissions targets are converted to and discussed in this report as mass emissions. The per capita emissions targets are equivalent to reducing GHG emissions to 332,995 metric tons of carbon dioxide equivalent (MT of CO_2e) annually by 2030 and net zero MT of CO_2e by 2045. While the City Council, City staff, and community will continue to develop an approach to the longer-term goal of carbon neutrality, the San Ramon CAP includes specific measures and actions to achieve the shorter-term per capita emissions reduction target of 53 percent below 1990 emissions by 2030 (or 332,995 MT of CO_2e), which is consistent with California's goal of reducing GHG emissions to 40 percent below 1990 levels by 2030, pursuant to Senate Bill (SB) 32. The City has also adopted a goal to achieve carbon neutrality by 2045, aligning with California's goal of carbon neutrality by 2045, pursuant to Assembly Bill (AB) 1279.

The San Ramon CAP includes procedures to evaluate San Ramon's GHG emissions in light of the trajectory of the GHG reduction targets to assess "substantial progress" toward achieving long-term reduction targets identified in the San Ramon CAP and State legislation. The San Ramon CAP also includes commitments and mechanisms to adopt additional policies to achieve the GHG emissions reduction necessary and make substantial progress toward long-term San Ramon targets and California goals. This approach is important, because these targets have been set at levels that achieve California's fair share of international emissions reduction goals that would stabilize global climate change effects and avoid the adverse environmental consequences of climate change.

To support progress toward San Ramon's longer-term carbon neutrality target, plans and projects within San Ramon that undergo CEQA review will need to demonstrate consistency with targets in the San Ramon CAP, which is a qualified GHG Emissions Reduction Plan (consistent with CEQA Guidelines Section 15183.5) upon adoption of this CEQA GHG Emissions Thresholds and Guidance Document, and approval of the San Ramon CAP consistent with General Plan 2040 Environmental Impact Report (EIR) Mitigation Measure GHG-1. Chapter 2, *CAP Summary*, provides an overview of

[1] Refer to Appendix A for an overview of GHG emissions and climate change.
[2] To be a qualified CAP, a CAP 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.

the San Ramon CAP 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 San Ramon CAP demographic (i.e., residents and employees) projections and land use assumptions,[4] would be able to tier from the adopted San Ramon CAP and CEQA GHG Emissions Thresholds pursuant to CEQA Guidelines Section 15183.5 with regard to CEQA GHG emissions analysis. 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 determine whether proposed plans and projects are consistent with the San Ramon CAP GHG emissions reduction strategy. Chapter 4, *Determining Consistency with the San Ramon CAP*, includes guidance on how to navigate this consistency determination process.

For plans or projects that are not consistent with the San Ramon CAP demographic projections and land use assumptions or are not consistent with the CEQA GHG Emissions Analysis Compliance Checklist, 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 San Ramon CAP acknowledges that additional actions beyond those identified in the plan will be required to achieve the long-term target of carbon neutrality by 2045. As a result, the plan provides a mechanism for monitoring CAP implementation progress, publishing public CAP progress reports every two years, conducting GHG emissions inventories every four to eight years, and preparing a new CAP every four to eight years (with opportunities to adjust as needed based on CAP progress). 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 San Ramon CAP.

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 of a qualified GHG emissions reduction plan. This process allows for project-level evaluation of GHG emissions through the comparison of a project's consistency with the GHG emissions reduction strategy included in the respective 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:

1. Quantify existing and projected GHG emissions within the plan area;
2. 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;
3. Identify and analyze sector specific GHG emissions within the plan's geographic area;

[4] Demographic projections used in the San Ramon CAP are based on demographic data contained in Plan Bay Area 2040 and the 6th Cycle Housing Element Update Sites Inventory Assessment for San Ramon.
[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, which includes a public input opportunity.

4. Specify measures or a group of measures, including performance standards, that if implemented, would collectively achieve the specified emissions level;
5. Establish a tool or mechanism to monitor progress and to require amendment if the plan is not achieving specified levels; and
6. Be adopted in a public process following environmental review.

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 15183.5(b)(2). The City has developed the CEQA GHG Emissions Analysis Compliance Checklist to assist with determining project consistency with the San Ramon CAP. The checklist is intended to provide individual projects the opportunity to demonstrate that they are minimizing GHG emissions while ensuring new developments achieves their proportion of emissions reduction consistent with the assumptions of the San Ramon CAP. Project consistency with a GHG emissions reduction plan can also be demonstrated through a quantitative analysis that demostrates the project would not impede (or would facilitate) San Ramon's ability to meet the GHG emissions reduction targets.

Table 1 summarizes the consistency of the San Ramon CAP with these requirements for year 2030 (the next California milestone target year for GHG emissions reduction). As shown in Table 1, upon adoption of the CEQA GHG Emissions Thresholds and approval of the San Ramon CAP by City Council, the San Ramon CAP will meet the requirements of a qualified GHG emissions reduction plan per CEQA Guidelines Section 15183.5(b)(1) for projects through 2030.

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

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

CEQA Guidelines Section 15183.5(b)(1) Requirement[1]	Climate Action Plan Update/Game Plan 2028 Consistency
Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area.	**Consistent.** The San Ramon CAP includes a communitywide GHG emissions inventory for 2019 and forecasts GHG emissions for years 2030 and 2045.
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**. A key aspect of a qualified GHG emissions reduction plan is substantial evidence that the identified GHG emissions reduction target establishes a threshold where GHG emissions are not cumulatively considerable. The AEP (2016) *Beyond Newhall and 2020* white paper identifies this threshold as being a local target that aligns with the State legislative goals. The San Ramon CAP establishes a long-term target of carbon neutrality by 2045, and as discussed in Section 2.3, *GHG Emissions Forecast*, implementation of the plan would slightly exceed San Ramon's 2030 target of a 53 percent reduction in per capita 1990 emissions levels by 2030 by resulting in 330,920 MT of CO_2e annually. Therefore, this local target meets the State goal of a 40 percent emissions reduction in 1990 levels by 2030.
Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area.	**Consistent.** The San Ramon CAP breaks down San Ramon's inventory and forecasts into six sectors (natural gas, on-road motor vehicles, off-road equipment, solid waste, electricity, and wastewater treatment processes).
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.	**Consistent.** The San Ramon CAP specifies measures and actions that the City will enact and implement between 2025 and 2030 to meet the 2030 GHG emissions reduction target. As discussed in Section 2.3, *GHG Emissions Forecast*, implementation of the plan would slightly exceed San Ramon's 2030 target of a 53 percent reduction in per capita 1990 GHG emission levels by 2030 by resulting in 330,920 MT of CO_2e annually, which aligns with the State goal of a 40 percent emissions reduction in 1990 levels by 2030 and demonstrates substantial progress by 2030 toward achieving San Ramon's longer-term target of carbon neutrality by 2045.
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.** The San Ramon CAP includes a process to complete community GHG emissions inventories every four to eight years. The inventories will allow the City to measure progress towards meeting the San Ramon CAP targets. If an inventory indicates that San Ramon is not on track to meet the San Ramon CAP GHG emissions reduction targets, additional updates may be required at that time to increase emissions reduction measures and actions and maintain the San Ramon CAP's status as a CEQA qualified GHG emissions reduction plan.
Be adopted in a public process following environmental review.	**Consistent.** The City prepared the San Ramon CAP, in response to General Plan 2040 EIR Mitigation Measure GHG-1, which was made available for public review and comment and adopted prior to approval of the San Ramon CAP and CEQA GHG Emissions Thresholds by City Council.

Source: San Ramon, City of. 2025. Draft Climate Action Plan Update. January 2025.

2 CAP Summary

The following sections provide an overview of the San Ramon CAP, including the 2019 communitywide GHG emissions inventory, the communitywide GHG emissions forecast through 2045, and the proposed GHG emissions reduction strategy.

2.1 Communitywide GHG Emissions Inventory

The City has completed a communitywide GHG emissions inventory for 2019, which is summarized in Table 2. Table 2 also provides estimated 1990 emissions levels for informational purposes. As shown therein, communitywide GHG emissions declined by approximately 10 percent between 1990 and 2019.

Table 2 San Ramon 1990 and 2019 Communitywide GHG Emissions Levels

Sector	1990 [1] (MT of CO_2e)	2019 (MT of CO_2e)	Percent Change from 1990 to 2019
On-road Motor Vehicles	N/A	226,299	N/A
Natural Gas (residential, commercial, and transmission and distribution losses)	N/A	117,360	N/A
Electricity (residential, commercial, transmission and distribution losses, and water transport)	N/A	42,249	N/A
Off-road Equipment	N/A	33,415	N/A
Waste	N/A	15,376	N/A
Wastewater Treatment Processes	N/A	3,369	N/A
Total	**488,987**	**438,067**	**-10%**

MT of CO_2e = metric tons of carbon dioxide equivalents; N/A = not applicable.

Note: Numbers are rounded to the nearest ten.

[1] 1990 GHG emissions were estimated to be 15 percent below 2008 emissions (i.e., 562,335 MT of CO_2e)—the year of San Ramon's first GHG emission inventory. According to the Association of Environmental Professionals' *Beyond 2020 and Newhall* final white paper, in the 2008 AB 32 Scoping Plan, the recommended target for local governments to meet 1990 levels was 15 percent below "current" levels by 2020, where "current" levels were construed as baseline years between 2005 to 2008.

