

October 2024 | Final Environmental Impact Report
State Clearinghouse No. 2023090467

CONTRA COSTA COUNTY 2045 GENERAL PLAN AND CLIMATE ACTION PLAN FINAL EIR

Prepared for:

Contra Costa County

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1. Introduction

1.1 INTRODUCTION

This Final Environmental Impact Report (FEIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) as amended (Public Resources Code §§ 21000 et seq.), the State CEQA Guidelines (California Code of Regulations §§ 15000 et seq.), and the Contra Costa County CEQA Guidelines.

According to the CEQA Guidelines, Section 15132, the FEIR shall consist of:

- (a) The Draft Environmental Impact Report (DEIR) or a revision of the DEIR;
- (b) Comments and recommendations received on the DEIR either verbatim or in summary;
- (c) A list of persons, organizations, and public agencies comments on the DEIR;
- (d) The responses of the Lead Agency to significant environmental points raised in the review and consultation process; and
- (e) Any other information added by the Lead Agency.

This document contains responses to comments received on the DEIR for the Contra Costa County 2045 General Plan (proposed General Plan Update) and 2024 Climate Action Plan (CAP) during the public review period, which began February 9, 2024, and closed April 8, 2024. This document represents the independent judgment of Contra Costa County, the Lead Agency. This document and the circulated DEIR comprise the FEIR, in accordance with CEQA Guidelines, Section 15132.

1.2 FORMAT OF THE FEIR

This document is organized as follows:

Section 1, Introduction. This section describes CEQA requirements and content of this FEIR.

Section 2, Response to Comments. This section provides a list of agencies and interested persons commenting on the DEIR, copies of comment letters received during the public review period, and individual responses to written comments. This section also includes responses to verbal comments received at a public hearing held by the County Zoning Administrator on March 18, 2024, regarding the DEIR. To facilitate review of the responses, agency comment letters are labeled with a letter, and public comments are labeled with a number. Within each comment letter, individual comments have been numbered, and the comment letter is followed by responses with references to the corresponding comment number.

Section 2.1, Master Responses. Several commenters raised similar issues; rather than responding individually, Master Responses have been developed to address the comments comprehensively. A reference to the Master Response is provided, where relevant, in responses to individual comments.

1. Introduction

Section 3, Revisions to the DEIR. This section contains revisions to the DEIR text and figures resulting from comments received by agencies and interested persons as described in Section 2, and/or errors and omissions discovered subsequent to release of the DEIR for public review.

The responses to comments contain material and revisions that will be added to the text of the FEIR. Contra Costa County staff has reviewed this material and determined that none of this material constitutes the type of significant new information that requires recirculation of the DEIR for further public comment under CEQA Guidelines Section 15088.5. None of this new material indicates that the project will result in a significant new environmental impact not previously disclosed in the DEIR. Additionally, none of this material indicates that there would be a substantial increase in the severity of a previously identified environmental impact that will not be mitigated, or that there would be any of the other circumstances requiring recirculation described in Section 15088.5.

1.3 CEQA REQUIREMENTS REGARDING COMMENTS AND RESPONSES

CEQA Guidelines Section 15204(a) outlines parameters for submitting comments on DEIRs and reminds persons and public agencies that the focus of review and comment of DEIRs should be “on the sufficiency of the document in identifying and analyzing possible impacts on the environment and ways in which significant effects of the project might be avoided or mitigated. Comments are most helpful when they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate the significant environmental effects. At the same time, reviewers should be aware that the adequacy of an EIR is determined in terms of what is reasonably feasible. ...CEQA does not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commenters. When responding to comments, lead agencies need only respond to significant environmental issues and do not need to provide all information requested by reviewers, as long as a good faith effort at full disclosure is made in the EIR.”

CEQA Guidelines Section 15204(c) further advises, “Reviewers should explain the basis for their comments, and should submit data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts in support of the comments. Pursuant to Section 15064, an effect shall not be considered significant in the absence of substantial evidence.” Section 15204(d) also states, “Each responsible agency and trustee agency shall focus its comments on environmental information germane to that agency’s statutory responsibility.” Section 15204(e) states, “This section shall not be used to restrict the ability of reviewers to comment on the general adequacy of a document or of the lead agency to reject comments not focused as recommended by this section.”

In accordance with CEQA, Public Resources Code Section 21092.5, copies of the written responses to public agencies will be forwarded to those agencies at least 10 days prior to certifying the EIR. The responses will be forwarded with copies of this FEIR, as permitted by CEQA, and will conform to the legal standards established for response to comments on DEIRs.

2. Response to Comments

Section 15088 of the CEQA Guidelines requires the Lead Agency (Contra Costa County) to evaluate comments on environmental issues received from public agencies and interested parties who reviewed the DEIR and prepare written responses.

This section provides all comments received on the DEIR and Contra Costa County's responses to each comment. When multiple commenters raised similar issues, rather than responding individually, the County prepared Master Responses to address the comments comprehensively.

Comment letters and specific comments are given letters and numbers for reference purposes. Where sections of the DEIR are excerpted in this document, the sections are shown indented. Changes to the DEIR text resulting from comments received are shown in Section 3.2, *DEIR Revisions in Response to Written Comments*, of this FEIR.

The following is a list of agencies and persons that submitted comments on the DEIR during the public review period and one received after the public review period.

| Number Reference | Commenting Person/Agency | Date of Comment | Page No. |
|---|---|-----------------|----------|
| Agencies & Organizations | | | |
| A | East Bay Municipal Utility District | March 13, 2024 | 2-3 |
| B | Department of Toxic Substances Control | March 22, 2024 | 2-27 |
| C | Delta Stewardship Council | April 4, 2024 | 2-33 |
| D | Alameda County Water District | April 4, 2024 | 2-45 |
| E | Contra Costa Building and Construction Trades Council | April 5, 2024 | 2-51 |
| F | East Bay Leadership Council | April 5, 2024 | 2-55 |
| G | California Department of Transportation, Aeronautics Division | April 8, 2024 | 2-59 |
| H | California Department of Transportation, District 4 Office of Community and Regional Planning | April 8, 2024 | 2-65 |
| I | City of Lafayette | April 8, 2024 | 2-71 |
| J | Communities for a Better Environment and Asian Pacific Environmental Network | April 8, 2024 | 2-75 |
| K | Contra Costa Water District | April 8, 2024 | 2-91 |
| L | Committee for Industrial Safety | April 8, 2024 | 2-103 |
| M | Delta Protection Commission | April 8, 2024 | 2-111 |
| Residents | | | |
| 1 | Jan Callaghan | March 18, 2024 | 2-135 |
| Comments Received After Close of the Public Review Period | | | |
| N | Committee for Industrial Safety | April 22, 2024 | 2-139 |

2. Response to Comments

2.1 MASTER RESPONSE 1

The lead agency's obligations related to responses to comments are described in CEQA Guidelines Section 15088, Evaluation of and Response to Comments. Responses to comments have been prepared consistent with the requirements set forth under CEQA Guidelines Section 15088. No additional response is needed if the comment does not raise a significant environmental issue (CEQA Guidelines Section 15088[a]). Lead agencies need only respond to significant environmental issues and do not need to provide all information requested by reviewers, as long as a good faith effort at full disclosure is made in the EIR (CEQA Guidelines Section 15088[c]).

The key purpose of reviewing and commenting on a DEIR includes sharing expertise, disclosing agency analyses, checking for accuracy, detecting omissions, discovering public concerns, and soliciting counter proposals. CEQA Guidelines Section 15204, Focus of Review, in part states:

- a) In reviewing draft EIRs, persons and public agencies should focus on the sufficiency of the document in identifying and analyzing the possible impacts of the environment and the ways in which the significant effects of the project might be avoided or mitigated...CEQA does not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commenters. When responding to comments, lead agencies need only respond to significant environmental issues and do not need to provide all information requested by reviewers, as long as a good faith effort at full disclosure is made in the EIR.
- c) Reviewers should explain the basis for their comments, and should submit data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts in support of the comments. Pursuant to Section 15064, an effect shall not be considered significant in the absence of substantial evidence.

Comments that are the focus of this Master Response do not identify significant environmental issues related to the analysis in the DEIR or do not provide documentation in support of the comments; therefore, no response is required. However, the comments are part of the public record and will be forwarded to the County Planning Commission and Board of Supervisors prior to the public hearings on the project.

2. Response to Comments

LETTER A – East Bay Municipal Utility District (19 pages)



March 13, 2024

Will Nelson, Principal Planner
Contra Costa County
Department of Conservation and Development
30 Muir Road
Martinez, CA 94553

Re: Notice of Availability of a Draft Environmental Impact Report – Contra Costa County
2045 General Plan and Climate Action Plan 2024 Updates

Dear Mr. Nelson:

East Bay Municipal Utility District (EBMUD) appreciates the opportunity to comment on the Draft Environmental Impact Report (EIR) for the Contra Costa County 2045 General Plan and Climate Action Plan 2024 Updates located in Contra Costa County (County). EBMUD provided comments on the Notice of Preparation of the Draft EIR for the project on October 16, 2023. EBMUD's original comments (see enclosure) still apply regarding water service, Mokelumne Aqueducts, water recycling, and water conservation.

If you have any questions concerning this response, please contact Timothy R. McGowan, Senior Civil Engineer, Major Facilities Planning Section at (510) 287-1981.

Sincerely,

A handwritten signature in blue ink that reads 'David J. Rehnstrom'.

David J. Rehnstrom
Manager of Water Distribution Planning

DJR:AT:djr

wdpd24_027_Contra Costa County 2045 General Plan and Contra Costa County Climate Action Plan 2024.doc

Attachment: EBMUD's October 16, 2023 comment letter

A-1

October 16, 2023

Will Nelson, Principal Planner
Contra Costa County
Department of Conservation and Development
30 Muir Road
Martinez, CA 94553

Re: Notice of Preparation for the Contra Costa County 2045 General Plan and Climate Action Plan Environment Impact Report and Notice of Public Scoping Meeting

Dear Mr. Nelson:

East Bay Municipal Utility District (EBMUD) appreciates the opportunity to comment on the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the Contra Costa County 2045 General Plan and Climate Action Plan located in the Contra Costa County (County). EBMUD has the following comments.

WATER SERVICE

Effective January 1, 2018, water service for new multiunit structures shall be individually metered or sub-metered in compliance with Section 537 of California's Water Code & Section 1954.201-219 of California's Civil Code, which encourages conservation of water in multifamily residential and mixed-use multi-family and commercial buildings by requiring metering infrastructure for each dwelling unit, including appropriate water billing safeguards for both tenants and landlords. EBMUD water services shall be conditioned for all development projects within the General Plan area that are subject to these metering requirements and will be released only after the project sponsor has satisfied all requirements and provided evidence of conformance with Section 537 of California's Water Code & Section 1954.201-2019 of California's Civil Code.

A-2

Main extensions that may be required to serve any specific developments within the General Plan area to provide adequate domestic water supply, fire flows, and system redundancy will be at the project sponsor's expense. Please see the attached EBMUD documents for California (Waterworks Standards) Code of Regulations, Title 22, Section 64572 (Water Main Separation) and EBMUD requirements for placement of water mains (Attachment 1). Pipeline and fire hydrant relocations and replacements due to modifications of existing streets, and off-site pipeline improvements, also at the project sponsor's expense, may be required depending on EBMUD metering requirements and fire flow requirements set by the local fire department. When the development plans are finalized for individual projects within the General Plan, project sponsors for individual projects should contact EBMUD's New Business Office and request a water service

A-3

estimate to determine costs and conditions of providing water service to the development. Engineering and installation of new and relocated pipelines and services require substantial lead time, which should be provided for in the project sponsor's development schedule.

A-3

EBMUD's Standard Site Assessment Report indicate the potential for contaminated soils or groundwater to be present within development projects within the General Plan area. The project sponsor should be aware that EBMUD will not install piping or services in contaminated soil or groundwater (if groundwater is present at any time during the year at the depth piping is to be installed) that must be handled as a hazardous waste or that may be hazardous to the health and safety of construction and maintenance personnel wearing Level D personal protective equipment. Nor will EBMUD install piping or services in areas where groundwater contaminant concentrations exceed specified limits for discharge to the sanitary sewer system and sewage treatment plants. The project sponsor must submit copies to EBMUD of all known information regarding soil and groundwater quality within or adjacent to the project boundary and a legally sufficient, complete and specific written remediation plan establishing the methodology, planning and design of all necessary systems for the removal, treatment, and disposal of contaminated soil and groundwater.

A-4

EBMUD will not design piping or services until soil and groundwater quality data and remediation plans have been received and reviewed and will not start underground work until remediation has been carried out and documentation of the effectiveness of the remediation has been received and reviewed. If no soil or groundwater quality data exists, or the information supplied by the project sponsor is insufficient, EBMUD may require the project sponsor to perform sampling and analysis to characterize the soil and groundwater that may be encountered during excavation, or EBMUD may perform such sampling and analysis at the project sponsor's expense. If evidence of contamination is discovered during EBMUD work on the project site, work may be suspended until such contamination is adequately characterized and remediated to EBMUD standards.

MOKEKUMNE AQUEDUCTS

EBMUD's Mokelumne Aqueducts (Aqueduct) right-of-way (owned in fee) is located within portions of the County (see Attachment 2 - Map of EBMUD Aqueducts within Contra Costa County). Any projects being planned within or immediately adjacent to EBMUD property will need to follow EBMUD's Procedure 718 – Raw Water Aqueduct Right-of-Way Non-Aqueduct Uses. A copy of the procedure is attached for your reference (see Attachment 3).

A-5

Design drawings for any project encroachment (roadway, utility, facility, etc.) or restoration projects crossing or within the Aqueduct right-of-way will need to be submitted to EBMUD for review of possible drainage, site grading, fencing, construction access, and other conditions that may impact EBMUD property. EBMUD requires a full set of drawings (full size or 11" x 17") as well as an electronic copy in PDF format. All submittals shall be sent to the attention of Vincent H. Pon, P.E., Superintendent of

A-6

Aqueduct Section, 1804 West Main Street, Stockton, CA 95203. Additional information and an encroachment package are included in EBMUD's Procedure 718. Applications for non-EBMUD uses will not be processed unless accompanied by the appropriate application fees outlined in the current applicable Water and Wastewater System Schedule of Rates and Charges and Fees. Contractors must secure an encroachment permit from EBMUD Aqueduct Section prior to mobilizing and starting construction work. A pre-construction meeting with EBMUD is mandatory.

A-6

When a project involves the construction of a retaining wall and fence along EBMUD property line; these must be constructed completely outside of EBMUD property, including all footings. The project sponsor shall contact EBMUD's Survey Section to coordinate identifying, locating and marking correct property lines.

A-7

WATER RECYCLING

EBMUD's Policy 9.05 requires that customers use non-potable water, including recycled water, for non-domestic purposes when it is of adequate quality and quantity, available at reasonable cost, not detrimental to public health and not injurious to plant, fish and wildlife to offset demand on EBMUD's limited potable water supply.

A-8

The County's boundaries include the City of San Ramon and Town of Danville that fall within and around the service area of the Dublin San Ramon Services District - EBMUD Recycled Water Authority (DERWA) and EBMUD's San Ramon Valley's Recycled Water Project transmission and distribution pipeline infrastructure. New projects and developments present several opportunities for recycled water uses ranging from landscape irrigation, toilet flushing, cooling, and other non-potable commercial and industrial applications that can be served by existing or expanded recycled water pipelines in the future. In 2019, DERWA and the participating agencies implemented a moratorium on new recycled water connections in San Ramon and Danville pending securing additional wastewater sources that can be utilized to expand the treatment and service of recycled water within the San Ramon Valley Region. Therefore, as EBMUD advances plans and implements its recycled water supply expansion in that region, EBMUD requests the County and their developers coordinate closely with EBMUD and consider potential recycled water uses during the planning of the various General Plan components to further explore the options and requirements relating to recycled water use. Accordingly, EBMUD will assess and consider the feasibility of providing recycled water to specific project areas for appropriate uses.

A-9

A-10

WATER CONSERVATION

Individual projects within the General Plan area presents an opportunity to incorporate water conservation measures. EBMUD requests that the County include in its conditions of approval a requirement that the project sponsor comply with Assembly Bill 325, "Model Water Efficient Landscape Ordinance," (Division 2, Title 23, California Code of

A-11

Regulations, Chapter 2.7, Sections 490 through 495). The project sponsor should be aware that Section 31 of EBMUD's Water Service Regulations requires that water service shall not be furnished for new or expanded service unless all the applicable water-efficiency measures described in the regulation are installed at the project sponsor's expense. If you have any questions concerning this response, please contact Timothy R. McGowan, Senior Civil Engineer, Major Facilities Planning Section at (510) 287-1981.

Sincerely,



David J. Rehnstrom
Manager of Water Distribution Planning

DJR:EZ:djr

wdpd23_227 Contra Costa County 2045 General Plan and Climate Action Plan.doc

- Attachments:
1. Applicant Pipeline Design Criteria
 2. Map of Mokelumne Aqueducts
 3. EBMUD Procedure 718 – Authorized Uses of Pipeline Rights-of-Way



Applicant Pipeline Design Criteria

EBMUD values applicant pipeline projects and is committed to providing a thorough and efficient design. To ensure an efficient design process and to avoid significant delays the design criteria below should be adhered to when submitting improvement plans.

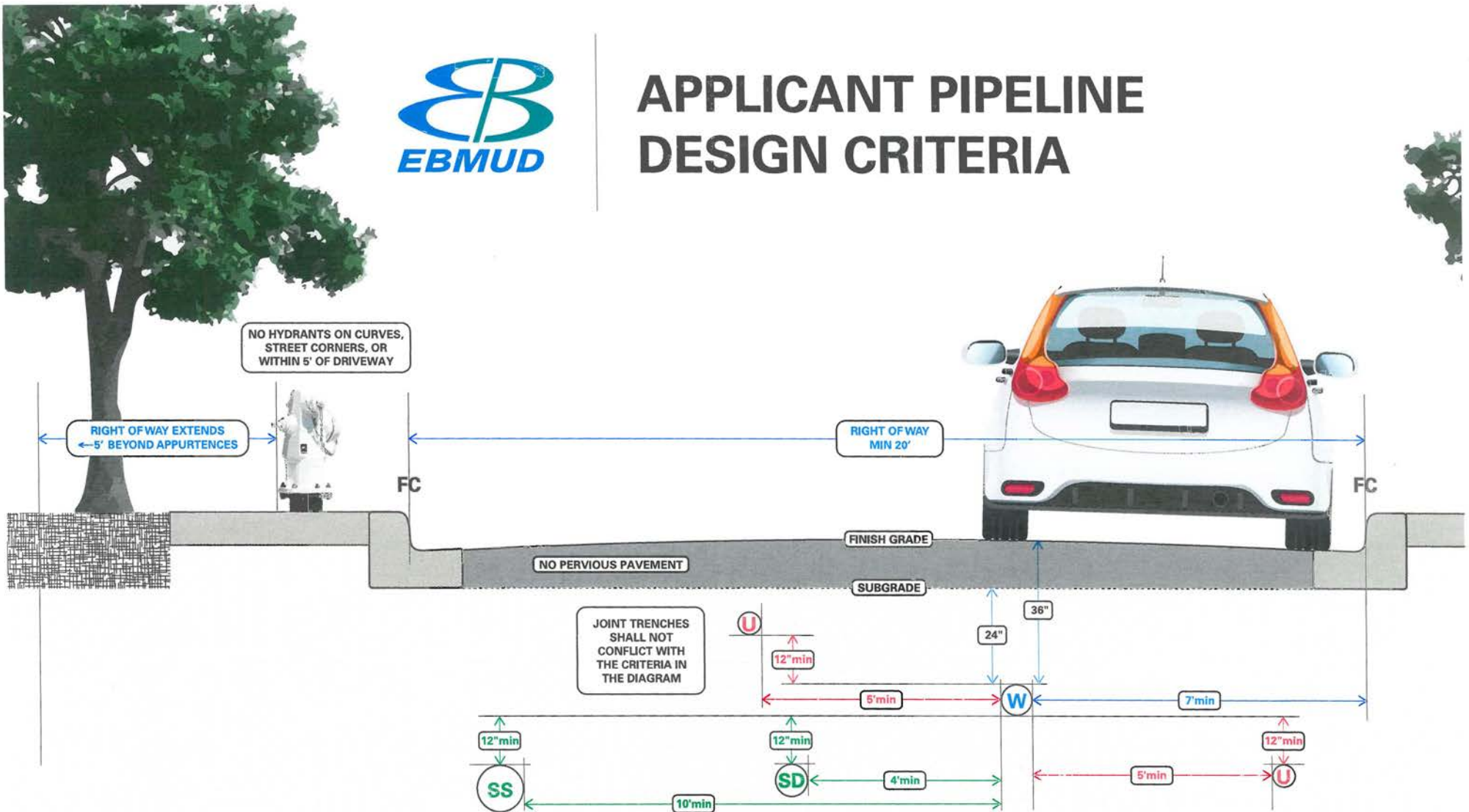
Design Criteria

- Water mains shall be seven (7) feet from face of curb.
- Water mains shall maintain a minimum one (1) foot vertical and five (5) foot horizontal clearance from other utilities.
- Gas mains shall meet the one (1) foot vertical separation requirement by installing the gas main below the water main only.
- Water mains shall maintain a minimum ten (10) foot horizontal clearance (O.D. to O.D.) and be located a minimum one (1) foot above any sewer main. Title 22 CCR
- Water mains shall maintain a minimum four (4) feet horizontal clearance (O.D. to O.D.) and be located a minimum one (1) foot above any storm drain. Title 22 CCR
- Water mains shall have a 36-inch cover to final grade and 24-inch cover to pavement subgrade.
- Joint trenches that are in conflict with the criteria above may delay the project. Submit to EBMUD final joint trench plans (no intent plans) which include the size of the joint trench and the utilities located inside.
- Water mains shall not be installed under pervious pavement.
- Water mains installed under decorative pavement, pavers, or stamped concrete will require an additional paving agreement.
- Hydrants shall not be located on curved sections of street, street corners, or within five feet of a driveway.
- Right of ways for 6-inch and 8-inch water mains shall be a minimum of 20 feet wide and extend five (5) feet past the water main centerline.
- Right of ways for 12-inch to 24-inch water mains shall be a minimum of 20 feet wide and extend eight (8) feet past the water main centerline.

