



Recommended Guidance for
Land Use Emission Reductions
Version 5.0
(for Operational Emissions)

May 2026

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Introduction

As the “local agency within the boundaries of the Sacramento district with the primary responsibility for the development, implementation, monitoring, and enforcement of air pollution control strategies, clean fuels programs, and motor vehicle use reduction measures,”¹ the Sacramento Metropolitan Air Quality Management District (Sac Metro Air District) has created a guidance to ensure that development within the Land Use sector will not impede regional attainment of our air quality and climate goals. A companion to our [Guide to Air Quality Assessment in Sacramento County](#) (CEQA guide), the *Recommended Guidance for Land Use Emission Reductions* creates a common platform of information and tools so developers, communities and lead agencies can disclose air emissions and select appropriate design features, conditions of approval, and mitigation to reduce those emissions.

A project proponent should create an Operational Air Quality Mitigation Plan (AQMP) for a project that generates a significant impact for ozone precursors and particulates, and should document measures required to meet the Sac Metro Air District’s greenhouse gases (GHG) Best Management Practices (BMPs) in a Greenhouse Gas Reduction Plan (GHGRP) for a project that generates a significant GHG impact. Both plans consist of feasible measures that reduce operational emissions associated with the project and are incorporated as mitigation into the project’s environmental document. Implementation is enforced by the lead agency. While the AQMP or GHGRP can be a standalone document or incorporated into a project’s environmental document, the plans must be referenced in the project’s mitigation monitoring and reporting plan (MMRP).

In November 2024 the California Air Pollution Control Officers Association (CAPCOA) released the [Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity](#) (Handbook)². The Handbook is a comprehensive update to CAPCOA’s 2010 *Quantifying Greenhouse Gas Mitigation Measures* document and includes both quantifiable and non-quantifiable measures based on current research. The measures have been incorporated into CalEEMod version 2022. To ensure that lead agencies make the best effort to use the best data and modeling tools available, the Sac Metro Air District recommends utilizing the most recent version of the California Emissions Estimator Model (CalEEMod) to determine the operational emissions of a project as well as the efficacy of mitigation.

Because the updated Handbook and CalEEMod tool incorporates information related to disadvantaged communities, health, environmental burdens, and climate risk, project proponents and jurisdiction planners have the opportunity to review proposed projects holistically. Measures should be selected that both reduce criteria pollutants and GHG emissions and also have other co-benefits such as energy savings, improved public health, enhanced food security and social equity. This integrated planning approach can result in projects being designed and built to contribute positively to the surrounding community. More detailed discussion of integrated planning to support health, equity and climate resilience can be found in the Handbook. When developing AQMPs and GHGRPs, plans must include a narrative demonstrating how each reduction measure selected is being met, as well as an enforceable mechanism to ensure each measure is implemented for the life of the project. If a proponent would like to utilize reduction measures not quantified in CalEEMod or the Handbook,

¹ CA Health & Safety Code § 40961

² CAPCOA’s CalEEMod website including Handbook:
https://www.airquality.org/ClimateChange/Documents/2024%20Handbook%20Update_AB434.pdf

the proponent should contact the Sac Metro Air District to discuss substantial evidence of efficacy as well as implementation requirements.

It is recommended that proponents also consult Sac Metro Air District's [Guide to Air Quality Assessment in Sacramento County](#), the [CalEEMod User Guide](#), and the CAPCOA Handbook to create a successful AQMP or GHGRP. Any questions this guide should be directed to Sac Metro Air District [Land Use and Transportation Staff](#).

AIR QUALITY MITIGATION PLAN DEVELOPMENT GUIDANCE

Sac Metro Air District has established thresholds of significance for ozone precursors and particulate matter. Projects that are anticipated to emit 65 pounds or more of oxides of nitrogen (NO_x) per day, 65 pounds or more of reactive organic gases (ROG) per day, 80 pounds or more of particulate matter that is 10 microns in diameter or smaller (PM₁₀) per day or 82 pounds or more of particulate matter that is 2.5 microns in diameter or smaller (PM_{2.5}) per day³ are considered to have potentially significant operational air quality impacts for CEQA purposes and should apply mitigation.