Association of Environmental Professionals (2016). *Final White Paper Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California.* Accessed January 2025 at: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California.

Source: San Ramon, City of. 2025. CAP, Appendix C: GHG Emissions Previous Inventories Updates, Forecasts, and Reduction Targets

2.2 GHG Emissions Reduction Strategy

To achieve San Ramon's long-term target of carbon neutrality by 2045, the San Ramon CAP includes a series of measures and actions that are intended to slightly exceed San Ramon's 2030 target of a 53 percent reduction in per capita 1990 GHG emission levels by 2030 by resulting in 330,920 MT of CO_2e annually, which provides substantial progress toward meeting San Ramon's longer-term carbon neutrality target while also meeting the State's 2030 goal. The San Ramon CAP acknowledges that additional measures and actions beyond those identified in the plan will be necessary to achieve the long-term target of carbon neutrality and, thus, provides a mechanism for monitoring progress and

regularly updating and adopting CAPs to incorporate new technologies that will further San Ramon toward meeting the long-term target of carbon neutrality.

As part of the San Ramon CAP process, the City has developed a set of strategies to reduce GHG emissions across various sectors to achieve the San Ramon 2030 GHG emissions reduction target and make substantial progress towards the San Ramon 2045 target. Each strategy is supported by a set of measures and actions that provide a measurable GHG emissions reduction that is supported by substantial evidence. The structure of the Strategies, Measures, and Actions is as follows:

- **Strategies:** Overall sector category for reducing GHG emissions.
- **Measures:** Approach measurable through a discrete performance metric to reduce GHG emissions by a quantifiable level within a specific time period.
- **Actions:** Discrete step San Ramon will take and supported by substantial evidence to achieve the performance metric of the overarching measure.

The Measures and Actions can be either quantitative or supportive, defined as follows:

- **Quantitative.** Quantitative measures and actions result in quantifiable GHG emissions reduction when implemented. GHG emissions reduction from these measures and actions are supported by case studies, scientific articles, calculations, or other third-party substantial evidence.
- **Supportive.** Supportive measures and actions may also be quantifiable and have substantial evidence to support their overall contribution to GHG reduction. However, due to one of several factors—including a low GHG emissions reduction effect, indirect GHG emissions reduction benefit, or potential for double-counting—such measures will not be quantified and do not contribute directly to the expected GHG emissions reduction target and consistency with the State goals. For example, municipal-specific measures are not quantified, as they represent a subset of communitywide emissions and as such could be characterized as double-counting. Despite not being quantified, supportive measures/actions are nevertheless critical to the overall success of the CAP and provide support so that the quantitative measures and actions will be successfully implemented.

Table 4 summarizes the per capita GHG emissions reduction that is anticipated to be achieved by 2030 by the identified measures and actions in the San Ramon CAP, in addition to State laws and programs. As shown therein, implementation of State laws and programs as well as the San Ramon CAP would slightly exceed San Ramon's 2030 target of a 53 percent reduction in per capita 1990 GHG emission levels by 2030. San Ramon's GHG emissions reduction targets were set using per capita GHG emissions in accordance with guidance from California's 2017 Climate Change Scoping Plan (2017 Scoping Plan).[7] The 2017 Scoping Plan allows jurisdictions to use per capita GHG emissions when setting targets to avoid penalizing cities which are growing at significant rates. A per capita approach provides San Ramon with an emissions reduction pathway that are fair and scalable by pacing reductions with the significant population and economic growth projected. To provide consistency with the GHG threshold calculations presented in Chapter 5, *Utilizing Quantitative CEQA GHG Thresholds*, the 1990 per capita GHG emissions baseline, per capita GHG emissions reductions, and remaining per capita GHG emissions presented within Table 3 are translated to mass GHG emissions. Table 4 shows the resulting mass GHG emissions reduction. As shown therein, implementation of

[7] California Air Resources Board (CARB) (2017). California's 2017 Climate Change Scoping Plan, p. 99-102. Accessed January 2025 at: https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf.

State laws and programs as well as the San Ramon CAP would result in 330,920 MT of CO_2e annually in 2030.

Table 3 San Ramon Per Capita GHG Emissions Reduction by 2030

Source	Annual Per Capita GHG Emissions (MT of CO_2e/capita)
1990 Baseline Emissions[1]	7.34
Business-as-Usual 2030 Emissions	**5.25**
State Laws/Programs	0.84
Buildings & Energy Strategy	0.33
Transportation Strategy	0.53
Waste Strategy	0.15
Total Emissions Reduction (from BAU)	**1.85**
Remaining 2030 Emissions	**3.40**
Percent Reduction below 1990 Per Capita GHG Emissions	**53%**

( ) denotes a negative number; numbers in table may not add to the total exactly due to rounding; N/A = not applicable.

MT = metric tons; CO_2e = carbon dioxide equivalents

[1] 1990 per capita GHG emissions were estimated to be 15 percent below 2008 per capita GHG emissions (i.e., 8.44 MT of CO_2e/capita)—the year of San Ramon's first GHG emission inventory. According to the Association of Environmental Professionals' *Beyond 2020 and Newhall* final white paper, in the 2008 AB 32 Scoping Plan, the recommended target for local governments to meet 1990 levels was 15 percent below "current" levels by 2020, where "current" levels were construed as baseline years between 2005 to 2008.

Association of Environmental Professionals (2016). *Final White Paper Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California.* Accessed January 2025 at: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California.

Sources: San Ramon, City of. 2025. CAP, Appendix C: GHG Emissions Previous Inventories Updates, Forecasts, and Reduction Targets.

Table 4 San Ramon Mass GHG Emissions Reduction by 2030

Source	Annual Mass GHG Emissions (MT of CO_2e)
1990 Baseline Emissions[1]	488,987
Business-as-Usual 2030 Emissions[2]	**511,235**
State Laws/Programs	(81,778)
Buildings & Energy Strategy	(32,517)
Transportation Strategy	(51,146)
Waste Strategy	(14,874)
Total Emissions Reduction (from BAU)	**(180,315)**
Remaining 2030 Emissions	**330,920**

( ) denotes a negative number; numbers in table may not add to the total exactly due to rounding; N/A = not applicable.

MT = metric tons; CO_2e = carbon dioxide equivalents

[1] See Table 2.

[2] See Figure 2 and Figure 3

[3] San Ramon's 2030 target is based on per capita levels.

Sources: San Ramon, City of. 2025. CAP, Appendix C: GHG Emissions Previous Inventories Updates, Forecasts, and Reduction Targets.

2.3 GHG Emissions Forecast

Figure 1 and Table 5 summarize the communitywide GHG emissions forecast under three scenarios:

1. Business-as-usual (BAU),
2. Implementation of State laws and programs (or adjusted forecast), and
3. Implementation of State laws and programs and the San Ramon CAP.

As shown therein, under the BAU scenario, communitywide GHG emissions are forecasted to increase by approximately 38 percent between 2019 and 2045 based on economic and population growth. However, with implementation of State laws and programs, communitywide GHG emissions would increase by only approximately 1 percent between 2019 and 2045. Full implementation of the San Ramon CAP alongside State laws and programs would reduce communitywide GHG emissions by approximately 24 percent below 2019 levels by 2030 and by approximately 75 percent below 2019 levels by 2045.