Please contact the New Business Office representative assigned to your project if there are any questions regarding the requirements listed above. Meeting this criteria will enable the most efficient design possible.



APPLICANT PIPELINE DESIGN CRITERIA



W = WATER

24" cover to subgrade
36" cover to final grade
7' inset from face of curb

U = UTILITY

min 12" vertical clearance
min 5' horizontal clearance

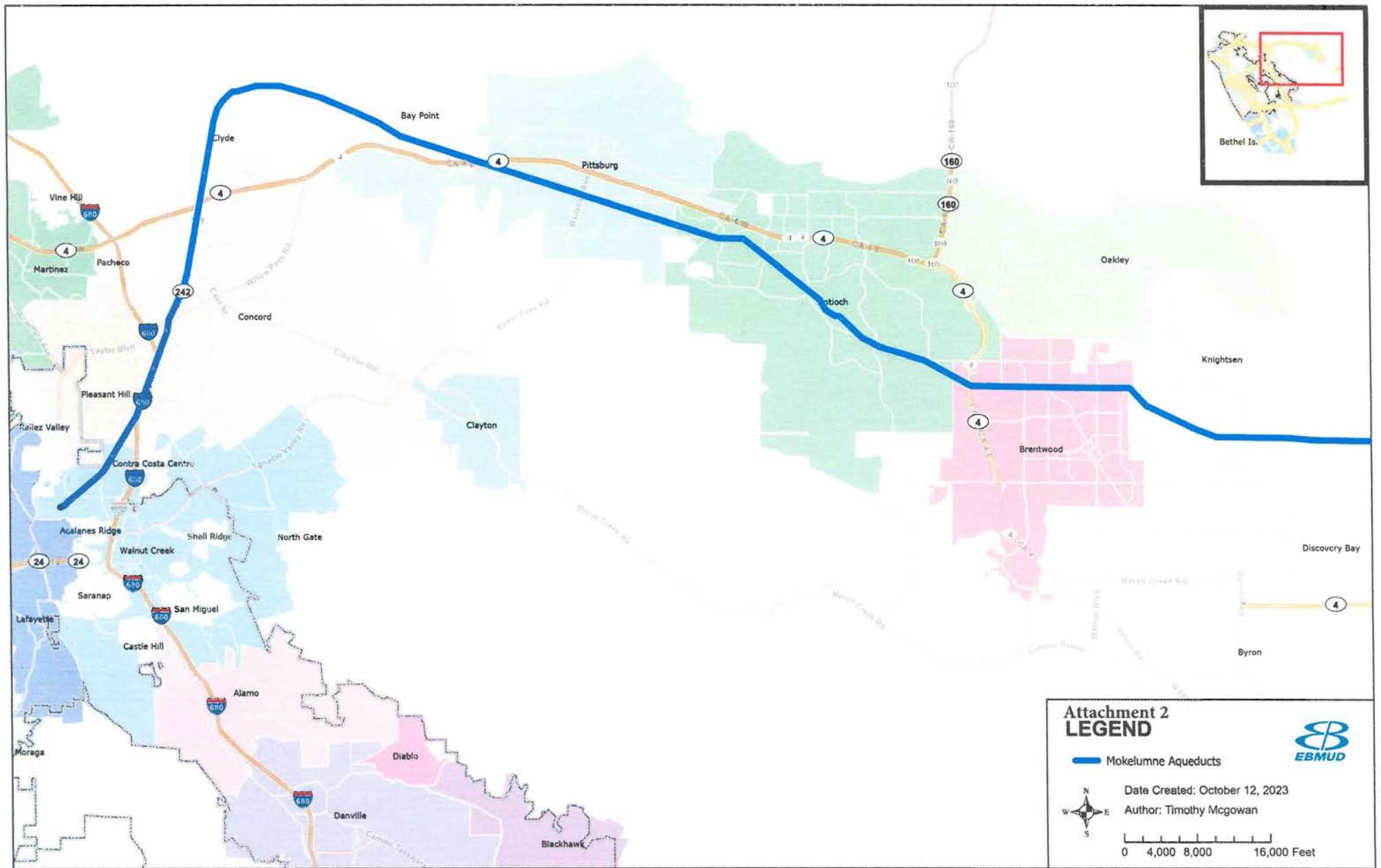
SS = SANITARY SEWER

min 12" below water
min 10' horizontal clearance

SD = STORM DRAIN

min 12" below water
min 4' horizontal clearance

FC= FACE OF CURB





Attachment 3 Procedure 718

EFFECTIVE 08 JUL 20

SUPERSEDES 25 MAY 17

LEAD DEPARTMENT O&M

AUTHORIZED USES OF PIPELINE RIGHTS-OF-WAY

PURPOSE – To establish procedures and criteria for review and authorization of overhead, surface, and sub-surface use of District-owned and easement established property containing raw and distribution water aqueducts and pipelines (“pipelines”) for purposes other than installation, maintenance, and operation of District pipelines.

| | | |
|------------|------|--|
| Forms Used | L-14 | Limited Land Use Permit |
| | K-47 | Work Request Agreement |
| | N-15 | Certificate of Public Liability Insurance |
| | N-17 | Certificate of Workers' Compensation Insurance |
| | | Application for Use of EBMUD Property or Request for Information |
| | | General Fund Receipts for Miscellaneous Payments |

Authority and Responsibility

Use, development, and control of fee-owned and easement established rights-of-way for District and non-District uses must be consistent with the District's operations, maintenance, security, and the rights and obligations of the District. District and non-District uses of District-owned pipeline rights-of-way may be permitted, at the District's sole discretion, only if the uses conform to Policy 7.01, Aqueduct and Distribution Pipeline Rights-of-Way Maintenance and the requirements of this Procedure.

- No use of District pipeline rights of way or property by others will be permitted as a condition to meet city/county zoning requirements or to obtain any land use permit, approval, or entitlement affecting properties not owned by the District.
- No use of District properties by others will be permitted except under terms of a written agreement.
- Use of pipeline rights-of-way for District purposes shall have the concurrence of the Director of Operations and Maintenance and shall include all applicable protections required for similar third-party use.
- The Board of Directors has exclusive authority to approve any proposed right-of-way use requiring the adoption and implementation of one or more mitigation measures to minimize potentially significant environmental impacts.
- The decision whether to authorize any party other than the District to use District-owned property containing pipelines for any non-District purpose is a legislative act undertaken at the sole discretion of District staff. No notice or hearing is required to consider an application for use of such property, and staff's decision is not subject to appeal.

Acceptable long-term uses of the pipeline rights-of-way include but are not necessarily limited to: utility crossings, road crossings, limited agriculture, equestrian and pedestrian trails, parks, oil and gas leases, and District-owned ground water wells. Acceptable long-term uses of rights-of-way and easements for future pipelines will be evaluated upon facility completion. Such uses will be authorized in writing. All approved uses will conform to the requirements and limitations described in the attached EBMUD Requirements for Entry or Use of Pipeline Rights-of-Way (Requirements for Entry or Use) and all other conditions as specified in the written approval.

The Water Supply Division and the Water Treatment and Distribution Division are each primarily responsible to implement this Procedure with respect to proposed uses of rights-of-way containing a facility “owned” by that Division. Facility “ownership” for this purpose is determined based on which Division has “Overall Responsibility” for the facility according to Table 1 of Procedure 706 – Facilities: Inspection, Maintenance and Repair. Wherever this Procedure allocates responsibility to both Divisions in the

alternative, the responsibility shall rest with the Division which owns the facility within the right-of-way which is proposed to be used.

The Water Supply or the Water Treatment and Distribution Divisions are responsible for monitoring permitted uses and detecting and preventing unauthorized uses of pipeline rights-of-way, respectively.

The Office of General Counsel and the Manager of Real Estate Services will be consulted when an unauthorized user will not voluntarily desist.

The Water Supply or the Water Treatment and Distribution Divisions are responsible for coordinating the development of recommendations with respect to the terms and conditions to be stipulated when a District or non-District use of a pipeline right-of-way is to be permitted.

The Director of Engineering and Construction shall be consulted as necessary to provide location analysis or to determine what structural, grading, drainage, corrosion protection or other engineering measures are required and to obtain estimates of engineering, design and inspection costs.

Inquiries and Applications for Use

Applications and inquiries for use of pipeline rights-of-way shall be processed by the Water Operations Department. Applications for non-District uses will not be processed unless accompanied by the appropriate application fees specified in the District's "Water and Wastewater System Schedules of Rates and Charges, Capacity Charges, and Other Fees".

The **Water Operations Department** is responsible for:

- Providing requirements for use of the District's pipeline rights-of-way to applicants requesting use of the right-of-way. See the attached Requirements for Entry or Use.
- Providing requirements to applicants for proposed work located adjacent to the District's pipeline rights-of-way which has the potential to impact the District's pipelines (e.g., proposed excavations that may include use of tiebacks that could result in a vertical encroachment and/or excavations that have the potential for ground movements that could damage District pipelines).
- Checking for completeness of any permit (e.g., Encroachment Permit Application) to ensure compliance with the requirements for entry or use of pipeline rights-of-way contained in Requirements for Entry or Use plus any other conditions applicable to the proposed use.
- Collecting engineering, plan review and construction inspection costs and documentation of insurance coverage, if necessary.
- Monitoring existing encroachments and inspection of the construction of new approved encroachments.
- Providing information to the Engineering and Construction Department for technical input regarding additional permit requirements or special restrictions that may be applicable (in addition to those outlined in the Requirements for Entry or Use).
- Assuring proper environmental documentation for proposed uses through consultation with the Water Distribution Planning Division, when appropriate. Policy 7.01, Aqueduct and Distribution Pipeline Rights-of-Way Maintenance, requires the District to ensure that any construction impacts from third-party use of District rights of way are mitigated to the level of "no significant impact."

Real Estate Services is responsible for:

- Advising the Manager of Water Supply or the Manager of Water Treatment and Distribution of any real estate matters which relate to a specific proposed use.
 - Collecting application fees and charges, preparing and executing limited land use permits, leases, easements, and all other property-related agreements (except for revocable licenses and temporary entry permits) and recommending fees and charges appropriate to the property use allowed, and for securing payment. See the current applicable Water and Wastewater System Schedule of Rates and Charges and Fees.
 - Maintaining records relating to rights-of-way crossings and use, and providing information to the Engineering and Construction Department for the update of District pipeline drawings.
-

**Types of Permit
License or
Easement**

The Manager of Water Supply or Manager of Water Treatment and Distribution shall keep available the forms listing the general requirements set forth in Requirements for Entry or Use for each of the following:

Temporary Entry/Temporary Construction Permit

For temporary access to pipeline rights-of-way such as for surveying, potholing, construction, for temporary access via the District's right-of-way to property adjacent to the right-of-way, and other similar short-term situations.

Revocable License and Revocable Landscape License

For pipelines, sewers, storm drains, overhead and underground cables, public trails, landscaping and other crossings or lateral encroachments.

Limited Land Use Permit

Provides for agricultural or other surface use of the right-of-way for a period not to exceed one year (vehicular parking is prohibited). These permits are renewable annually if inspection reveals satisfactory conformance to conditions of permit.

Easement

For streets, highways, large pipelines, canals and railroads, and other permanent publicly-owned encroachments. Easements are officially recorded with the county having jurisdiction. The consideration for the easement (e.g., fee) will be based on the value of the property being encumbered.

The Manager of Water Supply or Manager of Water Treatment and Distribution shall request review of any proposed revisions to application forms and lists of requirements from the Engineering and Construction Department, Real Estate Services Division, Office of General Counsel, and the District's Pipe Committee.

**Processing
Applications**

Temporary Entry Permits

The Manager of Water Supply or Manager of Water Treatment and Distribution may issue temporary entry and construction permits including imposing standard and temporary conditions relating to the use. The Manager of Real Estate Services and the Office of General Counsel will be consulted regarding unusual circumstances.

Revocable Licenses

The Manager of Water Supply or Manager of Water Treatment and Distribution, if warranted, shall conduct a field investigation to determine pipeline protection requirements and in consultation with the Design Division or the Pipeline Infrastructure Division, will set forth the engineering and operating requirements.

The Manager of Water Supply or Manager of Water Treatment and Distribution, shall then specify any and all requirements, including special conditions to the applicant, and discuss the terms and conditions of the license agreement as well as any processing, design and inspection costs and license fee. The Manager of Water Supply or Manager of Water Treatment and Distribution may then enter into a standard license agreement with relevant special conditions on behalf of the District. The Manager of Real Estate Services and the Office of General Counsel shall be consulted regarding any unusual circumstances.

Copies of all revocable licenses issued by the Water Supply Division or the Water Treatment and Distribution Division shall be provided to the Manager of Real Estate Services.

Limited Land Use Permits

The Manager of Water Supply or Manager of Water Treatment and Distribution, shall convey the District's requirements to the applicant and investigate to determine any special conditions.

Real Estate Services shall prepare the Limited Land Use Permit (Form L-14) in duplicate, including special conditions or stipulations, accompanied by a District-prepared location sketch that will refer to pipeline stationing and other appropriate location identifiers, including adjacent pipeline structures.

Engineering and Construction Department shall prepare the location sketch.

After payment of the stipulated consideration determined by Real Estate Services, the Manager of Water Supply or Manager of Water Treatment and Distribution shall review and execute the permit. These copies are then returned to the Manager of Real Estate Services, together with any stipulated consideration.

Forty-five days before expiration of a Limited Land Use Permit, the Manager of Real Estate Services shall notify the Manager of Water Supply or Manager of Water Treatment and Distribution, who shall investigate the permittee's operations. If renewal of the permit is recommended, the permit will be renewed by letter from the Manager of Real Estate Services.

Leases and Easements

The Water Supply or Water Treatment and Distribution Divisions shall conduct a field investigation to determine requirements for pipeline protection and, in consultation with the Design Division or Pipeline Infrastructure Division, if necessary, will set forth the engineering and operating requirements.

If structural or corrosion protective facilities are required, the Manager of Water Supply or Manager of Water Treatment and Distribution shall request the Manager of Design Division or Pipeline Infrastructure Division to proceed with the required design or plan reviews. (During design, the designer will communicate with the applicant's engineer.) Upon completion of design, the plans will be delivered to the applicant via the Manager of Water Supply or Manager of Water Treatment and Distribution, who will arrange for inspection as required.

The Manager of Real Estate Services shall discuss with the applicant the terms of the agreement and the amount of the consideration, including any processing, design, and inspection costs. Real Estate Services shall obtain an appraisal and engineering estimates, if necessary.

Upon agreement with the applicant, the Manager of Real Estate Services, shall draft, for review and approval by the Manager of Water Supply Division or the Manager of Water Treatment and Distribution Division and Office of General Counsel, an agreement granting the applicant the property interest under the terms and for the consideration as approved. Real Estate Services shall assure that evidence of insurance is provided, if required. The lease or easement shall be submitted to the District's Board of Directors for approval, if required by Procedure 108, Real Estate Transactions. Two copies of the lease or easement shall be sent to the applicant with instructions to sign and return the copies, together with the consideration, to the Manager of Real Estate Services. Easements shall be recorded and the applicant shall provide the Manager of Real Estate Services with the recording data.

Approvals

District and non-District uses of pipeline right-of-ways shall be confirmed in writing, listing any special conditions which may apply to the proposed use to the requesting District departments or third parties by the Manager of Water Supply or Manager of Water Treatment and Distribution.

Terminations

Any third-party use of the District's pipeline property may be terminated at the District's sole discretion, so long as the termination is authorized by and done in a manner compliant with the terms and conditions of the permit, license, or lease that governs the use. If the Water Supply Division or the Water Treatment and Distribution Division terminates any permit or license, the Manager of Real Estate Services and the Design Division shall be so notified by memo. The Office of General Counsel may be consulted before undertaking a termination which may affect the District's legal interests.

Terms and Conditions

The final determination of generally applicable terms and conditions appropriate for District uses of pipeline properties rests with the Director of Operations and Maintenance.

A specific third party applicant for use of pipeline property may be required, as a condition of approval of the application, to comply with the generally applicable terms and conditions, or with different or additional terms and conditions that are determined to be in the District's best interest. The decision to approve or deny an application, and the selection of terms and conditions of any approval, shall rest with the Director of Operations and Maintenance. There is no right to an administrative appeal or hearing, and the decision of the Director or designee is final.

Records

The Manager of Real Estate Services shall maintain a file containing copies of all documents relating to right-of-way crossings or uses, except for temporary encroachment permits, and is responsible for the assignment of right-of-way crossing numbers to approved documents.

The Engineering and Construction Department shall maintain as-built and right-of-way drawings and other information of pipelines. Updates to these drawings shall be made following:

1. Grant of Revocable License or Easement. Notice to be supplied by the Manager of Real Estate Services.

2. Completion of crossing construction covered by license or easement. Notice, including "as built" location data, to be supplied by the applicant to the Water Supply Division or Water Treatment and Distribution Division for transmittal to the Engineering and Construction Department. This notice will be routed through the Engineering and Construction Department, as necessary, then to the Manager of Real Estate Services.
 3. Termination of any pipeline right-of-way use. Notice to be supplied by the Manager of Real Estate Services.
-

Required Fees

Pipeline right-of-way fees for the processing of applications and documents related to proposed uses are included in the "Water and Wastewater System Schedules of Rates and Charges, Capacity Charges, and Other Fees". The Manager of Water Supply and Manager of Water Treatment and Distribution are responsible for periodic review and updating of Requirements for Entry or Use. The Manager of Real Estate Services is responsible for review and updating of Fees and Documentation Charges, Use of Aqueduct and Distribution Pipeline Rights-of-Way by Others.