In addition, the Sac Metro Air District recommends a 15 percent reduction of ozone precursor (NO_x and ROG) mobile source emissions for projects that are consistent with the land use assumptions included in the current State Implementation Plan (SIP, a plan to attain federal air quality standards). For projects not considered in the SIP, the Sac Metro Air District recommends a 35 percent reduction in ozone precursor mobile source emissions. These levels of reduction are considered feasible mitigation by the District and should be documented in an Air Quality Mitigation Plan (AQMP). If a project is partially included in the SIP, project proponents should contact Sac Metro Air District staff to discuss the appropriate mitigation percent reduction to apply to the project. Additional discussion is available in Section 4.4 of Chapter 4 of the Sac Metro Air District's *Guide to Air Quality Assessment in Sacramento County (CEQA Guide)*. Lead agencies and project proponents should work with the Sac Metro Air District and the Sacramento Area Council of Governments (SACOG) to determine if the project is included in the SIP.

For projects that have potentially significant operational air quality impacts associated with particulate matter (PM₁₀ or PM_{2.5}), no specific percent reduction has been established as feasible mitigation. In such cases, the AQMP should include all feasible mitigation to reduce particulate matter for projects on a case-by-case basis using CalEEMod and off-model measures, as applicable.

The following sections describe how to determine if a project requires an AQMP, how to create a project baseline scenario that serves as the basis of emission reduction targets for ROG and NO_x, and how to set a project's emissions reduction target for preparing an AQMP relative to this baseline. The project baseline used for comparison will take into account regional impacts of the project by considering both a "future no project cumulative" scenario that accounts for vehicle trips and VMT generated in the absence of the proposed project at the project's buildout year as well as a "future with project cumulative" scenario that accounts for the effect of the project on regional vehicle trips and VMT.

Determining if a proposed project requires an Operational Air Quality Mitigation Plan

To determine if a proposed project exceeds Sac Metro Air District ozone precursor or particulate matter thresholds and thus requires an AQMP, enter the proposed project location, characteristics, and land uses into CalEEMod. On the Operations, Mobile Sources, Vehicle Data page, select "Generate Default VMT and Trips" and then select the MPO/RTPA button to use SACOG trip lengths and trip purpose

³ The District's PM thresholds of significance are zero unless best available control technology/best management practices (BACT/BMPs) are implemented for a project. The inclusion of BACT/BMPs allows the use of the 80 and 82 pounds per day thresholds for PM₁₀ and PM_{2.5} respectively. If the project is conducting an AQMP for PM, it is assumed that BACT/BMPs are included.

percentages for the TAZ the project is located in. If a traffic study was conducted for the project, project-specific vehicle miles traveled (VMT) and trip generation rates should be used instead. Run a report to check the estimated total daily emissions (pounds per day) for NO_x, ROG, PM₁₀ and PM_{2.5} in the full build-out year for both winter and summer seasons for all emissions sectors.⁴ If modeled total daily emissions for any of the pollutants analyzed meet or exceed the pollutant significance thresholds, the project is considered to have a potentially significant operational air quality impact, and an AQMP should be prepared. The process for developing an AQMP for ozone precursors is described below. For projects which have potentially significant particulate matter impacts, AQMPs should include all feasible mitigation to reduce particulate matter emissions below the thresholds of significance, as required by CEQA.

Setting emission reduction targets for ozone precursor emissions using “future no project cumulative” and “future with project cumulative” scenarios

Sac Metro Air District recommends the following steps to determine the ozone precursor emission reduction targets for a project.

1. **Conduct a project-specific traffic study:** All projects preparing an AQMP are required to conduct a project-specific traffic study. The traffic study must provide regional data on vehicle trips and VMT for both the “future no project cumulative” and “future with project cumulative” scenarios. Projects shall not use CalEEMod default vehicle travel assumptions (such as trip rates or trip lengths) for both scenarios.
2. **Estimate “future no project cumulative” ROG and NO_x emissions from all sectors:** Use CalEEMod and EMFAC to generate emissions associated with the “future no project cumulative” scenario for the first full buildout operational year of the proposed project.
 - a. Enter the location, characteristics, and land use information.
 - b. Use the first year of full buildout operations for analysis.
 - c. On the Operations, Mobile Sources, Vehicle Data page, select “Enter VMT and Trips Manually” and then enter either the regional trips per day and VMT per day for weekdays, Saturdays, and Sundays OR the number of annual trips and VMT from the project-specific traffic study for the “future no project cumulative” scenario.
 - d. Run a report to obtain the “future no project cumulative” annual operational emissions (tons per year) for criteria pollutant emissions for all sectors. This will be used to calculate the ROG and NO_x emission reduction targets in Step #5.
3. **Estimate “future with project cumulative” ROG and NO_x emissions from all sectors:** Use CalEEMod to generate emissions associated with the “future with project cumulative” scenario for the same operational year and methodology used for the “future no project cumulative” scenario described in Step #2 above.
 - a. Enter the location, characteristics, and land use information.
 - b. Use the first year of full buildout operations for analysis.