Figure 1 San Ramon 2030 and 2045 Mass GHG Emissions Forecast

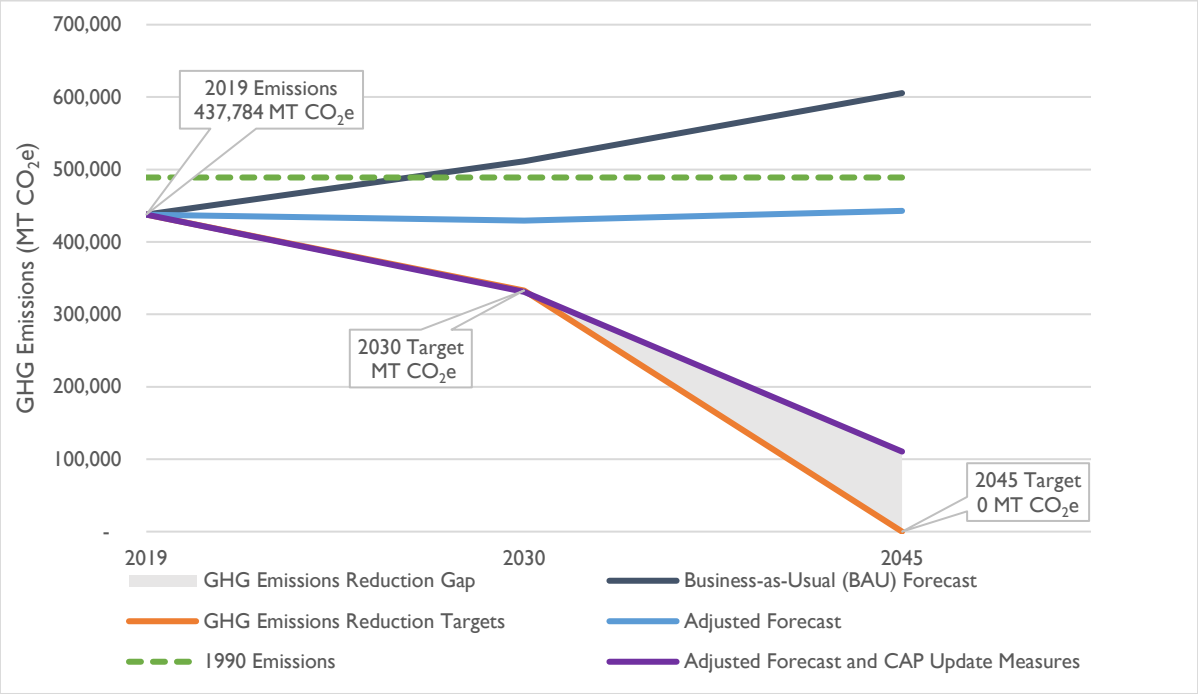


Table 5 San Ramon GHG Emissions Forecast Through 2045

Sector	2019 (MT of CO_2e)	2030 (MT of CO_2e)	2045 (MT of CO_2e)
Business-as-Usual (BAU) GHG Emissions			
On-road Motor Vehicles	226,484	264,423	307,114
Natural Gas[1]	117,360	137,092	165,769
Electricity[2]	42,031	49,078	58,717
Off-road Equipment	33,415	39,038	47,603
Waste	14,931	17,444	21,271
Wastewater Treatment Processes	3,562	4,161	5,030
Total	**437,784**	**511,235**	**605,504**
GHG Emissions After Implementation of State Laws/Programs (Adjusted Forecast)[3]			
On-road Motor Vehicles	226,484	211,778	205,198
Natural Gas[1]	117,360	136,160	163,788
Electricity[2]	42,031	20,876	0
Off-road Equipment	33,415	39,038	47,603
Waste	14,931	17,444	21,271
Wastewater Treatment Processes	3,562	4,161	5,030
Total	**437,784**	**429,457**	**442,891**
GHG Emissions After Implementation of State Laws/Programs (Adjusted Forecast) and CAP Measures			
On-road Motor Vehicles	226,484	165,472	9
Natural Gas[1,4]	117,360	116,924	67,924
Electricity[2,5]	42,031	7,596	0
Off-road Equipment	33,415	34,198	37,521
Waste	14,931	4,361	2,127
Wastewater Treatment Processes	3,562	4,161	5,030
Carbon Sequestration[6]	N/A	(1,791)	(2,080)
Total	**437,784**	**330,920**	**110,530**

( ) denotes a negative value; MT = metric tons; CO_2e = carbon dioxide equivalents; N/A = not applicable.

[1] The Natural Gas GHG emissions sector includes residential and non-residential consumption, as well as methane leakage from natural gas transmission and distribution.

[2] The Electricity GHG emissions sector includes residential and non-residential consumption, electricity transmission and distribution losses, electricity embedded in the water supply, and electricity used for wastewater conveyance and treatment.

[3] State laws and programs include State vehicle fuel efficiency standards, the Renewable Portfolio Standard (RPS), and triennial updates of Title 24.

[4] The GHG emissions reduction from the CAP Measures in the natural gas sector include the natural gas emissions reduction from Measure E-2, Measure E-3, and Measure E-4. The reduction excludes added emissions from these Measures' converted electricity in 2030.

[5] The GHG emissions reduction from the CAP Measures in the electricity sector include the electricity emissions reduction from Measure E-1 and are slightly offset by the added emissions from Measure E-2, Measure E-3, and Measure E-4's converted electricity in 2030.

[6] The 2019 inventory and emissions forecasts did not include emissions from carbon sequestration. The CAP Measures include the GHG emissions reduction from Measure W-3's compost application.

Sources: San Ramon, City of. 2025. CAP, Appendix C: GHG Emissions Previous Inventories Updates, Forecasts, and Reduction Targets; San Ramon, City of. 2025. CAP, Appendix D: CAP GHG Reduction Measures Quantification and Substantial Evidence.

At this time, the State has codified a goal 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 the 2030 goal and make substantial progress toward the 2045 goal of carbon neutrality established 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 achieve the State's long-term GHG emissions reduction goals, local governments can do their fair share toward meeting the State's goals 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 given the trajectory of State climate change legislation and assess their "substantial progress" toward achieving long-term reduction targets.

San Ramon has adopted a longer-term target of achieving carbon neutrality by 2045 and has proposed the San Ramon CAP as a pathway to make progress toward this target. Implementation of the San Ramon CAP would achieve an approximately 53 percent reduction in per capita GHG emissions below 1990 levels by 2030, meeting the GHG emissions reduction required by SB 32. Because SB 32 is considered an interim goal toward meeting the State long-term goals, implementation of the San Ramon CAP would make substantial progress toward meeting the State's long-term 2045 goal. Making substantial progress toward, these long-term State goals is important, because these goals have been set at levels that achieve California's fair share of international emissions reduction targets that would stabilize global climate change effects and avoid the adverse environmental consequences described in Appendix A.

3 Regulatory and Legal Setting

The following regulations, executive orders, 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. The cumulative effects of GHG emissions are significant, as discussed in Appendix A. These adverse enviornmental impacts, including sea level rise, increased average temperatures, more drought years, and more large forest fires, 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 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.[8]

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 the 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 conclude that the project's incremental contribution is not cumulatively considerable.

[8] Association of Environmental Professionals. 2024 CEQA Statute and Guidelines. https://www.califaep.org/docs/2024_CEQA_Statute_and_Guidelines_Handbook.pdf

(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 the 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.[9]

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.[10]

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

[9] Ibid.
[10] Ibid.

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.[11]

[11] Ibid.

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;

(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.[12]

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 goal 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 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 emissions 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.[13]

[12] Ibid.

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

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 emissions 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. [14]

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). On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. 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 programs and 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 the strategies. As with the 2013 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. It also recommend the use of locally appropriate per capita GHG emissions reduction targets to account for population growth. As stated in the 2017 Scoping Plan, the statewide goals may be appropriate for plan-level analyses (city, county, subregional, or regional level), but not for specific individual projects because they include all emissions sectors in the State.[15]

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 emissions 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.[16]

Assembly Bill 1279

AB 1279, signed in September 2022, builds upon EO B-55-18, which originally established California's 2045 goal of carbon neutrality and tasked CARB with including a pathway toward the EO B-55-18 carbon neutrality goal in the 2022 Scoping Plan. AB 1279 codified the statewide carbon neutrality goal

[14] 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.
[15] CARB. 2017. 2017 Climate Change Scoping Plan.
https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf.
[16] Association of Bay Area Governments. October 2021. Plan Bay Area 2050. https://planbayarea.org/digital-library/plan-bay-area-2050

into a legally binding requirement for California to achieve carbon neutrality no later than 2045 and ensure 85 percent[17] GHG emissions reduction under that goal. This goal is in addition to the existing statewide GHG emissions reduction goals established by SB 375, SB 32, and SB 1383.

Senate Bill 1020

Established in 2002 under SB 1078, and accelerated by SB 107 (2006), SB X 1-2 (2011), SB 100 (2018), and SB 1020, California's Renewable Portfolio Standard (RPS) obligates investor-owned utilities, energy service providers, and community choice aggregators to transition the electricity supply to renewable resources. The RPS requires energy service providers to supply renewable energy as follows: 90 percent of retail sale electricity and 100 percent of electricity procured to serve state agencies by 2035, 95 percent by 2040, and 100 percent by 2045. The CPUC and the CEC are jointly responsible for implementing the program.

Senate Bill 1383

Adopted in September 2016, SB 1383 (Lara, Chapter 395, Statutes of 2016) requires CARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. SB 1383 requires the strategy to achieve the following reduction targets by 2030:

- Methane – 40 percent below 2013 levels
- Hydrofluorocarbons – 40 percent below 2013 levels
- Anthropogenic black carbon – 50 percent below 2013 levels

SB 1383 also requires the California Department of Resources Recycling and Recovery (CalRecycle), in consultation with CARB, to adopt regulations that achieve specified targets for reducing organic waste in landfills.

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.

[17] To achieve carbon neutrality, the remaining 15 percent of GHG emissions would be achieved through carbon capture and sequestration efforts.