References

Policy 7.01 – Aqueduct and Distribution Pipeline Rights-of-Way Maintenance
Procedure 108 – Real Estate Transactions
Procedure 436 – Miscellaneous Accounts Receivable and Cash Receipts
Procedure 706 – Facilities: Inspection, Maintenance and Repair
Requirements for Entry or Use of Pipeline Rights-of-Way (attached)
Water and Wastewater System Schedules of Rates and Charges, Capacity Charges, and Other Fees (as updated periodically)



**EBMUD REQUIREMENTS FOR
ENTRY OR USE OF PIPELINE RIGHTS-OF-WAY**

East Bay Municipal Utility District

1. Requests for encroachment rights or for other uses of the District's raw and distribution water aqueduct and pipeline ("pipeline") properties shall be directed to the Manager of Water Supply, 1804 West Main Street, Stockton, California 95203. Property uses shall only be permitted subject to appropriate written permit, license, easement, or lease agreement.
2. Requests for property uses shall be in writing and accompanied by a completed application, application fees, plan and profile drawings of the area and work involved. District pipeline stationing and adjacent above-ground structures must be shown. Applicant's horizontal and vertical control must be correlated to the District's. Drawings and maps shall be ANSI D size (22x34 inch) or ANSI B size (11x17 inch) and must also be provided in electronic .pdf format. Application must include complete insurance documentation.
3. The applicant must indemnify, defend, and hold harmless the District and associated personnel from and against any claims, losses, and liability arising by reason of the applicant's use of District's property or the applicant's acts or omissions pursuant to any permit or approval issued by the District, on such terms as the District may require. The applicant may be required to provide evidence of insurance coverage.
4. All requests for uses of District property must be consistent with requirements and limitations set forth by Procedure 718 and will be reviewed and approved on a case-by-case basis.
5. District land and facilities shall be restored to a condition as good as that which existed before applicant's entry on the right-of-way.
6. Applicant's use of property shall not increase District costs or interfere with District access, operations, maintenance, or repair of its facilities.
7. The applicant must pay the District the appraised value of the easement or lease, if appropriate, for the rights granted to the applicant. Appropriate environmental documentation must be completed in accordance with the California Environmental Quality Act before the rights can be granted. The District may require the applicant to prepare the documentation at its expense before the application will be considered for approval. The District will review the environmental documentation to determine whether it (i) adequately describes the applicant's project, (ii) contains a detailed disclosure and analysis of the project's impacts, (iii) describes feasible measures to mitigate any construction impacts to the District's right-of-way to a level of no significant impact, and (iv) is otherwise legally sufficient. The District may rely on any existing environmental documentation for the applicant's project if the District determines that the existing documentation meets the above-described standards.
8. For any District-approved encroachment, the applicant must pay the District for any of the following measures, as determined necessary by the District:
 - a. Design of structural protective measures
 - b. Design of fences or other structures
 - c. Corrosion control protective measures
 - d. District engineering, plan review, and inspection of activities
 - e. Environmental documentation
 - f. Application, permit or license fees.
9. The plan for the execution of the work must be approved by the District.
10. The type and weight of equipment working over the pipelines must be approved by the District.
11. The use of vibratory compaction equipment is prohibited on the pipeline right-of-way unless otherwise approved by EBMUD. Allowable compaction effort, allowable equipment, and maximum depth of each lift of fill shall be subject to District review and approval before start of construction.
12. A minimum of 48 hours notice must be given to the District before work commences on District pipeline right-of-way. Contact information will be provided in permit.

13. A minimum of 48 hours notice must be given to the District before work commences on District pipeline right-of-way. Contact information will be provided in permit.
14. A preconstruction meeting is required prior to start of work.
15. No building or portions of buildings shall be constructed on the property. No other types of structures shall be constructed unless specific approval is given by the District.
16. No longitudinal encroachments such as drainage ditches; gas, phone, or electrical lines; pipelines, or roads will be permitted. All property line fences (including footings) must be located completely outside pipeline property lines.
17. District staff shall monitor pile driving or other work which can result in vibration and occurs within 100 feet of the aqueducts. District staff shall also monitor other work located within 100 feet of the pipeline right-of-way, if such work has the potential to result in ground movements that could damage the District's facilities (i.e., large excavations with potential for horizontal or vertical ground deformations within the District's rights-of-way).
18. Railroad, freeway and highway crossings of the pipeline right-of-way shall be on permanent bridges with a minimum vertical clearance of 14 feet 6 inches between the finished ground surface and the underside of the bridge. Crossings of pipeline rights of way, on grade will be over structurally-encased aqueducts with a sleeve for a fourth aqueduct.
19. Street and road crossings constructed on grade shall incorporate protection of the pipelines. Protective measures will be designed by applicant's licensed engineer to District standards with specific District approval of each design.
20. Existing pipeline protective measures such as concrete slabs shall not be cut, penetrated, or otherwise disturbed. If a protective measure is cut, penetrated, or disturbed, it shall be replaced with a new protective measure, designed by applicant's licensed engineer to District standards with specific District approval of design.
21. Traffic control fences or approved barriers shall be installed along each side of the street, road or trail before opening to the public.
22. Temporary construction fences and barricades shall be installed by contractor as directed by the District.
23. No geotechnical exploration such as drilling or boring shall be allowed on an pipeline right-of-way without prior written approval from the District.
24. Any changes in finished grade in the pipeline right-of-way must be approved by the Aqueduct Section. Earth fills or cuts on adjacent property shall not encroach onto District property except where authorized for vehicular crossings on grade and where the District determines that there will be no detrimental effect on or maintenance of the pipelines.
25. Crossings shall be perpendicular to the pipelines and on a constant grade across District property.
26. Sanitary sewers, water lines, petroleum product lines, or other lines crossing above the pipelines must be encased in a steel, polyvinyl chloride (PVC), or reinforced concrete pipe conduit or be imbedded in reinforced concrete with a minimum vertical clearance of two (2) feet between the casing/embedment and the top of District pipelines. The casing shall extend the entire width of the pipelines right-of-way.
27. All pipelines crossing below the pipelines must be encased in a steel or reinforced concrete conduit and provide a minimum of three (3) feet of clearance between the casing and the bottom of the District pipelines.

28. Trenchless construction methods such as horizontal directional drilling or jack-and-bore between the top of the pipelines and the bottom of the protective structure (slab) are prohibited.
29. On pressurized pipe crossings, shutoff valves shall be provided outside and adjacent to both sides of District property.
30. At the point of crossing, steel pipeline crossings and steel casings shall incorporate electrolysis test leads, bond leads, and leads necessary for interference testing. Corrosion control devices, when required, must be approved by the District.
31. Cathodic protection for steel encasements must be installed as follows:
 - Provide a dielectric coating to the exterior surface of the steel casing within the District's right-of-way, 16 mil epoxy or equivalent.
 - Provide galvanic protection to the portion of the steel casing within the District's right-of-way in accordance with the National Association of Corrosion Engineers RP-01-69.
 - If the carrier pipe is constructed of ductile iron or steel, provide electrical isolation between the carrier and casing using casing insulators; redwood skids are not permitted.
 - Provide test results to the District demonstrating the adequacy of the cathodic protection system, and the adequacy of the electrical isolation of the carrier (if metallic) from the casing. The District reserves the right to witness any such tests.
32. Gravity drainage of District property shall be maintained. Open channels constructed across the right-of-way shall be paved with reinforced concrete. Headwalls, inlets, and other appurtenances shall be located outside District property. Drainage facilities shall be provided outside the District's property at the top and/or toe of fill slopes or cuts constructed adjacent to District property to assure adequate drainage.
33. Overhead electrical power conductors across the property shall be a minimum of 30 feet above ground. Communication and cable TV crossings shall be a minimum of 20 feet above the ground. Supporting poles or towers shall be located outside the pipelines right-of-way.
34. Buried electrical cables passing over the pipelines shall be installed in PVC conduit and encased in red concrete across the entire width of the right-of-way. In some cases, PVC-coated steel conduit with a red concrete cap may be substituted. All other buried cables shall be installed in conduits and marked in the appropriate Underground Service Alert (USA) colored marking materials and with surface signs installed at 4-foot intervals that include the utility name, type, and emergency contact information across the entire width of the right-of-way. The minimum vertical clearance between the conduit and the top of the District's pipelines is two (2) feet.
35. Electrical or telecommunications cables shall not be allowed to pass under the pipelines.
36. Vehicular parking and storage of equipment or material on aqueduct or distribution pipelines property are prohibited.
37. All District survey monuments and markers shall be undisturbed. If any District survey markers or monuments must be disturbed, they will be replaced or relocated by the District at applicant's expense prior to the start of any ground disturbing work.
38. All pipeline crossings involving mechanical excavation on the right-of-way require potholing of all pipelines at the site of the proposed crossing. Visible reference markings showing the pipeline alignments and depths to top of pipe shall be maintained for the duration of any mechanical excavation on District property. Excavations within two (2) feet of pipelines shall be made by hand. Entry permits are required for pothole work.
39. All grading or excavating of the right-of-way requires USA notification and the maintenance of a current inquiry identification number.

40. Certified six-sack mix is the minimum acceptable concrete batch to be used on the pipelines right-of-way. Concrete compression strength shall be 3,000 per square inch (PSI) or better at 28 days. If samples do not reach 3,000 PSI at 28 days, the entire section of slab or encasement related to that sample must be removed and replaced at applicant's expense.
41. Each truckload of concrete to be placed on the right-of-way may be sampled by the District. No water may be added to the mix after sampling.
42. Maximum allowable slump is three inches. All concrete exceeding three inches will be rejected and cannot be used on the right-of-way.
43. No traffic will be allowed over protective slabs until 3,000 PSI is reached.
44. All work areas shall be inspected by the District for final approval. As-built drawing submittals are required for District approval.
45. No work is allowed on weekends or District-recognized holidays unless otherwise authorized in the required permit.

2. Response to Comments

A. Response to Comments from East Bay Municipal Utility District, dated March 13, 2024.

A-1 The East Bay Municipal Utility District (EBMUD) provided their original comments on the Notice of Preparation (dated October 16, 2023), regarding water service, Mokelumne Aqueducts, water recycling, and water conservation.

Refer to response to Comments A-2 to A-11.

A-2 EBMUD states that water services shall be conditioned for all development projects within the General Plan area in compliance with Section 537 of California's Water Code and Section 1954.201-219 of the California's Civil Code requirements, which requires individually or sub-metered water service for multi-unit structures. Water services will be released after the project sponsor has satisfied all requirements with Section 537 of California's Water Code and Section 1954.201-219 of the California's Civil Code.

As this is a State mandate, future development proposed under the General Plan area would have to comply with Section 537 of California's Water Code and Section 1954.201-219 of the California's Civil Code. This comment does not describe any inadequacies of the DEIR; therefore, no changes to the DEIR are necessary. See Master Response 1 for further explanation.

A-3 EBMUD states that main extensions may be required to serve any specific development within the General Plan area to provide adequate domestic water supply, fire flows, and system redundancy will be at the project sponsor's expense. EBMUD provides documents for California (Waterworks Standards) Code of Regulations, Title 22, Section 64572 (Water Main Separation) and EDMUD requirements for placement of water mains. EBMUD states that once development plans are finalized for individual projects within the General Plan area, project sponsors should contact EBMUD's New Business Office and request a water service estimate to determine cost and conditions for providing water service to development.

The DEIR is a programmatic EIR and does not analyze specific development projects. This comment refers to future developers and projects within the EBMUD service area, and indicates that such projects must follow listed requirements and procedures to ensure water services. As this comment does not describe any inadequacies of the DEIR, no changes to the DEIR are necessary. See Master Response 1 for further explanation.

A-4 EBMUD states that they will not install piping or services in contaminated soil or groundwater. EBMUD states that project sponsors must submit copies of all known information regarding soil and groundwater quality within or adjacent to the project boundary and a specific remediation plan for removal, treatment, and disposal of contaminated soils and groundwater. EBMUD will review remediation plans and determine the proper actions for development after review.

2. Response to Comments

See response to Comment A-3. Impact 5.9-2, on page 5.9-41 of the DEIR, states that if future housing development facilitated by the General Plan area is found to be on a State-prepared list of hazardous waste sites pursuant to Government Code 65962.5, then future development would be required to do an environmental site assessment by a qualified professional to ensure that any proposed development, redevelopment, or reuse would not create a substantial hazard to the public or the environment. The analysis also states compliance with local, state, and federal level regulations would remedy all potential impacts caused by hazardous substances.

- A-5 EBMUD states any project within or adjacent to EBMUD's Mokelumne Aqueduct property will need to follow EBMUD's procedure 718 – Raw Water Aqueduct Right-of-Way Non-Aqueduct Uses which the agency has attached for reference.

See response to Comment A-3. The DEIR is a programmatic EIR. Future development would be required to comply with all applicable regulations, including EBMUD's procedures. As this comment does not address any inadequacies of the DEIR, no further response is necessary. See Master Response 1 for further explanation.

- A-6 EBMUD states that design drawings for any project encroachment (roadway, utility, facilities, etc.) or restoration projects crossing or within the Aqueduct right-of-way will need to be submitted to EBMUD for review of conditions that may impact EBMUD property. EBMUD indicates the items that must be included in the submittal and actions that must be done prior. EBMUD states that application for non-EBMUD uses will not be processed unless accompanied by the appropriate fees outlined in the Water and Wastewater System Schedule of Rates and Charges Fees, secure an encroachment permit from, and a mandatory pre-construction meeting with EBMUD.

See response to Comment A-3.

- A-7 EBMUD states that when a project involves the construction of a retaining wall and fence along EBMUD property lines then the project sponsor must coordinate with EBMUD to ensure that all structures and development be constructed outside EBMUD's property.

See response to Comment A-3.

- A-8 EBMUD states that EBMUD's Policy 9.05 requires that customers use non-potable water for domestic purposes, when it is of adequate quality and quantity, to offset demand on EBMUD's limited potable water supply.

This comment refers to future users within the EBMUD service area. As this comment does not describe any inadequacies of the DEIR, no changes to the DEIR are necessary. See Master Response 1 for further explanation.

2. Response to Comments

- A-9 EBMUD states that the county’s boundaries include the City of San Ramon and Town of Danville, which fall within the Dublin San Ramon Service District-EBMUD Recycled Water Authority (DERWA) and EBMUD’s San Ramon Valley’s Recycled Water Project. EBMUD lists appropriate recycled water uses (such as toilet flushing, irrigation, etc.).

This comment refers to future projects and associated water uses within the DERWA and EBMUD’s San Ramon Valley’s Recycled Water Project area. As this comment does not describe any inadequacies of the DEIR, no changes to the DEIR are necessary. See Master Response 1 for further explanation.

- A-10 EBMUD requests that the County and developers coordinate with EBMUD and consider potential recycled water uses during the planning of the various General Plan components to further explore the options and requirements related to recycled water use.

This comment refers to future developers and specific individual projects within the EBMUD service area. The General Plan includes policies COS-P7.1, which requires new development to reduce water consumption through use of water-efficient devices and technology, drought-tolerant landscaping strategies, and treated recycled water, where available; COS-P7.9, which supports wastewater reclamation and reuse programs that maximize use of treated recycled water; and PFS-P4.2, which encourages water service providers to require separate service connections and meters for recycled water use or where large quantities of water are used for special purposes, such as landscape irrigation. The DEIR is a programmatic EIR, therefore, project-level information is not known at this time, and it would be speculative to assume this information. As this comment does not describe any inadequacies of the DEIR, no changes to the DEIR are necessary.

- A-11 EBMUD requests that the County include in its conditions of approval a requirement that the project sponsor comply with Assembly Bill 325, “Model Water Efficient Landscape Ordinance.” EBMUD states that project sponsors should be aware that Section 31 of EBMUD’s Water Service Regulations requires that water service shall not be furnished for new or expanded service unless all applicable water-efficiency measures are installed at the project sponsor’s expense.

The County Ordinance Code includes Chapter 82-26 – Water Efficient Landscapes, which was adopted in 2022 to comply with applicable State law. Future projects and developers would need to comply with the County Ordinance Code as well as EBMUD’s Water Service Regulations. As this comment does not describe any inadequacies of the DEIR, no changes to the DEIR are necessary. See Master Response 1 for further explanation.

2. Response to Comments

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2. Response to Comments

LETTER B – Department of Toxic Substances Control (3 pages)



Yana Garcia
Secretary for
Environmental Protection



Department of Toxic Substances Control

Meredith Williams, Ph.D., Director
8800 Cal Center Drive
Sacramento, California 95826-3200



Gavin Newsom
Governor

SENT VIA ELECTRONIC MAIL

March 22, 2024

Will Nelson

Principal Planner

Contra Costa County, Department of Conservation and Development

30 Muir Road

Martinez, CA 94553

will.nelson@dcd.cccounty.us

RE: DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) FOR THE CONTRA COSTA COUNTY 2045 GENERAL PLAN AND CONTRA COSTA COUNTY CLIMATE ACTION PLAN 2024 UPDATES (AKA ENVISION CONTRA COSTA) DATED FEBRUARY 9, 2024 STATE CLEARINGHOUSE # [2023090467](#)

Dear Will Nelson,

The Department of Toxic Substances Control (DTSC) received a DEIR for the Contra Costa County 2045 General Plan and Contra Costa County Climate Action Plan 2024 Updates (aka Envision Contra Costa). Contra Costa County is one of the nine San Francisco Bay Area counties. The County has prepared comprehensive updates to its existing General Plan and Climate Action Plan (CAP), which are applicable to the county's unincorporated areas. The DEIR study area coincides with the unincorporated areas covered by the General Plan and CAP. Based on our project review; we request consideration of the following comments:

1. The proposed Project encompasses multiple active and nonactive mitigation and clean-up sites where DTSC has conducted oversight that may be impacted as a result of this Project. This may restrict what construction

B-1

B-2

activities are permissible in the proposed Project areas in order to avoid any impacts to human health and the environment.

B-2

2. Due to the broad scope of the Project, DTSC is unable to determine the locations of the proposed sites, whether they are listed as having documented contamination, land use restrictions, or whether there is the potential for the sites to be included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Therefore, DTSC recommends providing further information on the proposed project and areas that may fall under DTSC's oversight within future environmental documents. Once received, DTSC may provide additional comments on the future environmental documents as further information becomes available. Please review the project area in [EnviroStor](#); DTSC's public-facing database.

B-3

DTSC believes Contra Costa County must address these comments to determine if any significant impacts under the California Environmental Quality Act (CEQA) will occur and, if necessary, avoid significant impacts under CEQA. DTSC recommends the department connect with our unit if any hazardous waste projects managed or overseen by DTSC are discovered. Please refer to the [Contra Costa County EnviroStor Map](#) for additional information about the areas of potential contamination

B-4

DTSC appreciates the opportunity to comment on the DEIR for the Contra Costa County 2045 General Plan and Contra Costa County Climate Action Plan 2024 Updates (aka Envision Contra Costa. Thank you for your assistance in protecting California's people and environment from the harmful effects of toxic substances. If you have any questions or would like any clarification on DTSC's comments, please respond to this letter or via [email](#) for additional guidance.

B-5

Will Nelson
March 22, 2024
Page 3

Sincerely,

Tamara Purvis

Tamara Purvis
Associate Environmental Planner
HWMP - Permitting Division – CEQA Unit
Department of Toxic Substances Control
Tamara.Purvis@dtsc.ca.gov

cc: (via email)

Governor's Office of Planning and Research
State Clearinghouse
State.Clearinghouse@opr.ca.gov

Dave Kereazis
Associate Environmental Planner
HWMP – Permitting Division - CEQA Unit
Department of Toxic Substances Control
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Scott Wiley
Associate Governmental Program Analyst
HWMP – Permitting Division - CEQA Unit
Department of Toxic Substances Control
Scott.Wiley@dtsc.ca.gov

2. Response to Comments

B. Response to Comments Department of Toxic Substances Control, dated March 22, 2024.

B-1 The Department of Toxic Substances Control (DTSC) has received the DEIR for the Contra Costa County 2045 General Plan and Climate Action Plan 2024 Updates, which are comprehensive updates to the county's unincorporated areas, and request consideration of the project review.

Contra Costa County appreciates DTSC comments and recommendations that may assist the County in adequately analyzing and minimizing impacts regarding hazards and hazardous materials. Refer to responses in comments B-2 through B-5.

B-2 DTSC indicates that the proposed project may impact multiple mitigation and clean-up sites under their oversight, which could potentially restrict future construction activities under the proposed project in order to prevent potential health and environmental impacts.

Section 5.9, *Hazards and Hazardous Materials*, of the DEIR includes Impact 5.9-2, starting on page 5.9-41. Impact 5.9-2 analyzes the potential environmental impacts of the implementation of the proposed project, which could facilitate development of a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The impact states that future development within these sites would have to adhere to the proposed General Plan and the regulations and policies of the agency assigned to the site (i.e., DTSC, Water Quality Control Board, CUPA, or USEPA). The analysis in the DEIR adequately discusses potential environmental impact from future development in hazardous sites and addresses DTSC concerns. As this comment does not describe any inadequacies of the DEIR, no changes to the DEIR are necessary.

B-3 DTSC states that they are unable to determine the locations of proposed sites, their potential contamination, land use restrictions, or inclusion on a hazardous materials list due to the project's broad scope. DTSC recommends providing more information on the project and areas under its oversight in future environmental documents, which may be updated as more information becomes available.