⁴ Chapter 4 of the CEQA Guide discusses analysis expectations in more detail.

- c. On the Operations, Mobile Sources, Vehicle Data page, select “Enter VMT and Trips Manually” and then enter either the regional trips per day and VMT per day for weekdays, Saturdays, and Sundays OR the number of annual trips and VMT from the project-specific traffic study for the “future with project cumulative” scenario.
 - d. Run a report to obtain the “future with project cumulative” annual operational emissions (tons per year) for criteria pollutant emissions for all sectors. This will be used to calculate the ROG and NOx emission reduction targets for the project in Step #5.
4. **Calculate the project’s ROG and NOx emissions from the mobile sector:** To determine the project baseline relative to which emission reduction targets should be established, calculate the annual mass emissions of ozone precursors released by the project’s mobile sector. The project’s mobile emissions will be calculated as the difference between mobile source emissions for the “future with project cumulative” and “future no project cumulative” scenarios.⁵

Project’s NOx Emissions from Mobile Sources = Future with Project Cumulative NOx Emissions from Mobile Sources – Future No Project Cumulative NOx Emissions from Mobile Sources

Project’s ROG Emissions from Mobile Sources = Future with Project Cumulative ROG Emissions from Mobile Sources – Future No Project Cumulative ROG Emissions from Mobile Sources

5. **Calculate ROG and NOx emission reduction targets for the project:** The ROG and NOx emission reduction targets for a project are a fixed percentage of the project’s emissions from the mobile sector depending on the project’s inclusion in the SIP. Projects included in the SIP should meet a 15 percent reduction target while projects not included in the SIP should meet a 35 percent reduction target. For example, if a project’s mobile sector releases 18 tons of NOx and 2 tons of ROG annually, and the project has a 15 percent reduction target, the project is required to reduce annual mass emissions by 2.7 tons/year of NOx and 0.3 tons/year of ROG.

NOTE: Only ozone precursor emissions from the mobile sector must be considered in establishing ROG and NOx emission reduction targets for a project.

Meeting the emission reduction targets for ozone precursor emissions

With emission reduction targets established above, the project proponent should next identify mitigation measures to meet these targets. Although the reduction targets are based on mobile sector emissions, the project may utilize mitigation from *any* sector to meet the targets. Mitigation may include a combination of transportation and/or non-transportation measures to reach the reduction target. This also includes greenhouse gas reduction measures used to comply with a Climate Action Plan (CAP) or the Sac Metro District GHG thresholds if they also reduce ozone precursors.

The project proponent should conduct a third CalEEMod run to estimate ozone precursor emissions associated with the “future with mitigated project cumulative” scenario accounting for implementation of these reduction measures.

⁵ If a project results in lower mobile source emissions from the “future with project cumulative” scenario relative to the “future no project cumulative” scenario due to efficient land use planning, no AQMP is required.

A project is considered to meet its emission reduction targets if both the following equations are true:

NO_x Reduction Target ≤ Future with Project Cumulative NO_x Emissions – Future with Mitigated Project Cumulative NO_x Emissions

ROG Reduction Target ≤ Future with Project Cumulative ROG Emissions – Future with Mitigated Project Cumulative ROG Emissions

ROG and NO_x emissions from all sectors should be considered for this evaluation for both the “future with project cumulative” and “future with mitigated project cumulative” scenarios. For example, if the reduction target is 2.7 tons/year of NO_x and 0.3 tons/year of ROG, the total ozone precursor emissions for the “future with project cumulative” scenario are 20 tons/year of NO_x and 2 tons/year of ROG and the total ozone precursor emissions for the “future with mitigated project cumulative” scenario are 16 tons/year of NO_x and 1.5 tons/year of ROG, the calculations would be as follows:

$$\begin{aligned} 2.7 \frac{\text{tons}}{\text{year}} \text{NO}_x &\leq 20 \frac{\text{tons}}{\text{year}} \text{NO}_x - 16 \frac{\text{tons}}{\text{year}} \text{NO}_x & 0.3 \frac{\text{tons}}{\text{year}} \text{ROG} &\leq 2 \frac{\text{tons}}{\text{year}} \text{ROG} - 1.5 \frac{\text{tons}}{\text{year}} \text{ROG} \\ 2.7 \frac{\text{tons}}{\text{year}} \text{NO}_x &\leq 4 \frac{\text{tons}}{\text{year}} \text{NO}_x = \text{TRUE} & 0.3 \frac{\text{tons}}{\text{year}} \text{ROG} &\leq 0.5 \frac{\text{tons}}{\text{year}} \text{ROG} = \text{TRUE} \end{aligned}$$

If the above statements are true, the mitigated project meets the emissions reduction targets.

NOTE: The above evaluation must consider ALL ozone precursor emissions for the proposed project and proposed mitigated project. In addition, the initial significance determination is based on the emissions of all sectors of the proposed project, not just the mobile sector.

NO_x reduction in place of ROG to meet target

If a project is not able to achieve its AQMP reduction target for ROG, the project may choose to reduce additional NO_x on a ton-for-ton basis instead of ROG. This is because the Sacramento Federal Ozone Non-attainment area is a NO_x-limited regime, where NO_x reductions can be more effective at reducing ozone on a tonnage basis.⁶

For example, if a project’s reduction targets are 10 tons/year of NO_x and 10 tons/year of ROG, the project proponent could reduce 15 tons/year of NO_x and 5 tons/year of ROG to meet the reduction targets. However, the reverse is not true: reducing 5 tons/year of NO_x and 15 tons/year of ROG would still result in a NO_x shortfall of 5 tons/year and would not meet the reduction target.

⁶ Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan, July 24, 2017, Chapter 6, Air Quality Modeling Analysis, page 6-13:
<https://www.airquality.org/ProgramCoordination/Documents/Sac%20Regional%202008%20NAAQS%20Attainment%20and%20RFP%20PIan.pdf>