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 CAP 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 emissions 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 GHG emissions by the same percentage as the business-as-usual reduction identified for the State to meet statewide goals 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 the 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)

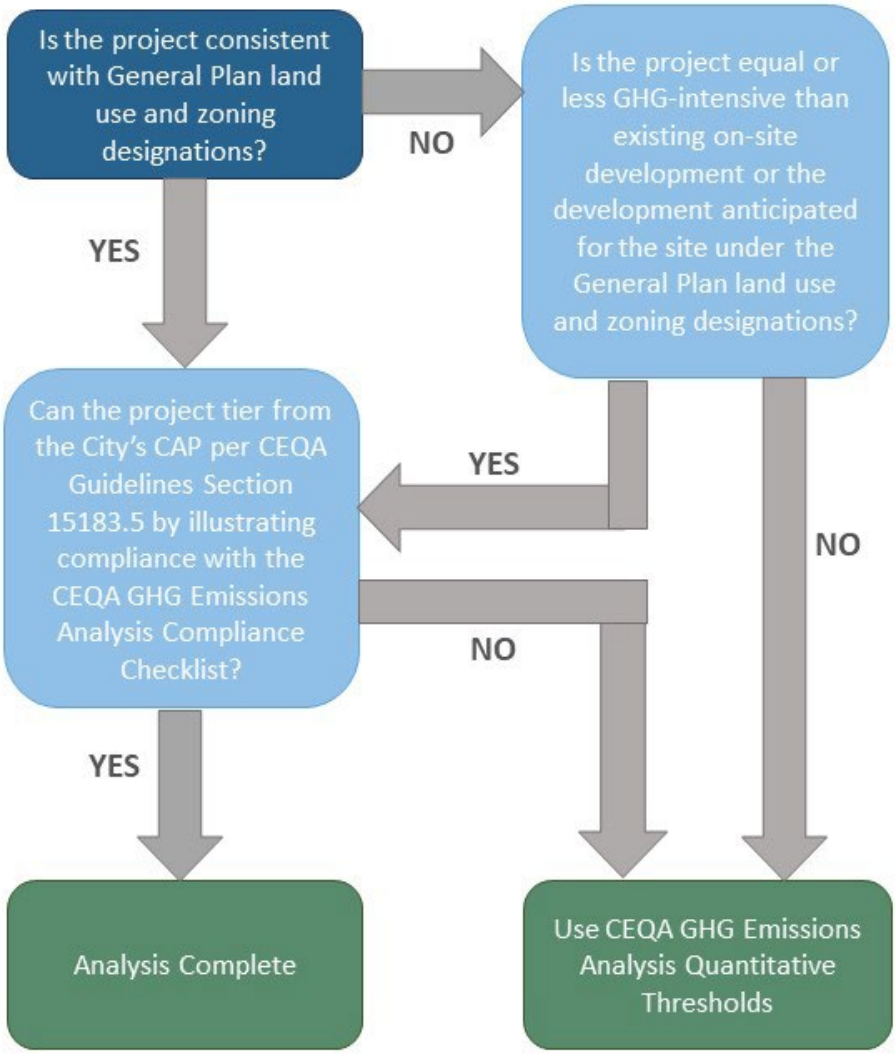
The Superior Court of California in the *Climate Action Campaign v. City of San Diego* case is currently evaluating the City of San Diego's compliance with CEQA as part of their Climate Action Plan (the case was filed on September 12, 2022). The Climate Action Campaign alleges that the City of San Diego 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 emissions reduction would be achieved. The Climate Action Campaign accordingly requested 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 the previous approvals as part of the Climate Action Plan. A verified petition for writ of mandate was filed in 2022, and in February 2024 the parties agreed to a settlement. The settlement agreement provided that the City would take certain steps to monitor progress toward the Climate Action Plan's GHG emissions reduction targets for 2030 and 2035 based on a model linear trajectory of annual reductions. Beginning in 2026, if the annual emissions target is not met within a 12.5 percent margin of error, then the City must prepare an amendment to the Climate Action Plan. The settlement agreement also set a schedule for annual reporting and established requirements for public sharing of information related to implementation of the Climate Action Plan.[18]

[18] San Diego, City of. 2024. Resolution Number R-315368. February 15, 2024. https://docs.sandiego.gov/council_reso_ordinance/rao2024/R-315368.pdf

4 Determining Consistency with the San Ramon CAP

As discussed in Chapter 2, *CAP Summary*, upon public adoption of the CEQA GHG Emissions Thresholds and approval of the San Ramon CAP by City Council, the San Ramon CAP will be a qualified GHG emissions reduction plan per the requirements of CEQA Guidelines Section 15183.5 for the year 2030. Therefore, the San Ramon CAP can be utilized to streamline the CEQA GHG emissions analysis for plans and projects through 2030. Projects and plans that are consistent with the demographic projections and land use assumptions in the San Ramon CAP can utilize the San Ramon CEQA GHG Emissions Analysis Compliance Checklist to demonstrate consistency with the San Ramon CAP GHG emissions reduction strategy, and if consistent, can streamline the GHG analysis (i.e., conduct a qualitative analysis) utilizing CEQA GHG Emissions Thresholds and the San Ramon CAP which is consistent with General Plan 2040 EIR Mitigation Measure GHG-1. 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 San Ramon CAP GHG emissions reduction strategy and, thereby, streamline the CEQA GHG emissions analysis. This approach is consistent with the recommendations of the AEP Climate Change Committee for using qualified GHG reduction plans to demonstrate substantial progress toward meeting the next milestone statewide planning reduction goal (i.e., a 40 percent reduction below 1990 levels by 2030 as set forth by SB 32).

Figure 2 Determining Consistency with the San Ramon CAP



Step 1: Consistency with Demographic Forecasts and Land Use Assumptions

The demographic projections in the San Ramon CAP are based on regional job growth and population projections from ABAG's Plan Bay Area 2040 projections,[19] and the most recent 6th Cycle (2023-2031) Housing Element Update Sites Inventory Assessment for San Ramon. Job and population estimates were revised to include redevelopment of land use parcels[20] that would increase the number of residential dwelling units and the square footage of non-residential development, that was used to develop the City-specific 2040 General Plan and 2023-2031 Housing Element projections.[21, 22] If a plan/project is consistent with the existing (2023) San Ramon General Plan land use and zoning designation(s) of the plan area/project site, then the plan/project is consistent with the demographic projections and land use assumptions of the San Ramon CAP and can move on to Step 2. In this case, the plan/project's associated GHG emissions were accounted for in the GHG emissions forecasts included in the San Ramon CAP and are within the scope of this plan's analysis of communitywide GHG emissions. Accordingly, the analysis of the plan/project's GHG emissions in the CEQA document should include a reference to the plan/project's consistency with the existing (2023) General Plan land use and zoning designation(s) of the plan area/project site and should explain the aforementioned connection between the existing (2023) General Plan land use and zoning designation(s) and the GHG emissions forecasts in the San Ramon CAP. Then, proceed to Step 2.

If a plan/project is not consistent with the existing (2023) General Plan land use and zoning designation(s) 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 existing (2023) General Plan, then the plan/project would still be within the demographic projections and land use assumptions of the San Ramon CAP and can move on to Step 2. To provide substantial evidence for this determination, GHG emissions generated under existing conditions/existing (2023) 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 (2023) General Plan buildout and the proposed plan/project. In this case, the analysis of the plan's/project's GHG emissions in the CEQA document should include a quantitative comparison of the proposed plan's/project's GHG emissions and GHG emissions generated by existing on-site development or the development anticipated for the site under the existing (2023) 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 existing (2023) General Plan. Then, proceed to Step 2.

If a plan/project is not consistent with the existing (2023) General Plan land use and zoning designation(s) 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 existing (2023) General Plan, the plan/project cannot use a San Ramon CEQA GHG Emissions Analysis Compliance Checklist to streamline CEQA GHG analysis. 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.

[19] ABAG's Plan Bay Area 2040 job and population projections were used as the base projections in place of Plan Bay Area 2050 projections, as the latter estimates do not disaggregate projections at the City-level.
[20] Potential redevelopment estimates were calculated for parcels east and west of the freeway in the North Camino Ramon Specific Plan (NCRSP) and San Ramon Village Specific Plan (SRVSP) planning areas that were expected to be redeveloped by 2040 according to the City of San Ramon planning department.
[21] San Ramon, City of. 2025. CAP, Appendix C: GHG Emissions Previous Inventories Updates, Forecasts, and Reduction Targets
[22] Source: San Ramon, City of. 2023. 2040 General Plan and 2023-2031 Housing Element Projections. May 12, 2023.

Step 2: Consistency with CEQA GHG Emissions Analysis Compliance Checklist

The City has prepared the San Ramon CEQA GHG Emissions Analysis Compliance Checklist for plans and projects to demonstrate that they are consistent with the measures and actions of the San Ramon CAP. A project applicant can utilize the checklist to show that the plan/project includes applicable measures and actions of the San Ramon CAP. Projects that use and are consistent with the checklist are not required to quantify reductions from the measures and actions included in the checklist, because the reductions from applicable measures and actions have already been quantified at a programmatic level in the San Ramon CAP.

If a plan/project is consistent with the applicable measures and actions in the San Ramon CEQA GHG Emissions Analysis Compliance Checklist, then the plan/project can tier from the programmatic GHG emissions environmental review included in the adopted CEQA GHG Emissions Thresholds for the San Ramon CAP, which is consistent with General Plan 2040 EIR Mitigation Measure GHG-1, pursuant to CEQA Guidelines Section 15183.5(b)(1).