DEIR Chapter 2, *Introduction*, explains that the DEIR fulfills the requirements for a Program EIR, which is more conceptual than a Project EIR with a more general discussion of impacts. As a programmatic analysis, the specific information DTSC is referring to cannot be fully provided during this stage of the environmental review since there is no specific project-level development proposed at this time. Once specific project-level development is proposed, the County as lead agency for the project would determine whether subsequent CEQA analysis is required. Future project-level CEQA documents, such as EIRs and Negative Declarations, would address DTSC's comment. As this comment does not describe any inadequacies of the DEIR, no changes to the DEIR are necessary.

2. Response to Comments

- B-4 DTSC urges Contra Costa County to address their comments to determine potential impacts under CEQA and, if necessary, avoid significant impacts. DTSC recommends the County contact DTSC's unit if any hazardous waste projects managed or overseen by DTSC are discovered. DTSC recommends reviewing the Contra Costa EnviroStor Map, which provides more information on potential contamination areas.

See response to Comment B-3 regarding the scope of the DEIR and future project-level CEQA analyses. The County refers CEQA documents for projects on identified hazardous materials sites to DTSC for review and comment. Furthermore, project sponsors and developers would be responsible for contacting DTSC in the case that hazardous materials are discovered as well as adhering to State regulations and the proposed General Plan and CAP policies and strategies. Table 5.9-1, *Active Hazardous Materials Sites in the EIR Study Area*, on page 5.9-16 of the DEIR, provides the results of an online EnviroStor and GeoTracker databases search for active hazardous materials sites in the EIR Study Area. As this comment does not describe any inadequacies of the DEIR, no changes to the DEIR are necessary.

- B-5 DTSC is grateful for the opportunity to comment on the DEIR for the Contra Costa County 2045 General Plan and Climate Action Plan 2024 Updates, expressing gratitude for their support in protecting California's people and environment from toxic substances' harmful effects.

Contra Costa County appreciates DTSC comments and recommendations that may assist the County in adequately analyzing and minimizing impacts regarding hazards and hazardous materials. Refer to responses in B-2 through B-4.

2. Response to Comments

LETTER C – Delta Stewardship Council (7 pages)



715 P Street, 15-300
Sacramento, CA 95814

916.445.5511
DELTACOUNCIL.CA.GOV

CHAIR
Vacant

MEMBERS
Diane Burgis
Frank C. Damrell, Jr.
Ben Hueso
Julie Lee
Maria Mehranian
Daniel Zingale

EXECUTIVE OFFICER
Jessica R. Pearson

April 4, 2024

Will Nelson
County of Contra Costa
Department of Conservation and Development
30 Muir Street
Martinez, CA 94553

Delivered via email: AdvancePlanning@dcd.cccounty.us

**RE: Comments on Draft Environmental Impact Report for the
County 2045 General Plan and Climate Action Plan Update,
SCH# 2023090467.**

Dear Will Nelson:

Thank you for the opportunity to review and comment on the County of Contra Costa Draft Environmental Impact Report (DEIR) for the 2045 General Plan and Climate Action & Adaptation Plan Update (2045 General Plan). The Council recognizes that the objective(s) of the County's General Plan and Climate Action Plan Update (project) are to determine the extent and types of development needed to achieve the community's long-range vision for physical, economic, social, and environmental goals, achieve compliance with applicable State and regional policies and provide the basis for establishing and setting priorities for detailed programs.

The Council is an independent state agency established by the Sacramento-San Joaquin Delta Reform Act of 2009, Wat. Code, sections 85000 et seq. (Delta Reform Act). The Delta Reform Act charges the Council with furthering California's coequal goals of providing a more reliable water supply and protecting, restoring, and

C-1

enhancing the Sacramento-San Joaquin River Delta (Delta) ecosystem, which are to be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place. (Wat. Code, § 85054.)

C-1

The Council is charged with furthering California's coequal goals for the Delta through the adoption and implementation of the Delta Plan, a comprehensive long-term management plan for the Delta and Suisun Marsh. (Wat. Code, § 85300) The Delta Plan contains regulatory policies, which are set forth in California Code of Regulations, title 23, section 5001 et seq. The Delta Reform Act granted the Council specific regulatory and appellate authority over certain actions of State or local public agencies that take place in whole or in part in the Delta ("covered actions"). (Wat. Code, §§ 85210, 85225, 85225.10.) A state or local public agency that proposes to undertake a covered action is required to prepare a written Certification of Consistency with detailed findings as to whether the covered action is consistent with the Delta Plan and submit that certification to the Council prior to initiating the implementation of the project. (Wat. Code, § 85225)

C-2

The Delta Reform Act also directs the Council to review and provide timely advice to local and regional planning agencies regarding the consistency of local and regional planning documents with the Delta Plan. The Council's input includes, but is not limited to, reviewing the consistency of local and regional planning documents with the ecosystem restoration needs of the Delta and reviewing whether the lands set aside for natural resource protection are sufficient to meet the Delta's ecosystem needs. (Wat. Code, §85212)

COVERED ACTION DETERMINATION AND CERTIFICATION OF CONSISTENCY WITH THE DELTA PLAN

Based on the project location and project description provided in the DEIR, the project appears to meet the definition of a covered action. Water Code section 85057.5(a) states that a covered action is a plan, program, or project, as defined by the California Environmental Quality Act (Public Resources Code section 21065), that meets all of the following conditions:

C-3

(1) Will occur, in whole or in part, within the boundaries of the Delta or Suisun Marsh. The 2045 General Plan planning area includes lands within the unincorporated area of Contra Costa County. A portion of the planning

area is located within the Delta, and thus, the project would occur in part within the boundaries of the Delta.

(2) Will be carried out, approved, or funded by a State or a local public agency. The 2045 General Plan and Climate Action Plan and DEIR would be approved and carried out by the County, a local public agency.

(3) Is covered by one of the provisions of the Delta Plan. As described below, the project is covered by, and aligned with multiple Delta Plan regulatory policies.

(4) Will have a significant impact on achievement of one or both of the coequal goals or the implementation of government-sponsored flood control programs to reduce risks to people, property, and State interests in the Delta. The project may have a significant impact on the achievement of the coequal goal to protect, restore, and enhance the Delta ecosystem and the implementation of government sponsored flood control programs in the Delta.

The State or local agency approving, funding, or carrying out the project must file a Certification of Consistency with the Council prior to project implementation. (Wat. Code, § 85225; Cal. Code Regs., tit. 23, § 5001(k)(3).)

POTENTIALLY APPLICABLE DELTA PLAN POLICIES

The following section describes the Delta Plan regulatory policies that may apply to the project based on the information in the DEIR.

Governance Policy 1: Detailed Findings to Establish Consistency with the Delta Plan

Delta Plan Policy **G P1** (Cal. Code Regs., tit. 23, § 5002) specifies what must be addressed in a Certification of Consistency by a certifying agency for a project that is a covered action. The following is a subset of policy requirements that a project must fulfill to be considered consistent with the Delta Plan:

Mitigation Measures

Delta Plan Policy **G P1(b)(2)** (Cal. Code Regs., tit. 23, § 5002(b)(2)) requires covered actions not exempt from the California Environmental Quality Act (CEQA) to include all applicable feasible mitigation measures adopted and

C-3

C-4

incorporated into the Delta Plan as amended April 26, 2018 (unless the measures are within the exclusive jurisdiction of an agency other than the agency that files the Certification of Consistency), or substitute mitigation measures that the agency finds are equally or more effective. These mitigation measures are identified in Delta Plan Appendix O and are available at: <https://deltacouncil.ca.gov/pdf/delta-plan/2018-appendix-o-mitigation-monitoring-and-reporting-program.pdf>.

C-4

The DEIR does not propose mitigation measures for the project. Rather, the DEIR considers that all potentially significant impacts are minimized to the greatest extent feasible through general plan policies and actions, and that no feasible mitigation is available. Council staff is available to engage in early consultation on this matter.

Best Available Science

Delta Plan Policy **G P1(b)(3)** (Cal. Code Regs., tit. 23, § 5002(b)(3)) requires actions subject to Delta Plan regulations to document the use of best available science as relevant to the purpose and nature of the project. The Delta Plan defines best available science as “the best scientific information and data for informing management and policy decisions.” (Cal. Code Regs., tit. 23, § 5001(f)). Best available science is also required to be consistent with the guidelines and criteria in Appendix 1A of the Delta Plan (<https://deltacouncil.ca.gov/pdf/delta-plan/2015-appendix-1a.pdf>) and in the Delta Plan regulations (Cal. Code Regs., tit. 23, appen. 1a).

C-5

This policy generally requires that the process used by the County to analyze project alternatives, impacts, and mitigation measures for the project be clearly documented in the DEIR and supporting record, and effectively communicated to foster improved understanding and informed decision-making, meeting the criteria in Appendix 1A.

Delta as Place Policy 1: Locate New Urban Development Wisely and Risk Reduction Policy 2: Require Flood Protection for Residential Development in Rural Areas

Certain Delta Plan regulatory policies make allowances for certain actions occurring within Contra Costa County’s 2006 voter approved urban limit line (Cal. Code Regs.,

C-6

tit 23, § 5010(a)(2), § 5013(a)(2). Specifically, Delta Plan Policy **DP P1**, limits new residential, commercial, and industrial development to, in relevant part: 1) areas that city or county general plans, as of May 16, 2013, designate for residential, commercial, and industrial development in cities or their spheres of influence; and 2) areas within Contra Costa County's 2006 voter-approved urban limit line, except that no new residential, commercial, and industrial development may occur on Bethel Island unless it is consistent with the Contra Costa County general plan effective as of May 16, 2013 (Cal. Code Regs., tit. 23, § 5010 and Appendix 7). Delta Plan Policy **RR P2**, requires a minimum level of flood protection for residential development of five or more parcels but does not apply to areas within Contra Costa County's 2006 voter-approved urban limit line, except Bethel Island (Cal. Code Regs., tit. 23, § 5013).

C-6

The 2045 General Plan goals appear to align with provisions of **DP P1** and **RR P2** through Land Use Element goals, such as, Goal LU-6 "Effective coordination with other agencies to ensure consistent planning, service delivery, and community development", and Goal LU-10 "Rural, agricultural, and open space areas that provide scenic value, support Delta ecosystem health, and meet the needs of the agricultural industry". Under the Conservation, Open Space, and Working Lands Element sections, Goal COS-2 "A thriving, and resilient agricultural sector based on resource conservation and sustainability practices, Goal COS-5 "Protected and restored watercourses, riparian corridors, and wetland areas that improve habitat, water quality, wildlife diversity, stormwater flows, and scenic values", and Goal COS-9 "Protected, preserved, and enhanced scenic quality, recreational value, and natural resources of the San Francisco Bay/Sacramento San Joaquin Delta estuary system and shoreline" also align with Delta Plan policies **DP P1** and **DP P2**. Lastly, the Health and Safety Element Goal HS-6 "Resilient and thriving Bayshore and Delta communities that are safeguarded and adaptively managed for rising sea levels", would align with the achievement of **DP P1** and **RR P2**.

The DEIR provides the following statement (p. 5.11-20,21):

Delta Plan Policy DP P1 requires that any new residential, commercial, or industrial development must be limited to areas within the Urban Limit Line (ULL), and also specifies that no new residential, commercial, or industrial development may occur on Bethel Island, even though it is inside the ULL, unless it is consistent with the existing General Plan. Although the proposed General Plan would redistribute

C-7

Will Nelson

Draft Environmental Impact Report for the County of Contra Costa 2045 General Plan and Climate Action Plan Update

April 4, 2024

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some of the existing General Plan development capacity on Bethel Island by expanding commercial uses and reducing residential uses, the proposed General Plan does not allow a net increase in allowed development on the island. Therefore, the proposed General Plan is consistent with Policy DP P1.

DP P1 covers any new residential, commercial, and industrial development on Bethel Island that is inconsistent with the Contra Costa County general plan effective as of May 16, 2013. The County should include substantial evidence in the record, including this potential finding, in a future certification of consistency for Delta Plan Policy DP P1.

The proposed 2045 General Plan includes additional actions which address the Delta Plan and related Council initiatives. Specifically, “Action HS-6.4 Coordinate with the BCDC, Delta Stewardship Council, and other involved agencies and stakeholders to create a joint-powers authority or public-private partnership to develop, fund, and implement measures that leverage the results of Adapting to Rising Tides, Bay Adapts, and other studies and programs”, and Policy LU-P6.1 “Ensure that County projects and decisions on private development and land use activities within the Legal Delta are consistent with a; The Land Use and Resource Management Plan for the Primary Zone of the Delta adopted by the Delta Protection Commission, (b) The Delta Plan adopted by the Delta Stewardship Council”.

The Council appreciates the County’s effort to incorporate these and other provisions of the Delta Plan in the 2045 General Plan, notes that the County has continued to refer projects to the Council for review as described above, and thanks the County for its continued engagement in our Delta Adapts Adaptation Plan. We encourage the County to submit a certification of consistency to the Council using these and other goals, actions, and policies that would demonstrate how the 2045 General Plan is consistent with the Delta Plan.

CLOSING COMMENTS

More information on covered actions, early consultation, and the certification process can be found on the Council website, <https://coveredactions.deltacouncil.ca.gov>. Council staff are available to discuss the issues outlined in this letter as the County proceeds in the next stages of its project

C-7

C-8

Will Nelson

Draft Environmental Impact Report for the County of Contra Costa 2045 General
Plan and Climate Action Plan Update

April 4, 2024

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and approval processes. Please contact Pat Kelly at
patricia.kelly@deltacouncil.ca.gov with any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read "Jeff Henderson", with a long horizontal flourish extending to the right.

Jeff Henderson

Deputy Executive Officer

Jeff.Henderson@deltacouncil.ca.gov

2. Response to Comments

C. Response to Comments from Delta Stewardship Council, dated April 4, 2024.

C-1 The Delta Stewardship Council (Council) states that the County's General Plan and Climate Action Plan Update aims to determine the development needed to achieve the community's long-range vision for physical, economic, social, and environmental goals; comply with State and regional policies; and establish priorities for detailed programs. As an independent State agency established by the Sacramento-San Joaquin Delta Reform Act of 2009, the Council is responsible for achieving California's coequal goals of providing a more reliable water supply and protecting the Sacramento-San Joaquin River Delta ecosystem while preserving its unique cultural, recreational, natural resource, and agricultural values.

Contra Costa County appreciates the Council's comments that may assist the County in adequately analyzing and minimizing impacts regarding the Delta. Refer to responses to comments C-2 through C-8.

C-2 The Council is responsible for achieving California's coequal goals for the Delta by adopting and implementing the Delta Plan, which is a long-term management plan for the Delta and Suisun Marsh. The Council has specific authority over certain actions of State or local public agencies in the Delta. Any agency proposing a covered action must submit a written Certification of Consistency with detailed findings, ensuring it aligns with the Delta Plan. The Council must also review and provide advice to local and regional planning agencies regarding the consistency of local and regional planning documents with the Delta Plan. The Council's input includes but is not limited to, reviewing the consistency of planning documents with the ecosystem restoration needs of the Delta and reviewing whether the lands set aside for natural resource protection are sufficient to meet the Delta's ecosystem needs.

The County will submit Delta Plan consistency findings for the proposed project as required. Future projects must also comply with State regulations and the Delta Plan. The County will submit Delta Plan consistency findings for future covered actions as well. As this comment does not describe any inadequacies of the DEIR, no changes to the DEIR are necessary.

C-3 The Council states that the project, as described in the DEIR, appears to be a covered action, as defined by Water Code section 85057.5(a) of CEQA. The proposed project is considered a covered action since the proposed project includes lands within the Delta; would be approved and carried out by the County, which is a local public agency; is covered by, and aligned with, multiple Delta Plan regulatory policies; and may have a significant impact on the achievement of the coequal goal to protect, restore, and enhance the Delta ecosystem and the implementation of government-sponsored flood control programs in the Delta.

See response to Comment C-2.

2. Response to Comments

- C-4 The Council states that Delta Plan Policy G P1 outlines the requirements for a certifying agency to provide a Certification of Consistency for a covered action project. The Council also includes Delta Plan Policy G P1(b)(2) which mandates covered actions not exempt from CEQA to include all feasible mitigation measures incorporated into the Delta Plan as amended on April 26, 2018, or substitute measures deemed equally or more effective by the agency that files the Certification of Consistency. The Council states that the DEIR does not propose mitigation measures for the project, instead focusing on minimizing potentially significant impacts to the greatest extent feasible through general plan policies and actions, stating that no feasible mitigation is available.

Impact 5.11-2 of the DEIR concludes that the proposed project would not conflict with applicable plans adopted for the purpose of avoiding or mitigating an environmental effect, including a specific discussion of the Delta Plan. The proposed General Plan is the primary planning document for the County, aiming to ensure consistency with updated State laws and support land use plans, such as the Delta Plan, to mitigate environmental impacts. The DEIR determines that no mitigation measures are required for this impact since the proposed General Plan goals and policies would support the Delta Plan. As this comment does not describe any inadequacies of the DEIR, no changes to the DEIR are necessary.

- C-5 The Council states that Delta Plan Policy G P1(b)(3) requires actions subject to Delta Plan regulations to use the best available science as relevant to the project's purpose and nature. This policy generally requires that the process used by the County to analyze project alternatives, impacts, and mitigation measures for the project be clearly documented in the DEIR and supporting record, and effectively communicated to foster improved understanding and informed decision-making.

The DEIR uses best available data to analyze the proposed project's alternatives, impacts, and mitigation measures. As this comment does not describe any inadequacies of the DEIR, no changes to the DEIR are necessary.

- C-6 The Council outlines Delta Plan regulatory policies that allow certain actions within Contra Costa County's Urban Limit Line (ULL). Delta Plan Policy DP P1 limits new residential, commercial, and industrial development to, in relevant part: 1) areas that city or county general plans, as of May 16, 2013, designate for residential, commercial, and industrial development in cities or their spheres of influence; and 2) areas within Contra Costa County's 2006 voter-approved ULL, except that no new residential, commercial, and industrial development may occur on Bethel Island unless it is consistent with the Contra Costa County general plan effective as of May 16, 2013. Delta Plan Policy RR P2 requires a minimum level of flood protection for residential development of five or more parcels but does not apply to areas within the ULL, except Bethel Island. The Council states that the 2045 General Plan appears to align with provisions of Delta Plan Policies

2. Response to Comments

DP P1 and RR P2 through Land Use Element, Conservation Open Space and Working Lands Element, and Health and Safety Element goals.

Contra Costa County appreciates the Council's comments. As this comment does not describe any inadequacies of the DEIR, no changes to the DEIR are necessary. See Master Response 1 for further explanation.

- C-7 The Council quotes the DEIR discussion on page 5.11-20 regarding the proposed project and Delta Plan Policy DP P1, specifically as it relates to development on Bethel Island, and states that the County should include substantial evidence in the record, including this potential finding, in a future certification of consistency for Delta Plan Policy DP P1.

Impact 5.11-2, starting on page 5.11-18 of the DEIR, states that the proposed General Plan does not allow a net increase in allowed development on Bethel Island. The Delta Plan consistency findings the County submits to the Delta Stewardship Council will include a more detailed explanation of development potential on Bethel Island under the 2045 General Plan. As this comment does not describe any inadequacies of the DEIR, no changes to the DEIR are necessary.

- C-8 The Council states that the proposed 2045 General Plan includes additional actions which address the Delta Plan and related Council initiatives such as General Plan Action HS-6.4 and Policy LU-P6.1. The Council appreciates the County's efforts to incorporate Delta Plan provisions into the 2045 General Plan, and thanks the County for referring future projects to the Council for review. The Council encourages the County to submit a certification of consistency using these goals, actions, and policies to demonstrate the 2045 General Plan's consistency with the Delta Plan. The Council's directs the County to their website which provides additional details on covered actions, early consultation, and the certification process.

Contra Costa County appreciates the Council's comments. As this comment does not describe any inadequacies of the DEIR, no changes to the DEIR are necessary. See Master Response 1 for further explanation.