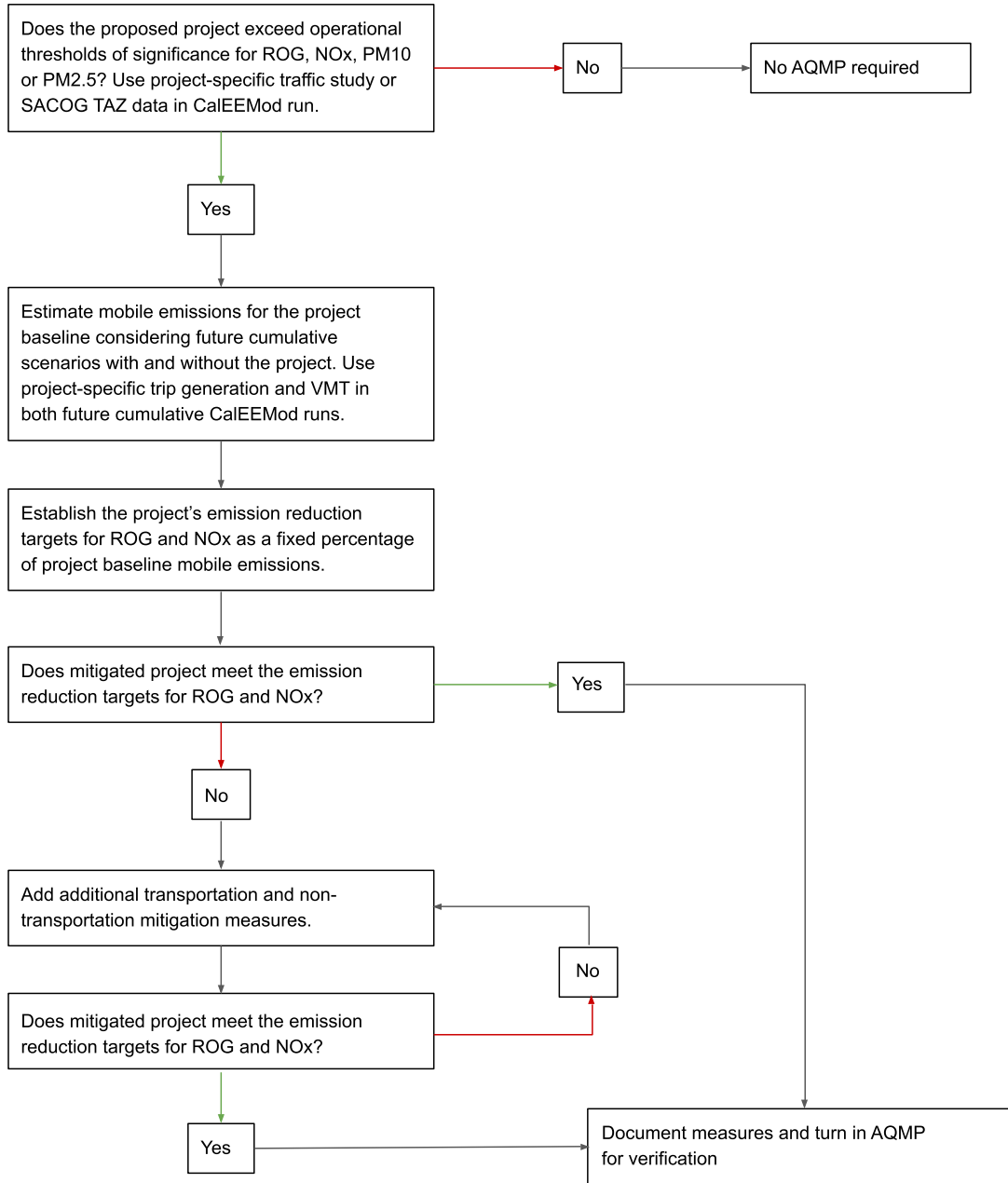
Particulate matter emission reductions

For particulate matter, the project proponent will compare the “future with project cumulative” scenario emissions to the “future with mitigated project cumulative” scenario emissions and document the emission reductions achieved.

Documentation and verification of emission reduction measures

Once the mitigated project meets the ozone precursor reduction targets and the emission reductions are calculated, document the proposed reduction measures providing a narrative demonstrating how each measure will be met, and describing the enforceable mechanisms that will be in place to ensure each measure will be implemented for the life of the project. To assist in documenting, quantifying, and monitoring the mitigation measures selected by the project proponent, the Sac Metro Air District has prescribed that the selected mitigation measures be explained in the context of an AQMP. The AQMP can be a standalone document or incorporated into the environmental document. During the environmental review process, and before certification of the CEQA environmental document by the lead agency, the Sac Metro Air District independently verifies the benefits of the selected measures in the AQMP with a confirmation letter of technical adequacy. The AQMP shall then be referenced in the CEQA document as an air quality mitigation measure, appended to the document, and referenced as a condition of approval by the lead agency.

AQMP Guidance Review Flow Chart



Protocol for Greenhouse Gases

The analysis of project level GHG is covered in Chapter 6 of the Sac Metro Air District's [Guide to Air Quality Assessment in Sacramento County](#), while Chapter 9 provides information on larger plan areas such as specific, community, and general plans.

Jurisdictions with Existing GHG Strategies

Each jurisdiction determines GHG significance for proposed development projects independently. There are a few strategies in use to address GHG emissions within the boundaries of the Sac Metro Air District. Proponents with projects in these jurisdictions should utilize the following strategies when analyzing GHG emissions and determining significance.

- City of Citrus Heights – Climate Action Plan (CAP) with reduction targets and measures.⁷ Note that Citrus Heights' CAP addresses emissions through 2020.
- City of Elk Grove – Climate Action Plan with reduction targets and measures.⁸
- City of Folsom – GHG Reduction Strategy with reduction targets and measures.⁹
- City of Galt – Climate Action Plan with reduction targets and measures.¹⁰
- City of Sacramento - Climate Action Plan with reduction targets and measures.¹¹
- County of Sacramento – Incorporated the Sac Metro Air District's GHG thresholds in its General Plan, Air Quality Element, policy AQ-4.¹²

If a jurisdiction has a numerical threshold, the mitigated project GHG emissions should be reviewed to determine if the project emissions have met the established threshold. If a jurisdiction has an adopted Climate Action Plan or GHG Reduction Strategy, the project environmental document must describe all the reduction measures in the Climate Action Plan or GHG Reduction Strategy that apply to the project and demonstrate how the project will incorporate those reduction measures to show consistency with the Climate Action Plan or GHG Reduction Strategy. If a project cannot tier from, or is not consistent with, an applicable Climate Action Plan or GHG Reduction Strategy, then the project proponent should consult with the jurisdiction to determine if the Sac Metro Air District's GHG thresholds would be an appropriate alternative to evaluate project significance. The Sac Metro Air District provides a [GHG](#)