A plan/project that is consistent with all applicable measures and actions of the San Ramon 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 the respective CEQA review document should include a summary of the plan/project's consistency with applicable measures and actions of the checklist and an explanation with substantial evidence of why any measures and actions 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 San Ramon CAP,* if a plan/project is not consistent with the existing (2023) General Plan land use and zoning designation(s) of the plan area/project site, then a plan/project cannot use the San Ramon CEQA GHG Emissions Analysis Compliance Checklist to tier from the adopted CEQA GHG Emissions Thresholds for the San Ramon CAP. Instead, the significance of a plan/project's GHG emissions can be evaluated using quantitative GHG thresholds derived from the assumptions of the San Ramon CAP. If a plan's/project's emissions are at or below the applicable threshold, a plan/project can tier from the existing programmatic environmental review contained in the adopted CEQA GHG Emissions Thresholds for the San Ramon CAP if it is approved before the end of 2030. In doing so, such a plan/project would result in less-than-significant GHG emissions and would not result in a cumulatively considerable impact related to GHG emissions and climate change. For a plans/project post-2030, emissions at or below the thresholds for 2045 that equate to net zero MT of CO_2e per year would be considered less-than-significant, and such a plans/project would not result in a cumulatively considerable GHG emissions impact. The following sections provide an explanation of the methodology used to calculate the thresholds, guidance on how to utilize the thresholds, and justification for use of these thresholds.

5.1 Threshold 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. 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, as long as 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.[23]

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.

Locally appropriate, plan- and project-specific GHG emissions efficiency thresholds were derived from the GHG emissions forecasts calculated for the San Ramon CAP. 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 San Ramon GHG emissions efficiency thresholds were calculated using the emissions forecasts with all emissions sectors included, because plans and projects would generate vehicle and transit trips, consume energy and water, and produce wastewater and solid waste, thereby generating emissions in all categories. Efficiency thresholds

[23] 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.

were calculated for the year 2030 to provide GHG emissions thresholds for new development in line with the State's next milestone target, which is for the 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 San Ramon CAP were disaggregated into existing development and new development for each threshold year. Furthermore, 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 new residential, non-residential, and mixed-use projects. The results of the disaggregation of the GHG emissions forecast are presented in Figure 3 and Table 6, 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 3 Allowable GHG Emissions from Existing and New Development in 2030

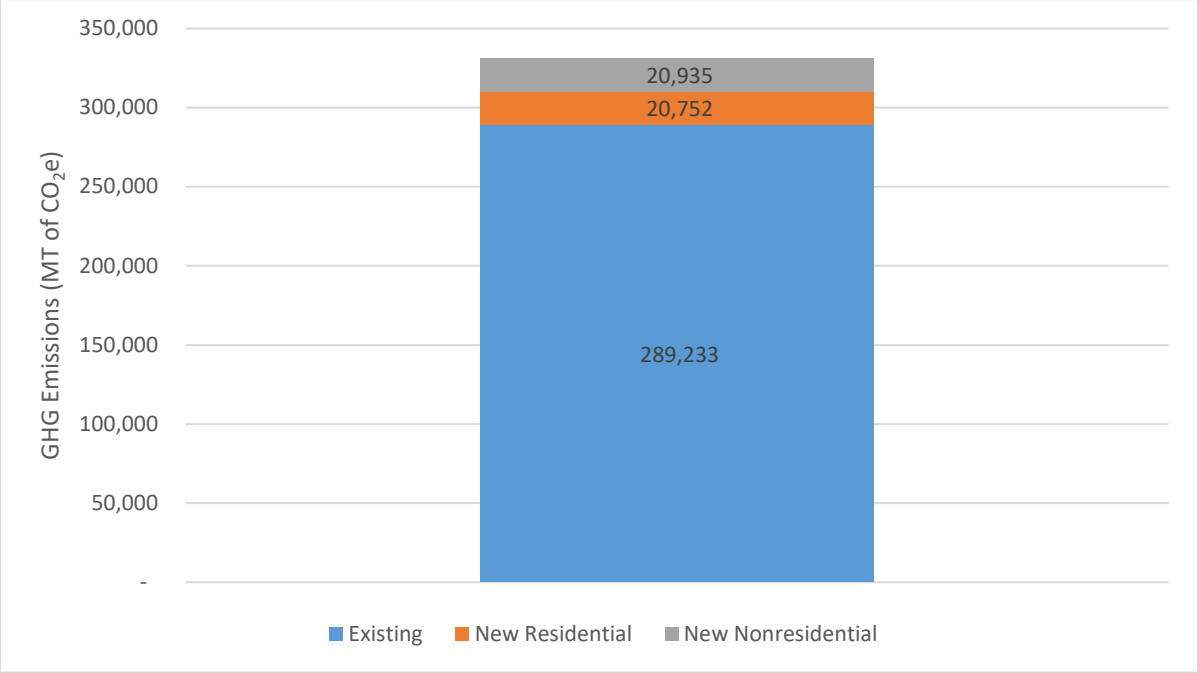


Table 6 Allowable GHG Emissions for 2030 by Type of Development (MT of CO_2e)

Source	2030		
	Existing Development	New Development	
		Residential	Non-Residential
Business-as-Usual 2030 Emissions	437,784	39,251	34,200
State Laws/Programs	(67,772)	(8,083)	(5,923)
CAP Energy Measures	(24,276)	(5,489)	(2,752)
CAP Transportation Measures	(43,771)	(3,631)	(3,744)
CAP Solid Waste Measures	(12,732)	(1,296)	(846)
CAP-Adjusted Emissions	**289,233**	**20,752**	**20,935**

( ) denotes a negative value.

See Appendix B for calculations.

Table 7 summarizes the demographic projections for San Ramon that were used in calculating GHG efficiency thresholds for year 2030. As shown therein, the number of residents, employees, and service persons are all anticipated to increase between 2019 and 2030.

Table 7 San Ramon Demographic Projections

Metric	2019 Estimate	2030 Forecast	Net Increase from New Development (2019-2030)
Residents	83,376	97,342	13,966
Employees	53,807	62,925	9,118
Service Population[1]	137,183	160,267	23,084

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

Source: San Ramon, City of. 2025. CAP, Appendix C: GHG Emissions Previous Inventories Updates, Forecasts, and Reduction Targets.

Table 8 shows how the remaining emissions for new development after implementation of the CAP Measures are used with the demographic projections from Table 7 to create communitywide GHG emissions thresholds for 2030. The resulting GHG thresholds and allowable emissions are specified in Table 8.

Table 8 San Ramon 2030 CAP-Adjusted Emissions and Communitywide GHG Thresholds

	2030 (New Development)		
	Residential	Non-Residential	Mixed-Use
CAP -Adjusted 2030 Emissions (MT of CO_2e per year)[1]	20,752	20,935	41,687
Demographic Metric[2]	13,966 new residents	9,118 new employees	23,084 new service people
GHG Efficiency Threshold (MT of CO_2e per year)	1.49 per resident	2.30 per employee	1.81 per service person

MT = metric tons; CO_2e = carbon dioxide equivalents

[1] See Table 6.

[2] Demographic estimates are for new plans or projects only and were calculated using the forecasts in Table 7.

As shown in Table 9, San Ramon's resulting GHG thresholds are in line with those adopted by other jurisdictions in the California Bay Area. This consistency demonstrates the feasibility of the GHG thresholds.

Table 9 GHG Emissions Thresholds Adopted by Other California Bay Area Jurisdictions

	2030 Development		
Jurisdiction	**New Residential**	**New Non-Residential**	**New Mixed-Use[1]**
City of Cupertino	0.97 per resident	2.16 per employee	1.82 per service person[2]
City of Hayward	1.99 per resident	2.62 per employee	2.18 per service person
City of Pinole	0.86 per resident	1.45 per employee	1.05 per service person
City of Pleasanton	1.72 per resident	2.93 per employee	2.26 per service person
City of Sunnyvale	0.32 per resident	0.57 per employee	0.38 per service person

Notes: MT CO_2e = metric tons of carbon dioxide equivalent

[1] GHG emissions from new mixed-use development would count against the total remaining GHG emissions 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] The service population is equal to the residential population plus the number of employees.

5.2 GHG Thresholds and Use

The GHG efficiency thresholds for residential, non-residential, and mixed-use projects approved by December 31, 2030 are presented in Figure 4 and Table 10. If a plan's or project's emissions do not exceed the applicable threshold, then it is considered consistent with the San Ramon CAP and the 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's or project's emissions exceed the applicable threshold, then mitigation measures must be identified and respective GHG emissions reduction calculations included within the respective 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 San Ramon:

- **Residential.** Single-family dwellings, multi-family dwellings, boarding house, caretaker quarters, fraternities and sororities, high-occupancy residential uses, continuing care communities, mobile-home parks, residential care facilities, supportive and/or transitional housing, 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, elderly 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 District (Air District) stationary source permitting or the State's 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 4 San Ramon GHG Efficiency Thresholds