2. Response to Comments

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2. Response to Comments

LETTER D – Alameda County Water District (2 pages)



BOARD MEMBERS

AZIZ AKBARI
JAMES G. GUNTHER
JUDY C. HUANG
PAUL SETHY
JOHN H. WEED

43885 SOUTH GRIMMER BOULEVARD • FREMONT, CALIFORNIA 94538
(510) 668-4200 • www.acwd.org

MANAGEMENT

ED STEVENSON
General Manager
KURT ARENDS
Operations and Maintenance
GIRUM AWOKE
Engineering and Technology
LAURA J. HIDAS
Water Resources
JONATHAN WUNDERLICH
Finance and Administration

April 4, 2024

VIA ELECTRONIC MAIL

Attn: Will Nelson (AdvancePlanning@dcd.cccounty.us)
Contra Costa County Department of Conservation and Development
30 Muir Road
Martinez, CA 94553

Dear Mr. Nelson:

Subject: Contra Costa County 2045 General Plan and Climate Action Plan Draft
Environmental Impact Report

The Alameda County Water District (ACWD) wishes to thank you for the opportunity to comment on the Draft Environmental Impact Report (EIR) prepared for the Contra Costa County 2045 General Plan and Contra Costa County Climate Action Plan 2024 Updates (Draft EIR). ACWD appreciates that the County of Contra Costa (County) recognizes that the need for climate action throughout the region requires coordination amongst different jurisdictions and across sectors, such as ACWD. ACWD also appreciates that the County recognizes the importance of a low-carbon, sustainable, and resilient future especially as it relates to water supply and conservation. The District therefore supports the update and adoption of the 2024 Climate Action Plan and applauds the County's efforts to achieve carbon neutrality.

D-1

ACWD staff has reviewed the Draft EIR and offer the following comments for your consideration:

1) Water Quality

- a) *Climate Action Plan 2024 Update, Chapter 6, Table 12, DR-1 and DR-2: Ensure sustainable and diverse water supplies; 2045 General Plan, Goal COS-7, Policies COS-P7.1, COS-P7.9, PFS-4.2, SC-P4.4: ACWD is supportive of water reuse. However, ACWD notes that water reuse applied for outdoor irrigation that is not full advanced treatment may contribute per- and polyfluoroalkyl substances (PFAS) to the Alameda Creek watershed runoff. ACWD recommends that any expanded application of recycled water for irrigation use require appropriate*

D-2

measures to prevent impacts to runoff water quality. ACWD also recommends coordinating water reuse water quality with other interested parties in the Alameda Creek watershed, such as other water and wastewater utilities in Alameda County.

D-2

The following ACWD contacts are provided so the County can coordinate with ACWD as needed in reviewing these comments and coordinating on future efforts:

- Thomas Niesar, Water Supply and Planning Manager, at (510) 668-6549, or by e-mail at thomas.niesar@acwd.com, for coordination regarding water supply planning.

D-3

Again, thank you for the opportunity to comment on the Draft Environmental Impact Report prepared for the Contra Costa County 2045 General Plan and Contra Costa County Climate Action Plan 2024 Updates.

Sincerely,

A handwritten signature in black ink, appearing to read "LHidas" followed by a flourish.

Laura J. Hidas
Director of Water Resources

al/tn

cc: Thomas Niesar, ACWD

2. Response to Comments

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2. Response to Comments

D. Response to Comments from Alameda County Water District, dated April 4, 2024.

D-1 The Alameda County Water District (ACWD) is thankful for the opportunity to comment on the DEIR for the Contra Costa County 2045 General Plan and Climate Action Plan 2024 Update. ACWD appreciates the County's recognition of the importance of a low-carbon, sustainable, and resilient future as it related to water supply and conservation. ACWD supports the 2024 Climate Action Plan and provides comments for the County to consider.

Contra Costa County appreciates ACWD's comments regarding water supply and conservation. As this comment does not describe any inadequacies of the DEIR, no changes to the DEIR are necessary. Refer to response to Comment D-2 to address ACWD's comments.

D-2 ACWD refers to Strategy DR-1 and DR-2 in the Climate Action Plan as well as Goal COS-7, Policy COS-P7.1, Policy COS-P7.9, Policy PFS-4.2, and Policy SC-P4.4 in the 2045 General Plan. ACWD notes that water reuse that does not include full advanced treatment for outdoor irrigation may contribute to per- and polyfluoroalkyl substances (PFAS) in Alameda Creek's watershed runoff. ACWD recommends that any expanded application of recycled water for irrigation use should require appropriate measures to prevent impacts to runoff and water quality. ACWD also recommends that water reuse and water quality efforts be coordinated with other interested parties in the Alameda Creek watershed, such as water and wastewater utilities.

The referenced General Plan policies and CAP strategies provide a general guide to water use, quality, and conservation throughout the unincorporated county. This comment does not describe any inadequacies of the DEIR, and therefore no changes to the DEIR are necessary. However, 2045 General Plan Policies COS-P7.1 and COS-7.9 and CAP Strategy DR-1 actions have been revised to support use of *treated* recycled water.

D-3 ACWD provides a contact to the County to coordinate on future efforts. ACWD thanks the County for the opportunity to provide comments on the DEIR for the proposed project.

See response to Comment D-1.

2. Response to Comments

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2. Response to Comments

LETTER E – Contra Costa Building and Construction Trades Council (1 page)

Contra Costa Building and Construction Trades Council

2727 Alhambra Ave. Suite 5
Martinez, CA 94553
FAX (925) 372-7414



Bill Whitney, CEO
Phone (925) 925-228-0900

April 5, 2024

SENT VIA EMAIL:

Federal.glover@bos.cccounty.com; John.Gioia@bos.cccounty.us; Supervisorcarlson@bos.cccounty.us; diane.burgis@bos.cccounty.us; supervisorandersen@bos.cccounty.us; john.kopchik@dcd.cccounty.us; vanbuskirk1691@gmail.com

Re: General Plan/Climate Action Plan Extension Request

Dear Chair Glover and Board members, Chair Van Buskirk and Commissioners and Director Kopchik:

The Contra Costa Building and Construction Trades represents 35,000 skilled and trained working men and women. Approximately 65% of our members are men and women of color and Indigenous people. We spend tens of millions of dollars annually training the next generation craft men and women in our apprenticeship training facilities. We have created a non-profit organization called CTWI that fosters pre apprenticeship programs in four Bay Area counties. We are committed to a green future that grows well-paying green construction jobs and support a just transition that does not mean “just unemployment” for our members.

E-1

We are concerned that the Contra Costa County updated 2024 Climate Action Plan (CAP), Draft 2045 General Plan, and the General Plan and Climate Action Plan Draft Environmental Impact Report (DEIR) do not adequately protect our jobs in the future.

E-2

As a result, we respectfully request an additional 60-day extension to your comment period that ends Monday, April 8.

We apologize that we have not had the opportunity to submit our comments to date. If the additional time is granted, it will provide us with the necessary time to submit thoughtful and helpful comments that will lead to the future adoption of these documents.

E-3

The Contra Costa Building and Construction Trades respects all the work that has gone into these documents to date and appreciates the work that County staff has done to reach out to the broader Contra Costa community to gain our insights.

Thank you for your consideration of the 60-day public comment extension.

Sincerely,

Bill Whitney
Contra Costa Building and
Construction Trades Council

2. Response to Comments

E. **Response to Comments from the Contra Costa Building and Trades Council, dated April 5, 2024.**

E-1 The Contra Costa Building and Trades Council (Trades Council) mentions that their union represents 35,000 workers and approximately 65 percent of the workforce include people of color and Indigenous peoples. The Trades Council spends millions of dollars annually providing apprenticeship programs that train the next generation of crafts people specifically in four Bay Area counties. The Trades Council is committed to a green future that grows well with well-paying green construction jobs while ensuring a just transition that doesn't lead to unemployment for their workforce.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

E-2 The Trades Council expresses their concern that the updated Climate Action Plan and General Plan, as well as the General and Climate Action Plan DEIR, do not adequately protect the union members' jobs in the future.

The Trades Council does not provide evidence to support the assertion that the DEIR does not adequately protect jobs in the future. As this comment does not describe any inadequacies of the DEIR, no changes to the EIR are necessary. See Master Response 1 for further explanation.

E-3 The Trades Council requests an additional 60-day extension to the comment period that ends April 8, 2024. The Trades Council states they have not had the opportunity to submit thoughtful and helpful comments that will lead to the future adoption of the proposed plans. The Trades Council apologizes for the request and thanks the County for reaching out to community members as well as the work that been put into the documents.

The County conducted an extensive environmental review of the proposed project in compliance with CEQA, the State CEQA Guidelines, and the Contra Costa County CEQA Guidelines. The County accepted public comments on the Notice of Preparation from September 20 to October 20, 2023, and held a public scoping meeting on October 16, 2023. The DEIR was made available for 60 days of public review, from February 9 to April 8, 2024. The County fulfilled all noticing and scoping requirements under Section 15083 of the CEQA Guidelines and exceeded Section 15105 requirements pertaining to the minimum length of the public comment period on the DEIR. The County thus elected not to extend the public review comment period on the DEIR. However, the County did extend the public comment period on the 2045 General Plan and CAP for 14 days, to April 22, 2024, in response to this and other requests.

2. Response to Comments

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2. Response to Comments

LETTER F – East Bay Leadership Council (1 page)



April 5, 2024

Director John Kopchik
Department of Conservation & Development, Contra Costa County
30 Muir Road, Martinez, CA 94553

Delivered by email

Subject: Comment Period Extension Request

Dear Director Kopchik:

The East Bay Leadership Council is a nonprofit employer-led organization on a mission to strengthen the economy and improve the quality of life across Contra Costa and Alameda Counties. Over EBLC's more than 85-year history in the region, we have come to understand the importance of guiding documents like the General Plan and Climate Action Plan (CAP) that set the stage for equitable economic development for decades to come.

F-1

Today we write to respectfully request that you extend, for an additional 60 days, the comment period for the Contra Costa County updated 2024 Climate Action Plan, Draft 2045 General Plan, and the General Plan and Climate Action Plan Draft Environmental Impact Report.

F-2

The additional time will be key in facilitating further input from employer stakeholders, discussions with County staff, and increased focus on the integration of equity and economic development in the proposed General Plan and CAP.

The East Bay Leadership Council appreciates the work that County staff has done to hear from diverse community and employer leaders to date and stands ready to ensure that these additional 60 days are worth the time. We believe that the comments received during this time will be integral to Contra Costa County's efforts to draft and implement these foundational documents.

F-3

Sincerely,

A handwritten signature in black ink, appearing to read "Mark Orcutt", with a stylized flourish at the end.

Mark Orcutt
President & CEO
East Bay Leadership Council

CC: Will Nelson, Principal Planner, Contra Costa County

2. Response to Comments

F. Response to Comments from the East Bay Leadership Council, dated April 5, 2024.

F-1 The East Bay Leadership Council (EBLC) states that they are an employer led non-profit organization that seeks to strengthen the economy and improve the quality of life across Contra Costa and Alameda Counties. The Leadership Council has had a long presence in the region spanning 85 years and understands the importance of guiding documents like the 2045 General Plan and Climate Action Plan as the documents can influence factors such as equitable economic development for the coming decades.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

F-2 EBLC requests the County to extend the comment period for 60 days for the updated Climate Action Plan and 2045 General Plan, as well as the General and Climate Plan DEIR. The Leadership Council states that the additional time would help facilitate further input from employer stakeholders, discussions with County staff, and increased focus on the integration of equity and economic development in the proposed documents.

See response to Comment E-3.

F-3 EBLC states that they appreciate the work the County has done in hearing diverse community and employer leaders thus far and are ready to ensure that the additional 60 days are worth the time. The comments received during the extension would be integral to the County's efforts to draft and implement in the planned documents.

See response to Comment E-3.

2. Response to Comments

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2. Response to Comments

LETTER G – California Department of Transportation, Aeronautics Division (2 pages)

California Department of Transportation

AERONAUTICS PROGRAM
DIVISION OF TRANSPORTATION PLANNING
P.O. BOX 942873, MS-40 | SACRAMENTO, CA 94273-0001
(916) 654-4959
www.dot.ca.gov



April 8, 2024

Will Nelson
Principal Planner
Contra Costa County Department of Conservation and Development
30 Muir Road
Martinez, CA 94553

Electronically Sent <will.nelson@dcd.cccounty.us>

Dear Mr. Nelson,

The California Department of Transportation, Caltrans Aeronautics has reviewed the Draft Environmental Impact Report for Contra Costa County 2045 General Plan and Contra Costa County Climate Action Plan 2024 Updates (aka Envision Contra Costa). One of the goals of the California Department of Transportation, Aeronautics Program, is to assist cities, counties, and Airport Land Use Commissions (ALUC) or their equivalent, to understand and comply with the State Aeronautics Act pursuant to the California Public Utilities Code (PUC), Section 21001 et seq. Caltrans encourages collaboration with our partners in the planning process and thanks you for including the Aeronautics Program in the review of the Draft EIR.

G-1

Contra Costa County contains two public general aviation airports: Buchanan Field Airport and Bryon Airport. The Contra Costa County Airport Land Use Compatibility Plan (ALUCP) adopted by the Contra Costa County Airport Land Use Commission sets the compatibility criteria applicable to local agencies in the preparation or amendments of land use plans and ordinances. An ALUCP is crucial in minimizing noise nuisance and safety hazards around airports while promoting the orderly development of airports, as declared by the California Legislature.

G-2

Per the California Public Utilities Code Section 21001 et seq. relating to the State Aeronautics Act, Section 21676(b) prior to the amendment of a general plan...within the planning boundary established by the airport land use commission pursuant to Section 21675, the local agency shall first refer the proposed action to the commission. If the commission determines that the proposed action is inconsistent with the commission's plan, the referring agency shall be notified. Any proposed development in the defined safety zones, therefore, must adhere to the safety criteria and restrictions defined in the Airport Land Use Compatibility Plan(s) adopted by the ALUC pursuant to the PUC, Section 21674.

G-3

Mr. Nelson, Principal Planner
April 8, 2024
Page 2

Caltrans Aeronautics acknowledges and commends Goal TR-7: Safe and viable general and commercial aviation activities in Contra Costa County and its subsequent policies which aim to ensure that development is compliant with airport land use requirements.

G-4

If you have any questions or need additional information, please contact me by email at tiffany.martinez@dot.ca.gov.

Sincerely,



Tiffany Martinez
Aviation Planner
Caltrans Aeronautics Program

c: State Clearinghouse <state.clearinghouse@opr.ca.gov>

2. Response to Comments

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2. Response to Comments

G. Response to Comments from the California Department of Transportation, Aeronautics Division, dated April 8, 2024.

G-1 The California Department of Transportation, Aeronautics Division (Caltrans Aeronautics) state that they have reviewed the DEIR. Caltrans states that one of the goals of the Caltrans Aeronautics programs is to assist cities, counties, and Airport Land Use Commissions or their equivalent, to understand and comply with the State Aeronautics Act pursuant to the California Public Utilities Code, Section 21001 et seq. Therefore, Caltrans encourages collaboration with partners in the planning process and thanks the County for including the Aeronautics Program in the review of the DEIR.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

G-2 Caltrans Aeronautics states that the county contains two public general aviation airports, Buchanan Field Airport and Byron Airport. Caltrans Aeronautics states that the Contra Costa Airport Land Use Compatibility Plan (ALUCP) sets the compatibility criteria applicable to local agencies in the preparation or amendments of land use plans or ordinances. Caltrans Aeronautics states that an ALUCP is crucial in minimizing noise nuisance and safety hazards around airports, while promoting the orderly development of airports, as declared by the California legislature.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

G-3 Caltrans Aeronautics states per the California Public Utilities Code Section 21001 et seq. relating to the State Aeronautics Act, Section 21676(b), before amending a general plan within the Airport Land Use Commission's (ALUC) planning boundary, the local agency must refer the proposed action to the commission. If the commission finds the action inconsistent, the agency must be notified. Any development in defined safety zones must adhere to safety criteria and restrictions in the ALUCP adopted by the ALUC under Section 21674 of the California Public Utilities Code.

Under Impact 5.9-3 in Section 5.9, *Hazards and Hazardous Materials*, the DEIR states that the ALUCP mandates that all potential developments within airport Safety Zones must adhere to its provisions; the County must also consider potential safety hazards or noise problems during environmental reviews, as per Section 21096 of the Public Resources Code; and the Federal Aviation Administration and Caltrans Division of Aeronautics also provide guidance on land use safety near airports. In addition, Impact 5.11-2 in Section 5.11, *Land Use and Planning*, states that the County will collaborate with agencies and jurisdictions to ensure that development near airports aligns with the ALUCP, and future development within airport influence areas will be reviewed by the ALUC for consistency.

2. Response to Comments

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. The Contra Costa County ALUC reviewed the draft General Plan at its meeting on July 18, 2024, and found it to be consistent with Contra Costa County's ALUCP.

G-4

Caltrans Aeronautics acknowledges and commends the General Plan Goal TR-7: Safe and viable general and commercial aviation activities in Contra Costa County and its subsequent policies which aim to ensure that developments are compliant with airport land use requirements.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

2. Response to Comments

LETTER H – California Department of Transportation, District 4 Office of Community and Regional Planning (2 pages)

California Department of Transportation

DISTRICT 4
OFFICE OF REGIONAL AND COMMUNITY PLANNING
P.O. BOX 23660, MS-10D | OAKLAND, CA 94623-0660
www.dot.ca.gov



April 8, 2024

SCH #: 2023090467
GTS #: 04-CC-2023-00750
GTS ID: 30908
Co/Rt/Pm: CC/VAR/VAR

Will Nelson, Principal Planner
Contra Costa County
30 Muir Road
Martinez, CA 94553

Re: Contra Costa County 2045 General Plan and Contra Costa County Climate Action Plan 2024 — **Draft Environmental Impact Report (DEIR)**

Dear Will Nelson:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for this project. The Local Development Review (LDR) branch reviews land use projects and plans to ensure consistency with our mission and state planning priorities.

H-1

The following comments are based on our review of the February 2024 DEIR. Please note this correspondence does not indicate an official position by Caltrans on this project and is for informational purpose only.

Project Understanding

The purpose of the General Plan update is to create a long-term vision for the County's physical development, to address challenges such as climate change and housing insecurity, and to enhance quality of life for Contra Costa County residents. The project also includes an update to the County's 2015 Climate Action Plan (CAP). The CAP is a separate document that supports the General Plan by establishing goals and strategies to reduce greenhouse gas emissions in unincorporated Contra Costa County, consistent with State targets.

H-2

Travel **Demand Analysis**

The project's vehicle miles traveled (VMT) analysis and significance determination are undertaken in a manner consistent with the County's adopted VMT policy. Per the DEIR, this project is found to have significant and unavoidable VMT impact. Caltrans commends the Lead Agency for developing a Transportation Demand Management

H-3

(TDM) program for development projects with significant VMT impacts. We encourage the Lead Agency to continue exploring potential VMT options and document the TDM program with annual monitoring reports to demonstrate effectiveness.

H-3

Sea Level Rise

In the 2020 Caltrans District 4 Adaptation Priorities Report ([link](#)), Interstate (I)-680 within the project location is identified as a high-priority Caltrans asset vulnerable to sea level rise, storm surge, and climate change impacts, including increased precipitation. Caltrans would like to be included in discussions, to stay informed as Caltrans is interested in engaging in multi-agency collaboration early and often, to find multi-benefit solutions that protect vulnerable shorelines, communities, infrastructure, and the environment. Please contact Vishal Ream-Rao, Caltrans Bay Area Climate Change Planning Coordinator, with any questions at d4_climateresilience@dot.ca.gov.

H-4

Equity

We will achieve equity when everyone has access to what they need to thrive no matter their race, socioeconomic status, identity, where they live, or how they travel. Caltrans is committed to advancing equity and livability in all communities. We look forward to collaborating with Contra Costa County to prioritize projects that are equitable and provide meaningful benefits to historically underserved communities.

H-5

Thank you again for including Caltrans in the environmental review process. Should you have any questions regarding this letter, please contact Llisel Ayon, Associate Transportation Planner, via LDR-D4@dot.ca.gov. For future early coordination opportunities or project referrals, please contact LDR-D4@dot.ca.gov.

H-6

Sincerely,



YUNSHENG LUO
Branch Chief, Local Development Review
Office of Regional and Community Planning

c: State Clearinghouse

2. Response to Comments

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2. Response to Comments

H. Response to Comments from the California Department of Transportation, District 4 Office of Community and Regional Planning, dated April 8, 2024.