⁷ Adopted by the City of Citrus Heights on August 11, 2011. Accessible <http://citrusheights.net/203/Greenhouse-Gas-Reduction-Plan>

⁸ Adopted by the City of Elk Grove on March 27, 2013, with an update on February 27, 2019. Accessible <https://www.elkgrovecity.org/city-special-projects/climate-action-plan>

⁹ Adopted by the City of Folsom on August 28, 2018. Appendix A and GHG Reduction Checklist. Accessible <https://www.folsom.ca.us/government/community-development/planning-services/general-plan>

¹⁰ Adopted by the City of Galt on March 3, 2020. CAP Consistency Checklist. Accessible. <https://www.cityofgalt.org/home/showpublisheddocument/32883/637750669487870000>

¹¹ Adopted by the City of Sacramento on February 14, 2012, and revised as part of the General Plan Update March 3, 2015. Appendix B. Accessible <http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035-General-Plan>. NOTE the City of Sacramento is working on a Climate Action Plan update in conjunction with the 2040 General Plan update. Accessible http://www.cityofsacramento.org/Community-Development/Planning/Major-Projects/General-Plan/About-The-Project/Climate_Change

¹² Adopted by the County of Sacramento on December 16, 2020. Accessible <https://planning.sacounty.net/PlansandProjectsIn-Progress/Documents/Air%20Quality%20Element%20-%20Amended%2012-16-20.pdf>

[thresholds/Best Management Practices Applicability](#) flow chart to assist a jurisdiction in determining how to address GHG emissions for CEQA.

Air District GHG Thresholds of Significance

To assist with projects located in jurisdictions without adopted GHG thresholds, GHG Reduction Strategies, and/or Climate Action Plans, the Sac Metro Air District’s Board of Directors adopted the following recommended GHG thresholds¹³.

- Construction phase of a project – 1,100 metric tons CO₂e per year.
- Stationary source project – 10,000 metric tons CO₂e per year direct emissions.
- Operational phase of land development projects – consistency with the 2017 Climate Change Scoping Plan by implementing a series of Best Management Practices or equivalent on-site or off-site measures.

The following guidance only applies to operational emissions and the development of a GHGRP, not construction or stationary source emissions.

Analysis Expectations

For land use jurisdictions without GHG analysis guidance, the Sac Metro Air District recommends disclosing the project’s total annual GHG emissions per the recommendations contained in Chapter 6 of the Sac Metro Air District’s [Guide to Air Quality Assessment in Sacramento County](#). Depending on the size of the project and level of emissions, Sac Metro Air District recommends two tiers of Best Management Practices be applied to the project to demonstrate consistency with the 2017 Climate Change Scoping Plan.

All projects must implement tier 1 Best Management Practices to demonstrate consistency with the Climate Change Scoping Plan. After implementation of tier 1 Best Management Practices, project emissions are compared to the operational land use screening levels table (equivalent to 1,100 metric tons of CO₂e per year). If a project’s operational emissions are less than or equal to 1,100 metric tons of CO₂e per year after implementation of tier 1 Best Management Practices, the project will result in a less than cumulatively considerable contribution and has no further action. Tier 1 Best Management Practices (fully described in [Greenhouse Gas Thresholds for Sacramento County](#)) include:

- BMP 1 – no natural gas: projects shall be designed and constructed without natural gas infrastructure.
- BMP 2 – electric vehicle (EV) ready: projects shall meet the current CalGreen Tier 2 standards, except all EV capable spaces shall be instead EV ready.

Projects that do not implement the tier 1 Best Management Practices must conduct additional calculations to determine excess emissions and provide measures either on-site or off-site to provide equivalent mitigation. These equivalent mitigation measures must be documented in a project specific GHGRP.