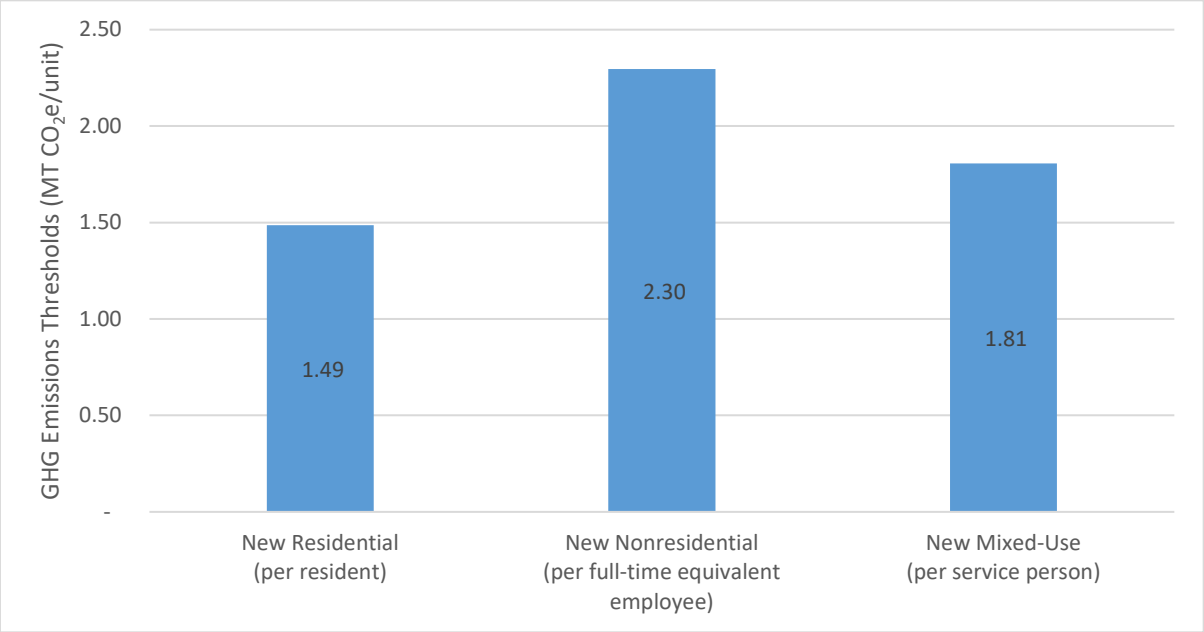


Table 10 San Ramon Locally Applicable Plan/Project CEQA GHG Emissions Thresholds

	2030 (New Development)		
	Residential	**Non-Residential**	**Mixed-Use**
GHG Efficiency Threshold (MT of CO_2e per year)	1.49 per resident	2.30 per full-time equivalent employee	1.81 per service person

MT = metric tons; CO_2e = carbon dioxide equivalents

See Table 8 for the calculation methodology of the thresholds.

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, *Threshold Calculation Methodology*, the quantitative thresholds were developed using data from the San Ramon 2019 communitywide GHG inventory and the GHG emissions forecasts for year 2030. These inventory 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 inventory and forecasts are based on locally appropriate data for San Ramon provided by Marin Clean Energy, Pacific Gas and Electric Company, Metropolitan Transportation Commission, California Department of Resources Recycling and Recovery (CalRecycle), CARB, East Bay Municipal Utility District, Central Contra Costa Sanitary District, and Dublin-San Ramon Services District.[24] Therefore, the emission inventory and forecast data underlying the thresholds is both scientific and factual.

As discussed in Section 2.3, *GHG Emissions Forecast*, implementation of San Ramon CAP would achieve a 53 percent reduction below 1990 per capita emissions levels by 2030. Therefore, this local target is more stringent than the State's goal of a 40 percent emissions reduction in 1990 levels by 2030 and 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 San Ramon CAP for year 2030. As a result, because the San Ramon CAP is consistent with the State's 2030 GHG emission goal, the quantitative thresholds are also consistent with the next State milestone GHG emissions reduction goal for 2030. The State's GHG emissions reduction goals 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 to avoid dangerous climate change (AB 1279).[25] Therefore, the San Ramon GHG emissions reduction targets that inform the San Ramon CAP and the associated quantitative thresholds are based on scientific and factual data on the level of emissions reduction necessary to ensure San Ramon does not have a cumulatively considerable contribution to the cumulative impact of climate change.

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

As shown in Table 6 in Section 5.1, *Threshold Calculation Methodology*, implementation of the San Ramon CAP would reduce annual per capita GHG emissions levels by 53 percent below 1990 levels by 2030. The quantitative thresholds are tied directly to the level of GHG emissions anticipated for new development in San Ramon for year 2030. The thresholds are consistent with San Ramon's local emissions reduction target, which is consistent with the State's GHG emissions reduction goals. Therefore, the quantitative thresholds are set at the level necessary to ensure San Ramon does not have a cumulatively 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 cumulatively considerable contribution to the cumulative impacts of climate change, and plan/project impacts would be less than significant.

[24] San Ramon, City of. 2022. 2019 GHG Inventory Data Evaluation and Methodology Memorandum.
[25] California Air Resources Board. 2022. 2022 Scoping Plan for Achieving Carbon Neutrality. https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf

Support of Substantial Evidence

Substantial evidence regarding the calculation of the quantitative GHG emissions thresholds is provided in Section 5.1, *Threshold 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 San Ramon communitywide GHG emissions forecast for year 2030 and are, thus, specific to the City of San Ramon. The thresholds are directly tied to the population and job growth anticipated for San Ramon by ABAG's Plan Bay Area 2040 projections and the most recent 6th Cycle (2023-2031) Housing Element Update Sites Inventory Assessment for San Ramon as well as to the City-specific GHG emissions reduction strategies, measures, and actions that the City has proposed to reduce communitywide emissions. In addition, the magnitude of local GHG emissions reduction achieved by State legislation/policies (i.e., vehicle fuel efficiency standards, the RPS, and Title 24) was estimated based on City-specific growth, vehicle miles travelled (VMT), and off-road equipment and vehicle fuel usage 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 San Ramon's BAU GHG emissions forecasts for year 2030 into emissions forecasts for existing and new development, which are shown in Table 6 in Section 5.1, *Threshold Calculation Methodology*. The emissions reduction specific to new development achieved by State legislation/policies and the San Ramon CAP were then subtracted from the BAU scenario forecast to determine GHG emissions "caps" for new residential and new non-residential development for year 2030. These "caps" were then divided by the numbers of residents, employees, and service persons forecasted for new development to determine efficiency thresholds for residential, non-residential, and mixed-use development, respectively. As a result, 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 reduction anticipated for new development as compared to existing development 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 San Ramon. These thresholds were calculated by disaggregating San Ramon's BAU GHG emissions forecast for new development in year 2030 into emissions forecasts for new residential and new non-residential development, which are shown in Table 6 in Section 5.1, *Threshold Calculation Methodology*. The emissions reduction specific to new residential and new non-residential development achieved by State legislation/policies and the San Ramon CAP were then subtracted from the BAU forecast to determine "caps" of emissions for new residential and new non-residential development for year 2030. These emissions "caps" were then divided by the numbers of residents and employees forecast for new development in year 2030 to determine efficiency thresholds for residential and non-residential projects, respectively. For mixed-use development, the residential and

non-residential emissions "caps" were summed, then divided by the service population forecast for new development in year 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 through a public review process, which will include an opportunity for public input. The public review process for these City of San Ramon CEQA GHG Thresholds and Guidance will specifically occur via public review of and comment on a joint San Ramon CAP and CEQA GHG Emissions Thresholds document. The opportunity for public comment will also be available at a public hearing (i.e., City Council meeting) considering adoption of the San Ramon CAP and CEQA GHG 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),[26] 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. 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 CAPCOA and the Air District.[27, 28]

6.1 Construction GHG Emissions

Construction activities emit GHGs primarily though combustion of fuels (mostly diesel) in the engines of off-road construction equipment and 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 the engine design and greater fuel consumption.

The Air District recommends quantifying and disclosing construction-related GHG emissions for informational purposes.[29] CalEEMod generates a default construction schedule and equipment list based on the plan-/project-specific information, including land use type, project size, location, and construction timeline.[30] 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.[31]

[26] The most current available version of CalEEMod should be used. As of January 2025, CalEEMod version 2022.1 is the most current version and should be used to quantify project-level emissions.
[27] California Air Pollution Control Officers Association. 2008. CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA). January 2008.
[28] Bay Area Air District. 2022. "CEQA Thresholds and Guidelines Update." https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines.
[29] Ibid
[30] CAPCOA. 2022. California Emissions Estimator Model User Guide: Version 2022.1. https://www.caleemod.com/documents/user-guide/01_User%20Guide.pdf.
[31] 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 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 that emit GHGs associated with the equipment's fuel combustion. The landscaping equipment emission values in CalEEMod are derived from CARB's Small Off-Road Engines Model v1.1 (SORE2020).[32] Emission rates for combustion of wood and natural gas for wood stoves and fireplaces are based on those published by the U.S. EPA. 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 and 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.[33] Projects would generally be served by Pacific Gas & Electric or East Bay Municipal Utility District. 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 includes the 2022 Building Energy Efficiency Standards. In accordance with Section 150.1(b)14 of the 2022 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 the expected electricity usage. The calculation method contained in Section 150.1(b)14 of the California 2022 Building Energy Efficiency Standards should be utilized to estimate the number of kilowatts of PV solar panels that would be required for a residential project three stories or less. In addition, modeling should account for local regulations pertaining to mandatory solar provisions. Online resources can be used to determine the kilowatt-hours that would be generated per year by the required solar PV system.[34] The energy reduction achieved by on-site PV solar panels should be included in CalEEMod. Future updates to Title

[32] Ibid.
[33] Ibid.
[34] Lane, Catherine. 2023." How much electricity does a solar panel produce?" Last updated: December 2024. https://www.solarpowerrocks.com/solar-basics/how-much-electricity-does-a-solar-panel-produce/.