H-1 The California Department of Transportation, District 4 Office of Community and Regional Planning (Caltrans District 4) thanks County staff for including the agency in the environmental review process for the project. Caltrans District 4 states that the Local Development Review branch reviews land use projects and plans to ensure consistency with the agency's mission and State planning priorities. The agency mentions that the comments provided for the planning documents are for informational purposes only and that they are not an official position held by the agency.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

H-2 Caltrans District 4 states that the General Plan update aims to establish a long-term vision for Contra Costa County's physical development, tackle climate change and housing insecurity, and improve residents' quality of life. Caltrans District 4 notes that the County's 2015 Climate Action Plan outlines goals and strategies to reduce greenhouse gas emissions in unincorporated Contra Costa County, aligning with State targets.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

H-3 Caltrans District 4 states that the project's VMT analysis and significance determination are undertaken in a manner that is consistent with the County's adopted VMT policy. Per the DEIR, this project is found to have a significant and unavoidable VMT impact. Caltrans commends the County for developing a Transportation Demand Program (TDM) for projects with significant VMT impacts. Caltrans recommends continuing exploring potential VMT reduction options and documenting the TDM with annual monitoring reports to demonstrate effectiveness.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

H-4 Caltrans District 4 states that Interstate I-680, which is within the project's location, is identified as a high-priority Caltrans asset vulnerable to sea level rise, storm surge, and climate change impacts, including increased precipitation. Caltrans District 4 expresses interest in being included in discussions to stay informed, as the agency wants to engage in multi-agency collaboration early and often to find multi-benefit solutions that protect vulnerable shorelines, communities, infrastructure, and the environment.

2. Response to Comments

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation. The County will revise General Plan Action HS-A6.3 to explicitly identify Caltrans as an agency with whom to coordinate in developing a countywide sea-level rise adaption and resilience plan.

- H-5 Caltrans District 4 states their commitment to advancing equity and livability in all communities. Caltrans District 4 looks forward to collaborating with the County to prioritize projects that are equitable and provide meaningful benefits to historically underserved communities.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

- H-6 Caltrans District 4 thanks the County for including Caltrans in the environmental review process. Caltrans District 4 provides the contact information of their Associate Transportation Planner for any questions regarding the comment letter. Caltrans also provides the contact information for the District 4 Caltrans office for future early coordination opportunities or project referrals.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

2. Response to Comments

LETTER I – City of Lafayette (1 page)

From: [Zittel, Nichole](#)
To: [DCD Advance Planning](#)
Subject: City of Lafayette - Contra Costa County 2024 General Plan and Climate Action Plan Draft EIR Public Review and Comment
Date: Monday, April 8, 2024 1:32:42 PM

Good Afternoon,

The City of Lafayette has reviewed the Contra Costa County 2024 General Plan and Climate Action Plan Draft Environmental Impact Report and has no comments.

Best,

Nichole Zittel

[She/her](#)

Assistant Planner

City of Lafayette

(925) 299-3211

www.lovelafayette.org

I-1

2. Response to Comments

I. Response to Comments from the City of Lafayette, dated April 8, 2024.

I-1 The City of Lafayette states that they have reviewed the Contra Costa County 2024 General Plan and Climate Action Plan Draft EIR and have no comments.

The County appreciates the City's review of the DEIR. This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

2. Response to Comments

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2. Response to Comments

LETTER J – Communities for a Better Environment and Asian Pacific Environmental Network (8 pages)

April 8, 2024

Contra Costa County
Department of Conservation and Development
30 Muir Road, Martinez, CA 94553

RE: General Plan, Climate Action Plan, Environmental Impact Report

Comments submitted by email to: email@envisioncontracosta2040.org

Dear Chair Glover, Board of Supervisors, and Department of Conservation and Development:

We submit these comments primarily to describe the inherent risks in hydrogen and biomethane infrastructure development as part of the County's climate commitments, and outline other improvements. While our comments focus on these issues, we also uplift comments submitted by 350 Bay Area and others on ways that the General Plan, Climate Action Plan, and related Environmental Impact Report can and should be more protective of environmental justice communities.

J-1

J-2

We are committed to working with the County as stewards of a long-awaited shift away from an extractive fossil-fuels based economy that will dramatically improve air quality for fenceline communities and reduce the harms of the climate crisis for the whole County. We should use this opportunity to grow a regenerative and collective economy that centers the needs of our fenceline communities throughout, supporting residents and workers along the way, in a just and equitable transition. As the County, state and country develop and implement policies that recognize the climate crisis and support a decarbonized grid, we are reminded that: "Transition is inevitable. Justice is not."¹

J-3

I. We support, if amended, the County's many community-rooted climate solutions.

The County proposes a number of laudable policies that advance a just and equitable transition. Other policies described in the General Plan and Climate Action Plan would benefit from additional safeguards to ensure that the policies are equitable and do not exacerbate existing environmental justice inequities.

J-4

Building Decarbonization

This emphasis on equity is reflected in BE-2 where the Country describes its intent to develop programs to support residential electrification.² By prioritizing those with the least means to bring

J-5

¹ "Just Transition," Movement Generation, <https://movementgeneration.org/justtransition/>.

² "Climate Action Plan," Contra Costa County, October 2023, https://envisioncontracosta2040.org/wp-content/uploads/2023/10/CoCoCounty-2024CAP-PublicDRAFT-10-10-23_Final.pdf, [hereinafter "Climate Action Plan"] at 77 ("Ensure County-led and supported retrofit programs incentivize and prioritize conversion of buildings built before 1980 and emphasize assistance to

decarbonization into their own homes, the County is helping avoid a possible catastrophe where only those who could not afford to get off the natural gas system are those who are left to pay for the maintenance, repair and crises of an aging infrastructure system. On this program and others, even where a community-based organization (“CBO”) may lack technical expertise or physical capacity to implement electrification projects inside residents’ homes, the County should still partner with CBOs who have trusting relationships in communities centered with these policies as a way to establish trust and promote participation through holding community meetings and demonstrations, relying then on additional organizations with capacity to effectuate the program.

J-5
(CONT'D)

We encourage the County to connect with the City of Los Angeles Climate Emergency Mobilization Office (CEMO) to understand the recommendations of the City of Los Angeles *Report on Equitable Building Decarbonization* and its underlying community engagement process.³ Additionally, we encourage the County to incorporate policies to protect tenants as recommended in the report *Decarbonizing California Equitably: A Guide to Tenant Protections in Building Upgrades/Retrofits Throughout the State*.⁴

Carbon Sequestration

NI-4 describes the County’s goal to use working lands for carbon sequestration strategies to achieve net carbon neutrality. Our organizations celebrate the County’s approach to sequestration in that it relies on natural and working lands through trees and other green infrastructure, rather than the untested, risky technologies promoted by fossil fuel companies to otherwise store carbon via underground injection.⁵ At the same time, we should provide explicit guidance on how to implement the important principle that the County itself writes: “Ideally, the community will reduce its own emissions as much as possible [by other methods], and then balance out the remainder [with carbon capture].”⁶ This goal is also reflected in AB 1279 (Muratsuchi), which states “Prioritizing direct emission reductions will help California to meet both its air quality standards and net zero greenhouse gas emissions” given “the findings from numerous studies recognizing the benefits, risks, and uncertainties around the use of carbon dioxide removal technologies and carbon capture, utilization, and storage technologies.”⁷

J-6

owners of properties that are home to very low-, low-, and moderate- income residents or located in Impacted Communities, as permitted by available funding.”).

³ Emma French, *Report on Equitable Building Decarbonization: Equity Focused Policy Recommendations for the City of Los Angeles*, Prepared for the Climate Emergency Mobilization Commission and the Climate Emergency Mobilization Office (CEMO), Sept. 15, 2022, <https://static1.squarespace.com/static/6425c19e4d543f40fa406953/t/65a08499faadfe0e9652ec40/1705018528390/Report-on-Equitable-Building-Decarbonization-FINAL-September-15-2022.pdf>.

⁴ Strategic Actions for a Just Economy (SAJE), October 2023, <https://www.saje.net/wp-content/uploads/2023/09/Decarbonizing-California-Equitably-Report-1.pdf>.

⁵ Climate Action Plan, at 100. See also “Healthy Lands, Healthy People: A Carbon Sequestration Feasibility Study,” Contra Costa County, October 2023, contracosta.ca.gov/DocumentCenter/View/79768/Healthy-Lands-Healthy-People-Final-Report.

⁶ Climate Action Plan, at 15.

⁷ AB 1279 (2022). <https://legiscan.com/CA/text/AB1279/id/2606946>.

First, we must clarify that these reductions should be the result of policies and practices that support direct reductions in consumer demand as well as policies or permitting decisions that support direct limitations on emissions that result in declining emissions. In short, ensuring less or no emissions are generated in the first place. The County should be explicit to signal that industrial carbon capture and sequestration (CCS) technology, which is unproven at scale and encourages continued investment in non-carbon but still health-harming polluting emissions, is *not* considered such a reduction strategy. We should also make explicit that industrial carbon dioxide removal (CDR) should be a backstop rather than the primary driver of carbon neutrality in the County. The County should collaborate with the Air District and further prioritize strategies that also improve air quality in areas with the worst cumulative air pollution impacts.

J-6
CONT'D

The County's goals in NW-1 to increase composting of natural waste, similarly, move us in the right direction, but need to be more protective of impacted communities. While proper composting of natural waste is preferable to increased landfill reliance, the Plan is silent on mitigation measures that would protect the communities that surround natural waste composting facilities from increased onsite processing.⁸ The County should develop policies that protect local air, water and soil quality and nearby residents from odor impacts in tandem with its natural waste composting goals. Additionally, as the County encourages more proper processing of organic waste, it needs to be careful to not encourage the creation of more organic waste, and instead proactively minimize waste. This is especially the case if the County intends to capture natural gas from recovered organic waste as to not create incentives to produce more underlying organic waste.⁹ If that County does pursue that waste-to-gas implementation strategy, it should safeguard against fossil gas expansion alongside development of those waste-based technologies so that the resultant product is not a greenwashed fossil fuel blend product.

J-7

Renewable Energy

Finally, one of the most promising components of the Climate Action Plan are the County's plans to increase use and generation of electricity from renewable sources in BE-3. We are concerned, however, that while the 2030 goals suggest rapid progress in this decade, there is a large and unexplained drop off in a number of the 2045 projections, namely that there would be zero related greenhouse gas emission reductions for the 2030-2045 period.¹⁰ Instead, we ask that the County only continue to increase and accelerate its renewable electricity sourcing efforts over this period. If the County sees this as infeasible, we ask that the County explain that projection and its underlying analysis in greater detail than the Plan does now.

J-8

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⁸ Climate Action Plan, at 83.

⁹ Climate Action Plan, at 98.

¹⁰ Climate Action Plan, at 78.

II. Biomethane is a false solution that endangers public health both in its creation and in its use.

The County forecasts that biomethane will be blended in pipelines as a replacement to natural gas.¹¹ Instead, the County should develop and pursue strategies that do not rely on biomethane, which we call a false solution: though it may appear as an appropriate replacement for natural gas at first glance, biomethane poses too many public health risks to be included in the Climate Action Plan.

J-9

Biomethane's most ample local supply is the megadairies of the Central Valley; the manure from cows at these dairy farms feed methane digesters that then yields biomethane, all the while increasing reliance on the heavily pollutive dairy industry, further endangering the low-income farmworker communities that surround these pastorally-cloaked industrial operations.¹² The Central Valley's poor air quality is made worse yet by methane digesters which emit particulate matter and ammonia, yielding the highest ammonia concentrations in the state.¹³ Megadairies imperil the drinking water that farmworker communities rely on, elevating nitrate levels as a result of the manure seeping into groundwater, and the odor impacts are as awful as can be easily imagined.¹⁴ Contra Costa County is home to four oil refineries and knows the deleterious environmental and public health effects of the state relying on the region to produce energy for everyone else; the County should not now shift that unjust - and unnecessary - burden to Tulare County and the rest of the San Joaquin Valley.

J-10

Much of the evidence to support these warnings have been aggregated not only by environmental justice groups who have always opposed these false solutions, but now increasingly environmental groups and academics who originally supported the creation of the Low Carbon Fuel Standard like the Union of Concerned Scientists (UCS) and the Natural Resources Defense Council (NRDC) have joined in the chorus of warnings.¹⁵ But, given state policy inertia, distorted accounting related to the harms and benefits of biomethane production and use continues to favor this especially problematic source over other investments

¹¹ Climate Action Plan, at 64, B-45.

¹² Tony Briscoe, "Why some people think California's cow manure methane plan stinks," *Los Angeles Times*, Dec. 5, 2023,

<https://www.latimes.com/environment/story/2023-12-05/californias-cow-manure-methane-plan-is-making-people-angry> [hereinafter "Briscoe biomethane article"].

¹³ Briscoe biomethane article; Michael Holly et. al., "Greenhouse gas and ammonia emissions from digested and separated dairy manure during storage and after land application," *Agriculture, Ecosystems & Environment* 239, Feb. 15, 2017, 410-419,

<https://www.sciencedirect.com/science/article/pii/S0167880917300701>.

¹⁴ Rebecca Spector, "The Dairy Digester Dilemma: A False Climate Solution," Center for Food Safety, Oct. 4, 2021,

<https://www.centerforfoodsafety.org/blog/6457/the-dairy-digester-dilemma-a-false-climate-solution>.

¹⁵ "Recommendations for Updates to the Low Carbon Fuel Standard," Natural Resources Defense Council, June 14, 2023, <https://www2.arb.ca.gov/form/public-comments/submissions/4036>; Jeremy Martin, "Something Stinks: California Must End Manure Biomethane Accounting Gimmicks in its Low Carbon Fuel Standard," Union of Concerned Scientists, February 15, 2024, <https://blog.ucsusa.org/jeremy-martin/something-stinks-california-must-end-manure-biomethane-accounting-gimmicks-in-its-low-carbon-fuel-standard/>.

to be funded by the state's Low Carbon Fuel Standard.¹⁶ The effects of perverse incentives created by runaway policies due for corrections should not be taken as evidence that biomethane is a reliable, much less responsible, energy source for the future.

J-10
CONT'D

The California Energy Commission studied replacing in-home natural gas with biomethane and found that combustion of biomethane was just as toxic, if not more toxic, than natural gas, including on DNA damage and increasing cancer risks.¹⁷ Even if biomethane is restricted to industrial clusters¹⁸ (or even just to wastewater plants¹⁹), that merely, and unacceptably, directs the public health dangers towards industrial workers.

Taken together, the environmental injustices in the production of biomethane at megadairies, the shoddy calculations and unreliable financial incentives that have propped up this industry, and the end-use public health risks all lead us to urge the County to reject biomethane as a component of the Climate Action Plan. Since the current draft of the Climate Action Plan relies on biomethane to achieve some of its greenhouse gas emissions, the County needs to develop alternative methods to accomplish those same emissions. To that end, we believe that reducing vehicle miles traveled and increasing public transportation infrastructure is the most efficient strategy, reducing energy needs and greenhouse gas emissions as effectively as possible in the greatest emitting sector.

J-11

III. While just a minor component of the Climate Action Plan, the County should not rely on hydrogen as a future fuel source.

We are glad to see little reliance placed on hydrogen as a fuel source in the Climate Action Plan. The few references made are in the context of transportation and biomethane. The section above addresses the latter. On transportation, the County's own words in the Climate Action Plan point towards the strategy we encourage: "Gasoline and diesel-fueled vehicles in particular release more carbon dioxide into the atmosphere than vehicles that use electricity or hydrogen fuels, even when accounting for how the electricity or hydrogen is generated."²⁰ While this two-strategy approach mirrors state policy,²¹ hydrogen production could easily entrench existing environmental inequities rather than promote a Just Transition.

J-12

¹⁶ Kiki Velez, "CARB Must Reform LCFS Program to Meet Climate Goals," Natural Resource Defense Council, Aug. 23, 2023, <https://www.nrdc.org/bio/kiki-velez/carb-must-reform-lcfs-program-meet-climate-goals-0>; see e.g., Jeff St. John, "Critics question assumptions at core of Low Carbon Fuel Standard," Canary Media, Mar. 14, 2024, <https://www.canarymedia.com/articles/transportation/critics-question-assumptions-at-core-of-california-low-carbon-fuel-program>

¹⁷ "Air Quality Implications of Using Biogas to Replace Natural Gas in California," California Energy Commission, May 2020, <https://www.energy.ca.gov/sites/default/files/2021-05/CEC-500-2020-034.pdf>.

¹⁸ Climate Action Plan, at B-30.

¹⁹ Climate Action Plan, at 83.

²⁰ Climate Action Plan, at 92.

²¹ See, e.g., Executive Order N-72-20, Sep. 23, 2020, <https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf>; "2022 Scoping Plan for Achieving Carbon Neutrality," California Air Resources Board, Dec. 2022, <https://www2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf> [hereinafter "2022 CARB Scoping Plan"], at 189-192.

The 2022 CARB Scoping Plan projects a precipitous decline in in-state demand for gasoline and petroleum-based products by 2045.²² It further muses that “existing refineries could be repurposed to produce [...] hydrogen.”²³ That would be a calamitous environmental justice failure. As the County knows, “[t]he differences in criteria pollutant emissions between [...] processing of petroleum-based feedstocks and renewable feedstocks is small, as renewable fuels processing operates within the same range of operating parameters as petroleum-based production.”²⁴ The County must commit to a future where oil refineries are decommissioned rather than one that prolongs reliance on the oil industry, defers environmental remediation of toxic sites, and endorses existing pollution burdens that disproportionately fall on low-income communities of color.

J-12
CONT'D

Hydrogen can be produced from processes other than existing refineries, of course, but there is no model we endorse. So-called “green” hydrogen, where renewable energy is the source of energy for electrolysis (a process by which hydrogen is extracted from water molecules) is a misnomer, willfully obscuring the inefficiency and loss of 50-80% of the energy inherent in producing hydrogen via electrolysis and then from combusting hydrogen to generate electricity again.²⁵ Instead, we encourage maximization of renewable energy sources that feed directly into the grid to meet consumers’ needs, including in the transportation sector and accordingly encourage the County to pursue electric transportation options as it plans for the energy transition.

J-13

IV. Climate planning requires inclusion of local refineries and other large industrial facilities under County jurisdiction.

Notably missing from the Climate Action Plan are the largest sources of industrial sector greenhouse gas emissions in the state: oil refineries. These oil refineries also produce the very fuels that make the transportation sector the largest source of greenhouse gas emissions in the state. While addressing the cumulative and disproportionately harmful pollution burden that falls on refinery fenceline communities, planning for a community-and-worker-centered managed decline of greenhouse gas emissions from oil refineries will be necessary to meet county, state, and global climate goals.

J-14

The County has excluded from its greenhouse gas inventory - and from the rest of the Climate Action Plan - large industrial facilities, including oil refineries under a theory that “[t]hese

J-15

²² 2022 CARB Scoping Plan, at 100-110.

²³ 2022 CARB Scoping Plan, at 191.

²⁴ “Rodeo Renewed Project Draft Revised Environmental Impact Report,” Contra Costa County, Oct. 2023,

<https://www.contracosta.ca.gov/DocumentCenter/View/80824/Phillips-66-Rodeo-Renewed-Project-Draft-Revised-EIR-October-24-2023>, at 16.

²⁵ Jeff St. John, “The problem with making green hydrogen to fuel power plants,” *Canary Media*, Oct. 10, 2023,

<https://www.canarymedia.com/articles/hydrogen/the-problem-with-making-green-hydrogen-to-fuel-power-plants>.

facilities are regulated by the State and BAAQMD, and the County does not have direct control over their operations.”²⁶ First, while the State and Air District do regulate these facilities (and many if not all of the other contemplated regulated parties under the Climate Action Plan), so does the County; the County’s own Industrial Safety Ordinance uniquely applies to two refineries and related facilities within its jurisdiction.²⁷ Second, the County’s involvement as the lead agency for analysis and review under the California Environmental Quality Act (“CEQA”) for two biofuel conversion projects at local refineries, with accompanying permit decisions, further evinces the County’s role in regulating and controlling these facilities.²⁸ As the County wrote in the 2021 Draft Environmental Impact Report for the Martinez Refinery Renewable Fuels Project, “The Project also requires discretionary action by Contra Costa County (County), wherein the County has the authority to use its judgment in deciding whether or how to carry out or approve the Project. [...] As the public agency with primary land use authority over the proposed Project, the County is the ‘lead agency’ overseeing and administering the CEQA environmental review process.”²⁹ The County should not seek to relinquish its broad discretionary authority over these facilities or advance a narrative that that regulation of them is solely in the purview of state agencies; the County has a responsibility here.

J-15
CONT'D

At the very least, the County should meet the bare examples of Richmond and Los Angeles and contextualize its own greenhouse gas emissions inventory and reduction plans with side-by-side comparisons of totals that include the emissions from the large industrial facilities, including oil refineries.³⁰ Both cities pass on specific emissions reduction goals for refineries, but do report the totals; Los Angeles also does offer that it will “[s]upport the implementation of refinery and heavy duty industry emissions reduction plans,” including leak detection and repair initiatives and implementing control technologies.³¹ The California Air Resources Board released 2022 emissions data late last year to support that will support this exercise.³²

J-16

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²⁶ Climate Action Plan, at B-17.