If project emissions exceed the land use screening levels table (equivalent to 1,100 metric tons of CO₂e per year) after implementation of tier 1 Best Management Practices, the project is required to

¹³ Adopted on October 23, 2014. Sac Metro Air District’s Board Resolution highlighting the rationale for adoption of the thresholds is accessible <http://www.airquality.org/LandUseTransportation/Documents/2020-009GreenhouseGasThresholdsUpdateBoardResolution4-23-2020.pdf>. An update to the operational thresholds was adopted on April 23, 2020. The justification document for the update is accessible <http://www.airquality.org/LandUseTransportation/Documents/SMAQMDGHGThresholds2020-03-04v2.pdf>.

implement tier 2 Best Management Practices (fully described in [Greenhouse Gas Thresholds for Sacramento County](#)). Tier 2 Best Management Practices consists of BMP 3 – reductions in vehicle miles traveled (VMT) that meet the following requirements (or equivalent local agency’s adopted SB 743 targets):

- Residential projects must achieve a 15% reduction in VMT per resident compared to existing average VMT per capita in the county.
- Office projects must achieve a 15% reduction in VMT per worker compared to existing average VMT per capita for the county.
- Retail projects must achieve no net increase in total VMT.

If the project meets the de minimis criteria for VMT in the Office of Planning and Research’s SB 743 [Technical Advisory on Evaluating Transportation Impacts in CEQA](#), document the qualifying criteria to satisfy the BMP 3 requirement.

Projects that do not meet tier 2 Best Management Practices (BMP 3) are required to implement additional measures to further reduce VMT to achieve the target. Measures selected to further reduce project VMT must be documented in a project specific GHGRP.

Lead agencies and project proponents can also research and develop additional measures, in consultation with the Sac Metro Air District, that have reductions that are both quantifiable and substantiated. Potential alternative measures include use of natural refrigerants, sequestration, installation of vehicle charging stations, solar water heaters (to reduce electricity use), or offsite mitigation, including offsets, if on-site reduction measures are not sufficient to meet reduction targets. Offsite mitigation measures are required to demonstrate with substantial evidence that the project, credit, or registry being used provides GHG offsets that are real, permanent, quantifiable, verifiable, enforceable, and additional. Alternative measures are discussed further in Section 5 of the Sac Metro Air District’s [Greenhouse Gas Thresholds for Sacramento County](#). Check the Handbook and CalEEMod for potential quantification methods.

To assist in documenting, quantifying, and monitoring the mitigation measures selected by the project proponent, the Sac Metro Air District has prescribed that the selected GHG mitigation measures be explained in the context of a project-specific greenhouse gas reduction plan (GHGRP). The GHGRP can be a standalone document or incorporated into the environmental document. During the environmental review process, and before certification of the CEQA environmental document by the lead agency, the Sac Metro Air District independently verifies the benefits of the selected measures in the GHGRP with a letter confirming technical adequacy. The GHGRP shall then be referenced in the CEQA document as a GHG mitigation measure, appended to the document, and referenced as a condition of approval by the lead agency.

Lead agencies should keep in mind California’s climate change goals when disclosing project emissions and determining significance¹⁴. For purposes of evaluating a project’s consistency with the 2045 statewide carbon neutrality goal, a project would need to eliminate natural gas completely (BMP 1) or

¹⁴ [Executive Order S-3-05](#) sets forth the ultimate climate change goal of reducing emissions by 80% below 1990 levels by 2050, [SB32](#) sets forth an interim climate change goal of reducing emissions by 40% below 1990 levels by 2030, and SB100 set the Carbon Neutrality by 2045 goal (<http://www.energy.ca.gov/sb100>)

require all pre-wiring necessary so that the buildings are ready for a future retrofit to all-electric. Additionally, for a project located in an area with relatively high VMT per resident or per worker, the project would need to provide sufficient electrical capacity that 100% of project vehicles have the potential to be zero emission vehicles. These measures should be documented in a project specific GHGRP.

Reviewing Larger Plan Areas

General plans, community plans and specific plans cover large areas of land with development occurring over a longer period (i.e., 20 years) than a single development project. [Chapter 9](#) of the Sac Metro Air District's [Guide to Air Quality Assessment in Sacramento County](#) provides a discussion on how to handle large plan areas and include all feasible mitigation measures into those planning documents. The Handbook and CalEEMod also include measures that are suitable for plan/community projects. A Climate Action Plan or Greenhouse Gas Reduction Strategy is often the preferred mechanism for a General Plan to identify and mitigate GHG emissions.