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 can directly emit both CH_4 and N_2O.

CalEEMod calculates indoor residential water consumption based on per capita daily water use rates from the Residential End Uses of Water published by the Water Research Foundation in 2016. For non-residential land uses, indoor water use comes from the Pacific Institute's (2003) *Waste Not, Want Not: The Potential for Urban Water Conservation in California*.[35] Outdoor water use is based on the Maximum Applied Water Allowance Method established under the Model Water Efficient Landscape Ordinance. Wastewater generation is based on a reported percentage of total indoor water use.

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. Users should contact the City to obtain the City's most recent solid rate diversion rate (if available) to be included in the calculation of solid waste GHG emissions.

Plan or Project Design Features

CEQA GHG emissions analysis preparers should use the "Mitigation" tabs to include project design features applicable to the plan/project.[36] 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. Such preparers should also consider the applicability of these features to the plan/project and review the CAPCOA *Quantifying Greenhouse Gas Mitigation*

[35]CAPCOA. 2022. California Emissions Estimator Model User Guide: Version 2022.1. Prepared by ICF in collaboration with Sacramento Metropolitan Air Quality Management District, Fehr & Peers, STI, and Ramboll. http://www.aqmd.gov/caleemod/user's-guide.
[36] "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.

Measures (2010) publication to ensure that the chosen features are relevant and feasible in light of the plan/project.[37]

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.** The California Department of Finance website (https://www.dof.ca.gov/Forecasting/Demographics/Estimates/e-5/) should be referenced for the most recent estimate of persons per household in San Ramon. 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 G. If more locally-appropriate estimates for employee generation rates by type of commercial use are available, those may also be utilized.

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 San Ramon existing (2023) 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 (2023) General Plan land use designation for the site. In this case, GHG emissions should be reported for both the existing and proposed scenarios. If there is a land use designation that allows multiple uses, the project could model the most intensive permitted use from the GHG perspective and compare the project to that as the baseline.

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 emissions reduction credits applied to the proposed plan/project scenario that are related to State legislation/policies (e.g., the RPS, vehicle 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.

Emissions 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 emissions reduction credits that might be unique to the existing

[37] 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.

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 emissions reduction credit associated with the California 2022 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 San Ramon CAP would reduce communitywide per capita GHG emissions by approximately 53 percent below 1990 levels by 2030 to 330,920 MT of CO_2e annually. Full implementation of the San Ramon CAP would leave a gap of approximately 110,530 MT of CO_2e per year in 2045 that would 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 of San Ramon faces in taking a leadership role in addressing a challenge that has not been previously solved.

The San Ramon CAP acknowledges that additional actions beyond those identified in the plan would be necessary to achieve carbon neutrality and, thus, provides a mechanism for updating and adopting a new CAP every four to eight years to incorporate new measures and technologies that will further San Ramon toward meeting the target of carbon neutrality. As the San Ramon CAP is updated, the associated CEQA GHG Emissions Analysis Compliance Checklist will also be updated as needed to incorporate new strategies, measures, and/or actions that discretionary development projects would need to incorporate, as applicable, to demonstrate consistency with the latest CAP. At the time at which the City identifies strategies, measures, and/or actions to achieve the carbon neutrality target in totality, the City will adopt those collective strategies, measures, and actions in a public process following CEQA review, at which time that updated CAP would become a qualified GHG emissions reduction plan for post-2030 projects. However, the quantitative thresholds included in this guidance document will not need to be updated, because residential, non-residential, and mixed-use projects post-2030 will still need to achieve GHG emissions equivalent to net zero MT of CO_2e per year to demonstrate consistency with the San Ramon CAP.

Finally, if future amendments or updates of the San Ramon General Plan Land Use Element occur, then such amendments or updates will be incorporated into future updates of the CAP to ensure that project planners and applicants can continue to utilize the CEQA GHG emissions analysis streamlining process detailed in this document, given that this process is partly dependent on a plan's/project's consistency with the demographic projections and land use assumptions of the San Ramon General Plan.

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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.[38] Furthermore, since the late 1700s, estimated concentrations of carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O) in the atmosphere have increased by over 43 percent, 156 percent, and 17 percent, respectively, primarily due to human activity.[39] Emissions resulting from human activities are thereby contributing to an average increase in Earth's temperature.

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 CO_2, CH_4, N_2O, fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere, and natural processes, such as oceanic evaporation, largely determine the atmospheric concentrations.

[38] Intergovernmental Panel on Climate Change (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

[39] 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

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.[40]

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 emitted multiplied by the specific GWP. Carbon dioxide has a 100-year GWP of one. By contrast, CH_4 has a GWP of 30, meaning the global warming effect is 30 times greater than CO_2 on a molecule per molecule basis.[41, 42]

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.[43] However, since 1750, estimated concentrations of CO_2, CH_4, and N_2O in the atmosphere have increased by 36 percent, 148 percent, and 18 percent, respectively, primarily due to human activity.[44] 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

In 2015, worldwide anthropogenic GHG emissions totaled 47,000 MMT of CO_2e, which is a 43 percent increase from 1990 GHG levels. The largest source of GHG emissions were energy production and use (includes fuels used by vehicles and buildings), which accounted for 75 percent of the global GHG emissions. Agriculture uses and industrial processes contributed 12 percent and six percent, respectively. Waste sources contributed three percent. These sources account for approximately 96 percent.[45]

[40] 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

[41] The IPCC's *Sixth Assessment Report* from 2021 determined that methane has a GWP of 30. However, the 2017 Climate Change Scoping Plan published by the California Air Resources Board uses a GWP of 25 for methane, consistent with the Intergovernmental Panel on Climate Change's *Fourth Assessment Report* from 2007. Therefore, this analysis utilizes a GWP of 25.

[42] 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

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

[44] Forster, P., V. Ramaswamy, P. Artaxo, T. Berntsen, R. Betts, D.W. Fahey, J. Haywood, J. Lean, D.C. Lowe, G. Myhre, J. Nganga, R. Prinn, G. Raga, M. Schulz and R. Van Dorland. 2007. Changes in Atmospheric Constituents and in Radiative Forcing. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M.Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-chapter2-1.pdf

[45] U.S. EPA. 2025. Climate Change Indicators: Global Greenhouse Gas Emissions. https://www.epa.gov/climate-indicators/climate-change-indicators-global-greenhouse-gas-emissions

United States Emissions Inventory

United States GHG emissions were 6,343.2 MMT of CO_2e in 2022 (or 5,489.0 MMT CO_2e after accounting for sequestration), a 1.3 percent increase from 2021 emissions. The increase from 2021 to 2022 was driven by an increase in CO_2 emissions from fossil fuel combustion which increased 1 percent relative to previous years and is primarily due to the economic rebounding after the COVID-19 pandemic. In 2022, the energy sector (including transportation) accounted for 83 percent of nationwide GHG emissions while agriculture, industrial and waste accounted for approximately 9 percent, 6 percent, and 3 percent respectively.[46]

California Emissions Inventory

Based on a review of the CARB California Greenhouse Gas Inventory for the years between 2000-2020, California produced 369.2 MMT of CO_2e in 2020, which is 35.3 MMT of CO_2e lower than 2019 levels. The 2019 to 2020 decrease in emissions is likely due in large part to the impacts of the COVID-19 pandemic. The major source of GHG emissions in California is the transportation sector, which comprises 37 percent of the state's total GHG emissions. The industrial sector is the second largest source, comprising 20 percent of the state's GHG emissions while electric power accounts for approximately 16 percent. The magnitude of California's total GHG emissions is due in part to the State's 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 the relatively mild climate. In 2016, the state of California achieved the 2020 GHG emissions reduction target of reducing emissions to 1990 levels as emissions fell below 431 MMT of CO_2e.[47] The annual 2030 statewide target emissions level is 260 MMT of CO_2e.[48]

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 extremes in every region across the globe."[49] These climate change impacts include climate change sea level rise, increased weather extremes, and substantial ice loss in the Arctic over the past three decades.