²⁷ “Industrial Safety Ordinance,” Contra Costa Health, <https://www.cchealth.org/health-and-safety-information/hazmat-programs/industrial-safety-ordinance>.

²⁸ “Phillips 66 Rodeo Renewed Project,” Contra Costa County, last updated Jan. 5, 2024, <https://www.contracosta.ca.gov/7945/Phillips-66-Rodeo-Renewed-Project>; “Martinez Refinery Renewable Fuels Project,” Contra Costa County,

²⁹ “Martinez Refinery Renewable Fuels Project Draft Environmental Impact Report,” Contra Costa County, Oct. 2021, <https://www.contracosta.ca.gov/DocumentCenter/View/72957/Martinez-Refinery-Renewable-Fuels-DEIR-Vol-1-Complete-DEIR>, at 1-1.

³⁰ “Climate Action Plan,” City of Richmond, October 2016, ci.richmond.ca.us/DocumentCenter/View/40636/CAP-combined?bidId=, at 27; “L.A.’s Green New Deal, Sustainability Plan 2019,” City of Los Angeles, 2019, plan.lamayor.org/sites/default/files/pLAN_2019_final.pdf, [hereinafter “Los Angeles Climate Action Plan”] at 91 (noting that 2015 greenhouse gas inventory data included large industrial facilities, including petroleum refineries, and they are included in the City’s industrial emission goals in the box at the top of the page).

³¹ Los Angeles Climate Action Plan, at 91.

³² “Annual Summary of GHG Mandatory Reporting,” California Air Resources Board, Nov. 6, 2023, <https://ww2.arb.ca.gov/sites/default/files/classic/cc/reporting/ghg-rep/reported-data/2022-ghg-emissions-2023-11-06.xlsx>.

Thank you for the opportunity to comment on the Climate Action Plan. We look forward to supporting and celebrating the County's many successes as it plans for this energy transition, with justice at the heart of it. To that end, we are requesting that we set up a meeting with your team so that we can collaborate on language that reflects our suggestions. Please contact us with any questions via email at conniecho@apen4ej.org and kerry@cbeal.org.

Sincerely,

Connie Cho
Just Transition Policy Strategist
Asian Pacific Environmental Network

Emma Ishii
Local Policy Coordinator
Asian Pacific Environmental Network

Kerry Guerin
Attorney & Just Transition Fellow
Communities for a Better Environment

2. Response to Comments

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2. Response to Comments

J. **Response to Comments from Communities for a Better Environment and Asian Pacific Environmental Network, dated April 8, 2024.**

J-1 Communities for a Better Environment and the Asian Pacific Environmental Network (CBE-APEN) states that they submit their comments primarily to highlight concerns regarding hydrogen and biomethane infrastructure development as part of the County's climate commitments, as well as other suggested improvements.

Contra Costa County appreciates CBE-APEN's comments and recommendations. Refer to responses in J-2 through J-4 for specific responses to each topic raised.

J-2 CBE-APEN states that although their comments focus on issues stated above, they want to highlight comments submitted by 350 Bay Area and others on ways the General Plan, Climate Action Plan, and EIR can be more protective of environmental justice communities.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

J-3 CBE-APEN states that they committed to working with the County "as stewards" of a transition away from a fossil-fuel-based economy, thereby improving air quality for fence line communities and reducing climate crisis harm. CBE-APEN aims to grow a regenerative economy that centers the needs of fence line communities, supporting residents and workers in a just and equitable transition.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

J-4 CBE-APEN recommends amending policies in the General Plan and Climate Action Plan to include additional safeguards so that the policies can be more equitable and not exacerbate existing environmental justice inequities.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

J-5 CBE-APEN highlights Climate Action Plan Strategy BE-2, which will help lower income individuals to decarbonize their homes. CBE-APEN acknowledges that although community-based organizations (CBOs) may lack expertise on the implementation of electrification projects in homes, the County should seek to partner with CBOs in order to establish trust and promote community engagement. CBE-APEN also encourages the County to collaborate with the City of Los Angeles Climate Emergency Mobilization Office to understand the City of Los Angeles *Report on Equitable Building Decarbonization* and its community engagement process. Additionally, the County is advised to implement tenant protection policies as outlined in the report *Decarbonizing California Equitably*.

2. Response to Comments

The proposed CAP prioritizes working with community-based organizations in several actions in the Climate Equity goal. Namely:

- In partnership with community-based organizations, reverse community deterioration and blight and improve personal and property safety in neighborhoods throughout Contra Costa County. (CAP Strategy CE-1)
- In partnership with community-based organizations, secure funding to create a program to provide low-cost or free air conditioning and filtration, improved insulation, low-emitting materials, energy solar and storage systems, energy efficiency, and indoor ventilation in homes, emphasizing buildings that are home to Impacted Community members. (CAP Strategy CE-1, General Plan SC-A6.2)
- Partner with local schools, the community college district, community-based organizations, labor unions, Workforce Development Boards, and other appropriate groups to provide training for residents for family-sustaining jobs in sustainable industries. Prioritize training for people currently or recently working in polluting or extractive activities. (CAP Strategy CE-1; SC-P1.1)
- Work with schools, the Contra Costa County Library, business groups, and community-based organizations to educate and inform community members about climate change and related sustainability topics, and the County's climate goals and the actions the County is taking to achieve them. (CAP Strategy CE-2)
- Work with community groups to establish and maintain urban gardens, particularly on vacant lots and park land in Impacted Communities. (CAP Strategy CE-4; General Plan SC-P4.1)

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

J-6

CBE-APEN supports Climate Action Plan Strategy NI-4 to use working lands for carbon sequestration strategies to achieve net carbon neutrality. However, CBE-APEN suggests that the County provide explicit guidance on how to implement this important principle. CBE-APEN states that the reductions in emissions should be a result of policies and practices that directly reduce consumer demand and limit emissions. CBE-APEN states that the County be explicit that industrial carbon capture and sequestration technology is not considered a reduction strategy, as it still causes harmful polluting emissions. CBE-APEN states that the industrial carbon dioxide removal should be a backstop rather than the primary driver of carbon neutrality in the county. CBE-APEN states that the County should collaborate with the Air District and further prioritize strategies that also improve air quality in areas with the worst cumulative air pollution impacts.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

2. Response to Comments

- J-7 CBE-APEN states that Climate Action Plan Strategy NW-1 is a move in the right direction regarding the composting of natural waste, however notes that it is important to protect impacted communities. CBE-APEN states that the CAP is silent on mitigation measures that would protect the communities that surround natural waste composting facilities. Therefore, the County should develop policies that protect local air, water, soil quality and nearby residents from odor impacts in tandem with its natural waste composting goals. CBE-APEN also suggests that the County must be careful not to encourage the creation of more organic waste, and instead proactively minimize waste especially if the County intends to capture natural gas from recovered organic waste. CBE-APEN states that if that County does pursue waste-to-gas implementation strategy, it should safeguard against fossil gas expansion alongside development of those waste-based technologies so that the resultant product is not a greenwashed fossil fuel blend product.

As mentioned in Impact 5.9-1 in Section 5.9-1, *Hazards and Hazardous Materials*, the proposed CAP aims to reduce greenhouse gas emissions and adapt the county to changing climate conditions. Although the CAP may lead to the construction of physical improvements and infrastructure in the county to meet emissions targets, these developments are unlikely to involve the transportation or disposal of hazardous materials. In addition, all construction is subject to federal, State, and local regulations, and future developments are expected to meet emissions targets.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

- J-8 CBE-APEN requests further clarification of the 2045 GHG emission reductions projection associated with Strategy BE-3 of the proposed CAP.

The CAP has been revised to clarify that due to California's Renewable Portfolio Standard, all electricity sold in the state will be carbon-free by 2045, eliminating emissions from electricity generation (and therefore, also eliminating emission reductions from decreases in electricity use) by that year. This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

- J-9 CBE-APEN opposes biomethane and states that it endangers public health in its creation and use. CBE-APEN encourages the County to seek solutions and strategies that do not include biomethane. CBE-APEN states that it may appear to be a better alternative to natural gas, but it poses too many public health risks to be included in the CAP.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

2. Response to Comments

J-10 CBE-APEN details that mega-dairies in the Central Valley produce biomethane, increasing reliance on the polluting dairy industry, endangering low-income communities, and causing poor air quality, drinking water, and odor. CBE-APEN states that environmental justice groups and academics warn against biomethane production and that the California Energy Commission found biomethane to be toxic, potentially more harmful than natural gas.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

J-11 CBE-APEN states that the County should reject biomethane as part of its CAP due to environmental injustices, financial incentives, and public health risks. Instead, alternative methods like reducing vehicle miles traveled and increasing public transportation infrastructure are suggested. The current draft of the CAP relies on biomethane for greenhouse gas emission reduction benefits, and the County should focus on reducing energy needs and emissions in the largest emitting sector.

The term "biomethane" is mentioned twice in the CAP: once in connection with CARB's Renewable Natural Gas strategy and once in the definition of low-carbon energy. The CAP has been revised to include more information about other initiatives the County is taking to promote mode shifts, such as the Active Transportation Plan and grants supporting the Building Healthy Communities program. This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

J-12 CBE-APEN states that while hydrogen is a minor component of the Climate Action Plan, it should not be relied on as a future fuel source. CBE-APEN is concerned that hydrogen production could entrench existing environmental inequities rather than promote a Just Transition. CBE-APEN recommends that the County commit to a future where oil refineries are decommissioned rather than one that prolongs reliance on the oil industry, defers environmental remediation of toxic sites, and endorses existing pollution burdens that disproportionately fall on low-income communities of color.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

J-13 CBE-APEN states their opposition to the production of hydrogen and acknowledges that it can be produced in an alternative matter that does not involve existing refineries. CBE-APEN notes the inefficiency of using hydrogen as a renewable energy. CBE-APEN encourages the maximization of renewable energy sources.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

2. Response to Comments

- J-14 CBE-APEN states oil refineries are missing from the CAP, and that climate planning should require including local refineries and other large industrial facilities under County jurisdiction. CBE-APEN states that planning for a worker- and community-centered managed decline of greenhouse gas emissions from oil refineries will be vital in meeting County, State, and global climate goals.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

- J-15 CBE-APEN mentions that Contra Costa County has excluded large industrial facilities such as oil refineries from the CAP because these facilities are regulated by the State and the Bay Area Air Quality Management District (BAAQMD) and not the County. CBE-APEN mentions that although these industries are regulated by State and federal agencies, the County has two ordinances that apply to two refineries and related facilities in the County's jurisdiction. CBE-APEN states that the County's involvement as the lead agency for analysis and review under CEQA for the two biofuel conversion projects at local refineries, with accompanying permit decisions, further evidences the County's role in regulating and controlling these facilities. CBE-APEN states that the County should not seek to relinquish its broad discretionary authority over these facilities or advance a narrative that their regulation of them is solely in the purview of State agencies.

Emissions from stationary sources, wildfire, and direct access electricity are reported in the CAP for informational purposes but are not formally counted as part of the unincorporated county's GHG emissions.

Contra Costa County is home to large industrial facilities whose operations have generated significant GHG emissions and/or whose products create GHGs, such as gasoline for internal combustion engines. Most of those facilities were constructed before entitlements, such as land use permits, from the County were required. If these facilities apply for new land use permits, the County can impose new operational requirements in some circumstances. An example of this is applications the County received in 2020 from two refineries seeking to revamp their facilities to produce renewable fuels. There are several factors outside of the County's control that influence the operations and related emissions and energy use at these facilities. The County has therefore elected to exclude the direct emissions and energy use at these facilities from consideration of the County's GHG reduction goals for the following reasons:

- These facilities are regulated primarily through the Federal Energy Regulatory Commission and the California Energy Commission (CEC) and are subject to air quality and emissions standards set forth by the USEPA, CARB, and BAAQMD.

2. Response to Comments

- The energy used at some of these facilities fluctuates from year to year, depending on the demand for resources and availability of other electricity-generating sources, such as hydropower or renewable resources. This makes it difficult to accurately forecast the energy use at these facilities.
- The County has limited jurisdictional authority to reduce GHG emissions from these sources because they are subject to cap-and-trade regulations set forth by CARB.
- The approach to excluding energy from sources that are outside of the County's jurisdictional control is consistent with the U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions.
- The resultant jurisdictional inventory more accurately reflects the energy use from nonresidential customers in unincorporated Contra Costa County and allows the County to focus on actions that are within its control.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

- J-16 CBE-APEN recommends that the County follow the examples of the City of Richmond and City of Los Angeles regarding greenhouse gas emissions inventory and reduction plans with side-by-side comparisons of totals that include the emissions from the large industrial facilities, including oil refineries.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

- J-17 CBE-APEN thanks the County for the opportunity to comment on the Climate Action Plan and looks forward to supporting and celebrating the County's successes as it plans for its energy transition. CBE-APEN requests that the County meet with them to collaborate on language that reflects the group's suggestions, then provides contact information.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

2. Response to Comments

LETTER K – Contra Costa Water District (4 pages)



April 8, 2024

BOARD OF DIRECTORS

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Will Nelson
Principal Planner
Department of Conservation and Development
Contra Costa County
30 Muir Road
Martinez, CA 94553
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Re: Draft Contra Costa County 2045 General Plan Update and Climate Action Plan Draft Environmental Impact Report (aka Envision Contra Costa) (State Clearinghouse Number 2023090467)

Dear Mr. Nelson:

Thank you for the opportunity to review the proposed 2045 Contra Costa County General Plan and Climate Action Plan Draft Environmental Impact Report (EIR). Contra Costa Water District (CCWD) submits the following comments, which are intended to initiate a constructive program between Contra Costa County (County) and CCWD to facilitate adequate storm drain system planning and maintenance as it pertains to water facilities either owned or operated and maintained by CCWD within the jurisdiction of the County, and to ensure adequate and safe drinking water to new developments.

K-1

Background

CCWD operates and maintains United States Bureau of Reclamation (Reclamation) owned water conveyance facilities and property, a significant portion of which traverses central and eastern Contra Costa County and terminates at the Martinez Reservoir.

The 48-mile Contra Costa Canal (Canal), which was constructed in the 1940s, is CCWD's backbone facility that conveys water from the Sacramento-San Joaquin Delta to eastern and central Contra Costa County. It originates at Rock Slough in the City of Oakley, passing through several cities and communities before terminating at the Martinez Reservoir in the City of Martinez. The water supply serves 550,000 people in the central and northeastern county area, including municipalities, industrial customers, businesses, and residences. The majority of the Canal is an open concrete-lined channel and is within both incorporated and unincorporated areas of Contra Costa County.

K-2

CCWD also operates its Multipurpose Pipeline (MPP), a backbone treated water conveyance facility built in 2002, within the Canal right of way (ROW). The MPP is a pressurized underground 42-inch diameter welded steel pipeline that generally runs parallel to the open Canal from the Randall-Bold Water Treatment Plant in the City of Oakley to CCWD's Treated Water Service Area in the City of Concord. A significant portion of the MPP also traverses unincorporated Contra Costa County.

K-2

Overview of Concerns

The Canal was constructed in the 1940s, prior to the extensive urban development that has taken place within the County since that time. This includes culverts and drainage areas that were originally constructed to convey flows occurring at the time across the Canal, but generally not designed to support additional runoff from future urban development. Nevertheless, these culverts and pathways have become hydraulically connected to urban development and are depended upon to properly drain these developments and prevent flooding. In addition to these smaller culverts and pathways, there are larger creeks and drainages within the County boundaries, also modified by urban development, that must pass through Canal ROW and MPP.

K-3

CCWD is concerned that the drainage features within the Canal ROW, designed prior to these developments, do not have sufficient capacity for existing, let alone future, storm water runoff, and that more comprehensive analysis needs to be conducted by the County and developers to ensure that there are adequate storm water facilities to handle maximum flows that could occur during large storm events. Additional planned development has the potential to increase the risk of cumulative erosion or flooding that could impact the reliability and security of the regional water supply and integrity of CCWD's backbone Canal and MPP facilities.

Due to existing issues with the stormwater drainage system, development under the County's General Plan Update may cause potentially significant flooding or erosion impacts that must be mitigated through improvements to Canal facilities or maintenance agreements for existing facilities. Thus, CCWD offers comments to address our concerns and urges the County to consider these issues, consistent with its obligations under the General Plan law and CEQA.

K-4

CCWD is also concerned about approval of developments in County unincorporated areas that do not have sufficient water supply or that encourage small / private groundwater systems in areas with known water quality impacts and health concerns. The County should encourage connections with permitted surface water supplies from larger established water agencies like CCWD.

K-5

CCWD's Comments on Draft 2045 General Plan Update and Draft Climate Action Plan / EIR

CCWD Comment 1:

CCWD proposes the following policies be included in the Health and Safety Element of the 2045 General Plan:

K-6

- HS-P5.9 - Require an encroachment permit from Contra Costa Water District (CCWD) for any new storm drain facility or anticipated runoff that will add load to existing facilities crossing or encroaching onto Contra Costa Canal rights-of-way.
- HS-P5.10 - Protect water quality by reducing non-point sources of pollution and the dumping of debris in and near creeks, storm drains, and the Canal. All drainage from new development should be either directed to an appropriate storm drain system that avoids CCWD facilities and Canal ROW, or obtain an encroachment permit from CCWD.

K-6

Please note that, as a condition of an encroachment permit, CCWD may seek maintenance agreements with the County for any drainage facilities located within the Canal right of way that support and benefit urban drainage within the County unincorporated areas.

K-7

Also, depending on the circumstances, CCWD may request that any new development that could impact the Canal ROW, CCWD facilities, or drainage facilities conduct a hydrologic study to demonstrate sufficient capacity and erosion protection of downstream facilities to accommodate the development, and any improvements needed to protect the Canal be funded by the County or the developer.

K-8

CCWD Comment 2:

The 2045 General Plan should fully reflect the Water Service Implementation Measures that were included in Chapter 7 - Public Facilities/Services Element of the existing County General Plan (2005-2020). These measures should be carried forward to Goal PFS-4 in the 2045 General Plan because they provide needed detail to ensure a reliable water supply and protect public health.

7-i. Conditionally approve all tentative subdivision maps and other preliminary development plans on verification of adequate water supply for the project. Such condition shall be satisfied by verification, based on substantial evidence in the record, that capacity within the system to serve the specific development project exists or comparable demonstration of adequate wastewater treatment capacity. Where no tentative map or preliminary plan is required prior to development, approve no map or development permit without this standard being satisfied.

7-j. Identify, map, and monitor those areas where high levels of nitrates, arsenic, and/or manganese have been detected in groundwater supplies. Development should seek surface water supplies if any of these contaminants are known to be in groundwater supplies.

7-k. Discourage subdivisions or other permits which would allow the construction of rural residential units served by well water in areas of high nitrate concentrations, consistent with existing Health Department policy.

7-l. Discourage subdivisions or other permits which would allow the construction of rural residential units served by well water on lots of less than one acre, consistent with existing Health Department policy.

K-9

CCWD Comment 3:

The Health and Safety policies proposed in Comment 1, as well as the Public Facilities and Services policies proposed in Comment 2, should also be included and addressed within the Climate Action Plan Draft EIR.

K-10

CCWD Comment 4:

CCWD suggests revisions to the description of CCWD included on Page 8-8 of the 2045 General Plan. Currently, the description reads:

- CCWD provides treated water to approximately 500,000 customers in the urbanized parts of central Contra Costa County that are not serviced by EBMUD, as well as some eastern parts of the county. CCWD's water is sourced from the Sacramento-San Joaquin Delta via the 48-mile Contra Costa Canal. CCWD also stores water at Los Vaqueros Reservoir in East County, southwest of Byron.

K-11

CCWD recommends revising the first sentence as follows:

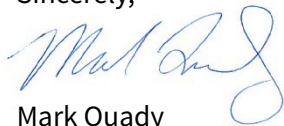
- **CCWD provides treated and untreated water to approximately 550,000 people in central and northeastern Contra Costa County, including municipalities, industrial customers, businesses, and residences.** CCWD's water is sourced from the Sacramento-San Joaquin Delta via the 48-mile Contra Costa Canal. CCWD also stores water at Los Vaqueros Reservoir in East County, southwest of Byron. **Los Vaqueros Water once released is delivered via the Contra Costa Canal.**

Conclusion

Thank you for considering CCWD's comments on the Draft 2045 General Plan and Climate Action Plan Draft EIR. We look forward to working with the County to find mutually beneficial solutions to protect the integrity of CCWD's water conveyance facilities, and to ensure adequate supplies to new developments while protecting public health. Should you have any questions about the comments raised in this letter, please do not hesitate to contact me at (925) 688-8312.