Reduction Measures

Available reduction measures are included in the [2024 Handbook for Analyzing Greenhouse Gas Emissions Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity](#) (Handbook) and incorporated into CalEEMod. Each reduction measure in the Handbook has a factsheet describing the measure and highlighting important considerations (i.e., reduction potential, cost, implementation requirements) followed by quantification methods. Although the Handbook focuses on GHG reduction measures, co-benefits of many measures include criteria pollutant emission reductions. The CalEEMod User Guide, Appendix C, Table C-11 includes a listing of each reduction measure and the applicable quantified pollutants and co-benefits.

Land use scale and locational context impact the reduction measures available for an emissions analysis in CalEEMod. There are two types of land use scale: project/site and plan/community. Land use scale must be selected in CalEEMod for a project when setting up an analysis. There are three types of locational context: urban, suburban and rural. Locational context is preselected in CalEEMod by the project's location. Handbook factsheets include the applicable land use scale and locational context for each reduction measure.

The transportation chapter of the Handbook provides guidance for selecting measures and combining reductions from measures in each sector and across subsectors as well as emission reduction maximums/caps.

Note that if a Traffic Study is incorporated into a CalEEMod analysis, reduction measures assumed in the traffic study should not also be selected as reduction measures in CalEEMod to ensure reductions are not double counted.

The energy chapter of the Handbook provides guidance for combining reductions from measures.

CalEEMod has been programmed to recognize measures that are not applicable to project land use types and project scales. CalEEMod User Guide Appendix G, Tables G-45 and G-46 provide measure applicability information. A measure can also be exclusive, therefore preventing other measures from being selected, or dependent on other measures that must be selected first.

Summary of Changes to Guidance

Changes made from Version 4.3 to Version 5.0

- Updated Air Quality Mitigation Plan (AQMP) Guidance
- Included discussion about CalEEMod 2022 and changes to baseline data used to calculate vehicle miles traveled.
- Included reference to the 2024 CAPCOA Handbook.
- Included guidance for creating a business as usual project that will be used to set an emissions reduction target and compare to mitigated project emissions.
- Updated links to climate action plans and greenhouse gas reduction strategies.
- Removed listing of measures and direct users to the CAPCOA Handbook and CalEEMod.

Changes made from Version 4.2 to Version 4.3

- Removed guidance allowing conversion of ozone precursors for interpollutant mitigation.
- Updated information regarding Sacramento County's GHG thresholds.

Changes made from Version 4.1 to Version 4.2

- Provided specific information on transportation demand measures a transportation management association could implement to support emissions reductions claimed by a proponent selecting measure TRT 1 & 2.

Changes made from Version 4.0 to Version 4.1

- Incorporated the Sac Metro Air District's newly adopted greenhouse gas land development operational thresholds and best management practices.
- Updated status of Jurisdictions with GHG Strategies section.
- Incorporated gated community requirement for use of SDT-1.

Changes made from Version 3.3 to Version 4.0

- Updated the Setting a Reduction Target for Ozone Precursor Emissions section to utilize annual tons.
- Eliminated the use of NOXe.
- Updated the conversion rate of ozone precursors to be consistent with the most current SIP.
- Removed old CalEEMod screenshots.

- Updated page numbering in the main table of contents and the measures table of contents.
- The pounds per day standard has been annualized to account for seasonal variation in mitigation applicability/efficacy.

Changes made from Version 3.2 to Version 3.3 include the following items:

- Revised the Protocol for Greenhouse Gases section to remove the No Action Taken analysis and 21.7 percent reduction guidance.
- Added a discussion of particulates and AQMP development to the Protocol for Ozone Precursors and Particulates section.
- Added the correct page number reference on page 35 to BE-1 in the off-model measures section.
- Revised the VOC ratio to NOx formula, which is now seven to one.
- Removed specific references to SMUD renewable energy programs in AE-1.

Changes made from Version 3.1 to Version 3.2 include the following items:

- Clarification was made to set the reduction target from the mobile sector emission.
- AE-1 amended to allow for participation in renewable energy programs.
- BE-1 added as off-model measure.
- Added Prerequisites, removed meta-measures.
- The Sac Metro Air District's GHG Thresholds and the City of Citrus Height's Climate Action Plan were added.

Changes made from Version 3.0 to Version 3.1 include the following items:

- Revised the Protocol for Greenhouse Gases section to reflect the most current thresholds available and adopted climate action plans in the Sac Metro Air District.
- Altered off-model measure numbering.
- Added TS - Traffic Study meta-measure.
- Updated title page, table of contents and footers to reflect the new version and date.
- Created the Summary of Changes section to document changes made in the Guidance from one version to the next.