[46] U.S. EPA. 2024. Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2022. https://www.epa.gov/system/files/documents/2024-04/us-ghg-inventory-2024-main-text_04-18-2024.pdf
[47] CARB. 2022. 2022 Scoping Plan for Achieving Carbon Neutrality. https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf
[48] CARB. 2017. California's 2017 Climate Change Scoping Plan.
https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf
[49] 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

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.[50] 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.[51] 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.[52] 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 2024, observed by satellites, is approximately 3.3 millimeters per year.[53] The rate of global mean sea level rise in the past ten years (2014–2023) is more than twice the rate of sea level rise in the first decade of the satellite record (1993–2002).[54] 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.[55]

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 and/or exposure of buried infrastructure.[56] Furthermore, increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

[50] 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
[51] Ibid.
[52] Ibid.
[53] National Aeronautics and Space Administration. 2024. "Global Climate Change – Vital Signs of the Planet – Sea Level." https://climate.nasa.gov/vital-signs/sea-level/
[54] World Meteorological Organization. 2024. Climate change indicators reached record levels in 2023. https://wmo.int/news/media-centre/climate-change-indicators-reached-record-levels-2023-wmo#:~:text=The%20WMO%20report%20confirmed%20that%202023%20was,%C2%B1%200.12%20%C2%B0C)%20above%20the%20pre%2Dindustrial%20baseline.&text=The%20global%20mean%20near%2Dsurface%20temperature%20in%202023,0.12%20%C2%B0C%20above%20the%20pre%2Dindustrial%201850%E2%80%931900%20average.
[55] 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
[56] 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

Air Quality

Scientists project that the annual average maximum daily temperatures in California could rise by 2.4 to 3.2°C in the next 50 years and by 3.1 to 4.9°C in the next century.[57] 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 the 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.[58] 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 tend to temporarily clear the air of particulate pollution, which would effectively reduce the number of large wildfires and thereby ameliorate the pollution associated with them.[59]

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.[60] This uncertainty regarding future precipitation trends complicates the analysis of future water demand, especially where the relationship between climate change and the 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.[61] 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.[62] Projections indicate that average spring snowpack in the Sierra Nevada and other mountain catchments in central and northern California will decline by approximately 66 percent from the historical average by 2050.[63]

[57] Ibid.
[58] Ibid.
[59] California Natural Resources Agency. 2009. 2009 California Climate Adaptation Strategy. March 2009. http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf
[60] 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
[61] 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
[62] Ibid.
63 Ibid.

Agriculture

California has an over $59 billion annual agricultural industry that produces over a third of the country's vegetables and three-quarters of the country's fruits and nuts.[64] 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. Temperature increases could also change the time of year certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality.[65]

Ecosystems and Wildlife

Climate change and the potential resultant changes in weather patterns could have ecological effects on the 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.[66,67]

[64] California Department of Food and Agriculture. 2024. California Agricultural Production Statistics. https://www.cdfa.ca.gov/Statistics/
65 California Climate Change Center (CCCC). 2006. Climate Scenarios for California.
[66] Parmesan, C. 2006. Ecological and Evolutionary Responses to Recent Climate Change.
[67] 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

GHG Threshold Calculations

1. BAU Forecast Summary

		Annual 2030 GHG Emissions (MT CO2e)			
Forecast Scenario	**Sector**	**Existing (2019)**	**New (2019-2030)**	**Total (2030)**	
BAU	On-road Motor Vehicles - Passenger and Bus	173,014	28,981	201,995	Residential/Nonresidential
	On-road Motor Vehicles - Commercial	53,471	8,957	62,428	Nonresidential
	Natural Gas - Residential	79,465	13,311	92,776	Residential
	Natural Gas - Nonresidential	37,895	6,421	44,316	Nonresidential
	Electricity- Residential	18,644	3,115	21,759	Residential
	Electricity- Nonresidential	23,323	3,921	27,244	Nonresidential
	Electricity- Water and Wastewater	64	11	75	Residential/Nonresidential
	Off-road Equipment	33,415	5,623	39,038	Residential/Nonresidential
	Waste	14,931	2,512	17,444	Residential/Nonresidential
	Wastewater Treatment Processes	3,562	599	4,161	Residential/Nonresidential
	Consistency Check	-		-	

2. Demographics Forecast Summary

		Annual 2030 Demographics		
Category	**Sector**	**Existing (2019)**	**New (2019-2030)**	**Total (2030)**
Demographics	Population	83,376	13,966	97,342
	Jobs	53,807	9,118	62,925
	Service Population	137,183	23,084	160,267

3. Emissions Reduction Summary - State Legislative Reductions + CAP Update Measure Reductions

		2030 GHG Emissions (MT CO2e)			
Category	**Measure**	**Residential**	**Nonresidential**	**Residential/ Nonresidential**	Consistency Check
State Legislation	Transportation Legislation	-	10,190	41,757	
	California Green Building Code (Title 24)	2,586	-	-	
	California RPS (SB 100)	12,540	14,032	673	-
CAP Update GHG Reduction Measures	Measure E-1: Switch automatic enrollment to MCE Deep Green to provide 100% clean community power by 2030 and maintain an opt-out rate of less than 3% through 2045.	9,960	4,253	-	
	Measure E-2: Decarbonize 100% of new residential and commercial construction by 2026.	4,060	2,136	-	
	Measure E-3: Electrify 14% of existing residential buildings by 2030 and 57% by 2045.	11,255	-	-	
	Measure E-4: Electrify 2% of existing commercial buildings by 2030 and 33% by 2045.	853	-	-	
	Measure T-1: Implement and regularly update the Bicycle Master Plan and Walking	-	-	600	
	Measure T-3: Implement a new zero-emission local microtransit service to close the "last-mile" gap for public transit and target a public transit mode share of 14% by 2030 and 16% by 2045.	-	-	3,191	
	Measure T-6: Increase passenger zero-emission vehicle (ZEV) adoption to 30% by 2030 and 100% by 2045.	-		33,038	
	Measure T-7: Increase commercial zero-emission vehicle (ZEV) adoption to 25% by 2030 and 100% by 2045.	-	9,478	-	
	Measure T-9: Electrify or otherwise decarbonize 12% of off-road equipment by 2030 and 100% by 2045.	-	-	4,840	
	Measure W-1: Reduce landfilled organic waste 75% by 2030 and 90% by 2045.	-	-	13,083	
	Measure W-3: Develop a communitywide composting program to achieve SB 1383 procurement requirements.	-	-	1,791	-

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

Allocation Dropdown
Both
Existing Only
New Only

		2030 Emissions (MT CO2e)				
		Existing		New		
Category	**Allocation between existing and new**	**Residential**	**Nonresidential**	**Residential**	**Nonresidential**	Consistency Check
BAU Forecast						
BAU Forecast	See F4:F13	234,849	202,935	39,251	34,200	-
Legislative Reductions/Existing City Programs						
Transportation Legislation	Both	21,723	22,732	3,639	3,852	-
California Green Building Code (Title 24)	New Only	-	-	2,586	-	-
California RPS (SB 100)	Both	11,091	12,225	1,858	2,072	-
Measure GHG Reductions						

Measure E-1: Switch automatic enrollment to MCE Deep Green to provide 100% clean community power by 2030 and maintain an opt-out rate of less than 3% through 2045.	Both	8,531	3,637	1,429	616	-
Measure E-2: Decarbonize 100% of new residential and commercial construction by 2026.	New Only	-	-	4,060	2,136	-
Measure E-3: Electrify 14% of existing residential buildings by 2030 and 57% by 2045.	Existing Only	11,255	-	-	-	-
Measure E-4: Electrify 2% of existing commercial buildings by 2030 and 33% by 2045.	Existing Only	853	-	-	-	-
Measure T-1: Implement and regularly update the Bicycle Master Plan and Walking District Master Plan as needed to reduce vehicle miles traveled and achieve an active transportation mode share of 3% by 2030 and 8% by 2045.	Both	312	201	52	34	-
microtransit service to close the "last-mile" gap for public transit and target a public transit mode share of 14% by	Both	1,660	1,071	278	182	-
Measure T-6: Increase passenger zero-emission vehicle (ZEV) adoption to 30% by 2030 and 100% by 2045.	Both	17,187	11,092	2,879	1,880	-
Measure T-7: Increase commercial zero-emission vehicle (ZEV) adoption to 25% by 2030 and 100% by 2045.	Both	-	8,105	-	1,373	-
Measure T-9: Electrify or otherwise decarbonize 12% of off-road equipment by 2030 and 100% by 2045.	Both	2,518	1,625	422	275	-
Measure W-1: Reduce landfilled organic waste 75% by 2030 and 90% by 2045.	Both	6,806	4,392	1,140	744	-
Measure W-3: Develop a communitywide composting program to achieve SB 1383 procurement requirements.	Both	932	601	156	102	-
GHG Emissions Remaining						
GHG Emissions Remaining	=BAU Forecast - Leg. Reductions - Measure Reductions	151,981	137,252	20,752	20,935	-
Percentage reductions in each category		46%	36%	10%	7%	

5. 2030 GHG Thresholds

Category	2030 New Growth GHG Threshold	"Existing GHG Thresholds"	2030 Total Population Per Capita Threshold
New Residential (per resident)	1.49	1.82	1.77
New Nonresidential (per full-time equivalent employee)	2.30	2.55	2.51
New Mixed-Use (per service person)	1.81	2.11	2.06

6. Summary Table

	Existing	New Residential	New Nonresidential	Total	
BAU Forecast	437,784	39,251	34,200	511,235	
Legislation Reductions	67,772	8,083	5,923	81,778	
CAP Update Energy Measures	24,276	5,489	2,752	32,517	
CAP Update Transportation Measures	43,771	3,631	3,744	51,146	
CAP Update Solid Waste Measures	12,732	1,296	846	14,874	
Emissions Reductions from BAU	148,551	18,499	13,265	180,315	
Remaining Total GHG Emissions	289,233	20,752	20,935	330,920	-

Appendix C

United States Green Building Council Building Area per Employee by Business Type Rates[68]

[68] 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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