K-12

Sincerely,



Mark Quady
Planning Manager

cc: Jeff Quimby – Assistant General Manager, Planning and Administration
Kimberly Lin – Director of Planning
Mark Seedall – Principal Environmental Planner

2. Response to Comments

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2. Response to Comments

K. Response to Comments from Contra Costa Water District, dated April 8, 2024.

K-1 The Contra Costa Water District (CCWD) thanks the County for the opportunity to review the proposed EIR. CCWD states that the following comments are intended to initiate a constructive program between the County and CCWD to facilitate adequate storm drain system planning and maintenance by CCWD within the jurisdiction of the County, and to be able to ensure adequate and safe drinking water to new developments.

Contra Costa County appreciates CCWD's comments and recommendations that may assist the County. Refer to responses in K-2 through K-12 for specific responses to each topic raised.

K-2 CCWD operates and maintains United States Bureau of Reclamation owned water conveyance facilities and property. CCWD states that the Contra Costa Canal (Canal) is CCWD's main water conveyance facility. The canal is open concrete-lined and runs through incorporated and unincorporated Contra Costa County areas. The Multipurpose Pipeline MPP, a pressurized underground 42-inch diameter welded steel pipeline, also runs parallel to the Canal and traverses unincorporated Contra Costa County.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

K-3 CCWD states that the Canal was constructed in 1940s, prior to extensive urban development in Contra Costa County. Crossing the Canal right-of-way (ROW) are culverts and pathways that were designed to convey the runoff occurring at the time. These culverts and pathways throughout the county have now become hydraulically connected to urban development. CCWD is concerned that the drainage system has insufficient capacity to accommodate storm water runoff from existing and future development, and therefore future development would have the potential to increase erosion or flooding. CCWD suggests that a comprehensive analysis needs to be conducted by the County and developers to ensure that there are adequate storm water facilities to handle maximum flows that could occur during large storm events.

Impact 5.17-4 in DEIR Section 5.17-4, *Utilities and Service Systems*, states that the Contra Costa County Flood Control and Water Conservation District (FCD) uses detailed Flood Control Zone and Drainage Area maps to assess future development plans and assess the suitability of existing storm drainage infrastructure. The Flood Control Capital Improvement Plan (CIP) details the schedule and costs for new drainage projects and maintenance, funded by property taxes and development impact fees in each Flood Control Zone or Drainage Area. While the proposed project may increase impervious surfaces, leading to increased stormwater runoff and erosion, Contra Costa County has adopted the Flood Control Capital Improvement Plan (2021), Contra Costa Watersheds Stormwater Resource Plan (2019), and Contra Costa County Green Infrastructure Plan (2019) to address future development and expansion and improvement of the storm

2. Response to Comments

drainage system, as needed. In addition, future development involving disturbance of one acre or more must comply with National Pollution Discharge Elimination System (NPDES) construction permit requirements, including preparation of a Storm Water Pollution Prevention Plan (SWPPP) with best management practices to limit sediment and non-stormwater discharges. Contra Costa County is under the jurisdiction of the San Francisco Bay RWQCB's MS4 permit. Under Provision C.3 of the MS4 Permit, the permittees (local jurisdictions) use their authority to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address stormwater runoff pollutant discharges and prevent increases in runoff flows. This goal is accomplished primarily through implementation of low impact development techniques. New projects also pay storm drainage impact fees, funding new storm drainage infrastructure within the county.

The requirements applicable to future development aim to prevent significant increases in stormwater runoff exceeding the capacity of the storm drain infrastructure, as already accounted for in the CIPs of the County and municipalities within the county and the FCD. Construction of new stormwater facilities, implementation of BMPs and on-site control measures, and preparation of required documents and review by the County will minimize potential impacts.

CCWD's comment letter does not identify specific locations along the Canal ROW, and within the County's jurisdiction, that it considers problematic. In response to the concern, the following policy has been added under Goal PFS-4 in the General Plan Public Facilities and Services Element:

PFS-P4.8: Partner with water service providers to protect water conveyance infrastructure, such as aqueducts and canals, from encroachment and pollution.

K-4 CCWD is expressing concerns about the potential flooding or erosion impacts of the County's General Plan Update due to existing stormwater drainage system issues. They urge the County to address these concerns, in line with its obligations under General Plan law and CEQA.

See response to Comment K-3.

K-5 CCWD expresses concern about approval of developments in unincorporated county areas lacking sufficient water supply or encouraging small groundwater systems in areas with known water quality and health issues. CCWD suggests the County establish connections with permitted surface water supplies from larger water agencies like CCWD.

2. Response to Comments

The proposed project does not approve developments in the unincorporated county that lack sufficient water supply or encourage small groundwater systems. Impact 5.10-2 of the DEIR states that Section 5.10.3.1, *Proposed General Plan Goals, Policies, and Actions*, contain goals, policies, and actions that require the County to consider impacts to water quality and groundwater supply when making decisions on development. Of these policies, Policy COS-P7.4 and Policy COS-P7.5 in the Conservation, Open Space, and Working Lands Element would reduce environmental impacts associated with the proposed project. Policy COS-P7.4 requires projects in areas without a water service provider to provide proof of adequate on-site groundwater during the development review process. Policy COS-P7.4 also requires compliance with the County's well regulations related to water quality and flow rate, require documentation that the proposed project will not have a significant cumulative impact on the aquifer or negatively affect development that already relies on the same groundwater supply. Policy COS-P7.5 prohibits new development that would create or significantly aggravate groundwater overdraft conditions, land subsidence, or other "undesirable results," as defined in Section 354.26 of the California Water Code. In addition, the General Plan includes policies in the Public Facilities and Services Element that address health risks associated with groundwater quality. In particular, Policy PFS-P4.3 supports the State Water Resources Control Board's efforts to eliminate small public water systems in new development, and Policy PFS-P4.5 requires new development to demonstrate the availability of a safe, sanitary, and environmentally sound water delivery system with adequate capacity. As indicated in Impact 5.10-2 of the DEIR, compliance with and implementation of these proposed General Plan goals, policies, and actions would serve to minimize potential adverse impacts on groundwater.

The County's long-established review procedures for new development include referring development applications to affected water service providers for review and comment. For projects within a water service provider's service area, connecting to that provider's system is standard practice once all requirements and regulations enforced by that provider are satisfied. However, County long-standing policy discourages extension of water and sewer services outside the Urban Limit Line (ULL). The County cannot encourage properties outside the ULL to connect to providers such as CCWD.

- K-6 CCWD proposes adding new policies to the Health and Safety Element of the General Plan. The first new policy would require an encroachment permit from CCWD for any new storm drain facility or anticipated runoff that will add load to existing facilities crossing or encroaching onto Contra Costa Canal ROW. The second new policy would protect water quality by reducing non-point sources of pollution and the dumping of debris in and near creeks, storm drains, and the Canal. CCWD states that all drainage from new development should be either directed to an appropriate storm drain system that avoids CCWD facilities and the Canal ROW, or obtain an encroachment permit from CCWD.

2. Response to Comments

Regarding the first policy suggestion, numerous culverts were constructed under the Canal to convey natural runoff otherwise blocked by fill placed for the Canal's construction. The County's standard "collect and convey" requirements apply to those older crossings. Developers routinely construct detention basins upstream of these old culverts to meter the runoff so as not to overwhelm them. In other instances, new culverts have been jacked and bored under the Canal to provide additional capacity. The recent Alves Lane crossing in Bay Point is an example of the latter, which required permits from CCWD and the Bureau of Reclamation.

Regarding the second policy suggestion, such water quality issues are already addressed by the County's Stormwater Management Ordinance in Division 1014 of the County Ordinance Code and the County's permitting requirements with the Regional Water Quality Control Board. Furthermore, County Ordinance Code Section 914-2.006 states, "Storm waters flowing from the subdivision in any form or manner shall not be permitted to flow into any water conveyance facility of the Contra Costa Canal, nor into any other water conveyance or impounding facility for domestic water consumption."

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

K-7 CCWD notes that as a condition of an encroachment permit, CCWD may seek maintenance agreements with the County for any drainage facilities located within the Canal ROW that support and benefit urban drainage within the county unincorporated areas.

This comment appears to describe an existing CCWD policy or practice. It does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

K-8 CCWD notes that it may request a hydrologic study for new developments affecting Canal's ROW, CCWD facilities, or drainage facilities to demonstrate sufficient capacity and erosion protection. The County or developer may fund any improvements needed to protect the Canal.

This comment appears to describe an existing CCWD policy or practice. It does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

K-9 CCWD states that the proposed General Plan should fully reflect the water implementation measures that were present in Chapter 7 of the existing County General Plan, and carry them forward to Goal PFS-4 in the proposed General Plan Update. CCWD lists Implementation Measures 7-i, 7-j, 7-k, and 7-l from the existing General Plan.

2. Response to Comments

The intent of Implementation Measure 7-i is carried forward in the 2045 General Plan as Policy PFS-4.5, which requires new development to demonstrate the availability of a safe, sanitary, and environmentally sound water delivery system with adequate capacity.

Implementation Measure 7-j called for the County to identify, map, and monitor areas where high levels of nitrates, arsenic, or manganese have been detected in groundwater supplies, and seek surface water supplies for development in areas where any of these contaminants are known to exist in groundwater supplies.

The County has determined that Implementation Measure 7-j is no longer necessary. The County is unaware of any statute that requires the County to establish a plan to identify and monitor groundwater quality on private properties. A nitrate study conducted in East County (Brentwood/Oakley area) in the late 1980s identified two areas with elevated nitrate levels. Much of that area is now incorporated and developed, and municipal water is available. Furthermore, treatment options exist to improve water quality.

County Ordinance Code Chapter 414-4 – Water Supply requires that water for water systems meets bacteriological, chemical, and physical standards. Analysis of specific chemical constituents in individual wells may be required, and the County requires an analysis for nitrates in new domestic water wells. Per County regulations, if tests indicate contaminants in the water that pose a direct and immediate hazard to health, the water will not be approved for domestic use. Additionally, the County Building Official may withhold issuance of a building permit if they are advised by the County Health Officer that there is not a water source complying with the Ordinance Code.

Implementation Measure 7-k calls for the County to “discourage subdivisions or other permits” that would allow construction of rural residential units served by well water in areas of high nitrate concentrations, consistent with County Health Department policy.

The County has determined that Implementation Measure 7-k is no longer necessary. Per County Ordinance Code Section 414-4.241 – Subdivision Maps, pursuant to County Ordinance Code Title 9 – Subdivisions, a copy of any submitted tentative subdivision map must be forwarded to and filed with the County Health Officer for investigation of domestic water supply. The tentative map must show the source of the water supply, proposed provisions for sewage disposal, number of lots and their sizes, and contour lines at intervals of five feet or less. The standards for water wells as the approved water supply for domestic use are contained in the County Health Officer regulations and include requirement for the well water to comply with State standards.

Implementation Measure 7-l is addressed by Land Use Element Policy LU-P2.7, which requires a 5-acre minimum lot size for residential development where no public water or sewer service is available, and a 1-acre minimum lot size where one of these utilities is available, but not both.

2. Response to Comments

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

K-10 CCWD states that the policies proposed in Comment 1 and Comment 2 of their DEIR comment letter should also be included and addressed within the Climate Action Plan Draft EIR.

These comments are addressed above in responses to comments K-6, K-7, K-8, and K-9.

K-11 CCWD recommends revising the description of CCWD included on Page 8-8 of the proposed General Plan Update.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation. The proposed text changes have been incorporated, nearly verbatim, in the 2045 General Plan.

K-12 CCWD thanks the County for considering CCWD's comments on the General Plan and Climate Action Plan Draft EIR as well as looks forward to collaborating to ensure that CCWD's facilities are adequate to meet future demand. The Planning Manager provides their contact information.

Contra Costa County appreciates CCWD's comments and recommendations that may assist the County in adequately analyzing and minimizing impacts regarding water supply and water quality.

2. Response to Comments

LETTER L – Committee for Industrial Safety (4 pages)

Holland & Knight

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April 8, 2024

Sent via email

Supervisor Federal D. Glover
Supervisor Ken Carlson
Supervisor Diane Burgis
Supervisor Candace Andersen
Supervisor John M. Gioia
Chair Kevin Van Buskirk
Director John Kopchik

Re: Comment Period Extension Request – Proposed Contra Costa County
Climate Action Plan 2024 Update, Draft 2045 General Plan, and General Plan and
Climate Action Plan Draft Environmental Impact Report (DEIR)

Dear Supervisors, Commissioner and Director:

The Committee for Industrial Safety (CIS) has engaged Holland & Knight LLP to advise the CIS in evaluating the Contra Costa County updated 2024 Climate Action Plan (CAP). The CIS is a nonprofit association, its purpose is to educate the public and advocate on matters of refinery safety and related regulatory policy and environmental protection. Contra Costa County is home to workers, communities and facilities associated with CIS and served by CIS educational and advocacy efforts. The climate related policies and measures to be implemented through the CAP will have significant impact on those workers, communities and facilities, on their public, environmental and economic health and vitality.

L-1

We respectfully request that you extend, for an additional 60 days, the comment period for the 2024 CAP, Draft 2045 General Plan, and the General Plan and Climate Action Plan Draft Environmental Impact Report (DEIR). The County has stated that the 2024 CAP is intended to serve as a companion to the “. . . 2045 General Plan and to mitigated GHG emissions that result from implementation of the General Plan.” CAP, p. ES-1. As such, the 2024 CAP is integral to implementation of the 2045 General Plan and is a fully enforceable commitment as a mitigation measure under the California Environmental Quality Act (CEQA). Implementation of the CAP is

L-2

| | |
|---|-----|
| also a General Plan requirement (COS-P14.1). The CAP and CAP consistency with the Draft General Plan, the Draft General Plan, and the General Plan and Climate Action Plan DEIR, therefore, warrant thorough review, discussion and comment. | L-2 |
| Environmental justice and economic development are important to our Contra Costa communities, and important for successful implementation of the Draft 2045 General Plan and the Draft 2024 CAP. The 2045 General Plan aspires to ensure that <i>Focused and ambitious actions are taken to reduce greenhouse gas emissions, improve community resilience, and adapt equitably to a changing climate.</i> | L-3 |
| Furthermore, to address environmental justice and historical inequality of public and environmental health impacts, the Draft 2045 General Plan identifies that <i>It is a priority of the County to protect Impacted Communities from additional harm and progressively improve the quality of life and health outcomes of residents. GP, at p. 3-3.</i> | L-4 |
| Additional time is required to review and identify mechanisms to ensure that environmental justice and economic development principles and practices are fully integrated into implementation of the CAP and the General Plan and analyzed in the DEIR. For example, the Draft General Plan Environmental Justice and Economic Development Policies promote “renewable and sustainable industries that provide living-wage jobs” (Policy SC-P1.1) and “streamline . . . permitting process for new development, redevelopment, and rehabilitation that promotes community objectives in Impacted Communities” (Policy SC-P1.2) The Draft General Plan sets as a policy action, “paying special attention to developing new opportunities for Impacted Communities to realize economic, health, educational, and other benefits.” Action SC-A1.1. Although the County says that the CAP is designed to help meet environmental justice objectives (p. ES-2), the true measure is with the implementation strategies. Stakeholders and commenters need additional time to review and evaluate whether the CAP includes implementation strategies that will promote job and revenue opportunities as well as climate change goals in environmental justice communities. The General Plan and CAP set clear priorities for waste and energy reduction, clean energy production and use, resilient communities, and climate equity; further review is needed to evaluate how the General Plan and CAP address and ensure economic equity and the protection of civil rights more broadly in environmental justice communities. | L-5 |
| Additionally, consistency between the General Plan and the CAP, and internal consistency within the General Plan, are important elements to a legally adequate General Plan. General Plans that are internally inconsistent are illegal, and courts have and may continue to impose the draconian remedy of halting all new development pending adoption of an internally consistent and legally adequate General Plan. <i>See, e.g., Save El Toro Assn. v. Days (1977) 74 Cal.Appl. 3d 64.</i> | L-6 |
| Finally, County activities include existing environmental justice and economic development initiatives designed to facilitate continuing dialogue with environmental justice communities, workers, and businesses, and pursue strategies to create thousands of new living-wage jobs, | L-7 |
| | L-8 |

emphasize local workforce hiring, and protect and build the regional tax base. Current environmental justice and economic development activities identified by the Contra Costa County Department of Conservation & Development in November 2023 include,

- Northern Waterfront Economic Development Initiative,
- Just Transition Economic Revitalization Plan (JTERP),
- Bay Area Good Jobs Partnership for Equity (Community Economic Resilience Fund),
- Contra Costa Refinery Transition Partnership, and
- Refinery Community Benefits Agreements.

L-8

While the 2023 Interim CAP Progress Report identifies some implementation activity with the JTERP and the County's support of AB 844, it does not reflect any significant progress on addressing environmental justice and economic development. Reversing historic injustices, while retaining and attracting businesses, jobs, workers and industry, must be an integral part of implementation of the General Plan and the County's strategic climate action plans. To that end it is of utmost importance that the Draft 2045 General Plan and the updated 2024 CAP consistently integrate environmental justice and economic development practices and priorities in a manner that activates those General Plan priorities.

We request that you extend the comment period for the Draft 2045 General Plan, updated 2024 CAP, and DEIR, to allow for additional input of key stakeholders, discussions with County staff, and priority focus on the integration of equity and economic development in the proposed General Plan and CAP.

L-9

Sincerely yours,

HOLLAND & KNIGHT LLP



Letitia D. Moore

cc: William R. Nelson, Principal Planner

Addressees:

Supervisor Federal D. Glover - Federal.glover@bos.cccounty.com

Supervisor Ken Carlson - Supervisorcarlson@bos.cccounty.us

Supervisor Diane Burgis - diane.burgis@bos.cccounty.us

Supervisor Candace Andersen - supervisorandersen@bos.cccounty.us

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Chair Kevin Van Buskirk - vanbuskirk1691@gmail.com

Director John Kopchik - john.kopchik@dcd.cccounty.us

Cc: William R. Nelson - Will.Nelson@dcd.cccounty.us

2. Response to Comments

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2. Response to Comments

L. Response to Comments from the Committee for Industrial Safety, dated April 8, 2024.

L-1 The Committee for Industrial Safety (CIS) states it has engaged with Holland & Knight LLP to advise CIS in evaluating the Contra Costa County updated 2024 CAP. CIS states it is as a nonprofit association that advocates on matters of refinery safety and related regulatory policy and environmental protection. CIS states that the environmental policies in the CAP will have significant impact on refinery workers, communities and facilities, and the environmental and economic health of the industry.

Refer to responses in L-2 through L-10 for specific responses to comments.

L-2 CIS requests an additional 60 days for the comment period on the 2024 CAP, Draft 2045 General Plan, and DEIR. CIS states that because the CAP serves as a way to mitigate the environmental effects of the General Plan Update, the documents warrant a thorough review, discussion, and comment.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation. Also see response to comment E-3. The County extended the public comment period for the Draft 2045 General Plan and Draft 2024 CAP from April 8 to April 22, 2024, but did not extend the public comment period for the DEIR.

L-3 CIS states that environmental justice and economic development are important to its Contra Costa communities and notes that the 2045 General Plan aspires to ensure reduced greenhouse gas emissions, improved community resilience, and equitable adaptation to a changing climate.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

L-4 CIS states that to address environmental justice and historical environmental inequality, the General Plan identifies that the County aims to protect impacted communities from additional harm and progressively improve health outcomes for residents.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

L-5 CIS states that the CAP and General Plan require further review and evaluation to ensure that environmental justice and economic development principles are fully integrated into their implementation and analyzed in the DEIR. Stakeholders and commenters need more time to evaluate CAP implementation strategies that promote job and revenue opportunities while addressing climate change goals in environmental justice communities.

2. Response to Comments

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation. Also see response to comment E-3. The County extended the public comment period for the Draft 2045 General Plan and Draft 2024 CAP from April 8 to April 22, 2024, but did not extend the public comment period for the DEIR.

- L-6 CIS states that the General Plan and CAP prioritize waste and energy reduction, clean energy production, resilient communities, and climate equity. However, further review is needed to assess their impact on economic equity and civil rights protection in environmental justice communities.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation. Also see response to comment E-3. The County extended the public comment period for the Draft 2045 General Plan and Draft 2024 CAP from April 8 to April 22, 2024, but did not extend the public comment period for the DEIR.

- L-7 CIS emphasizes the importance of consistency between the General Plan and the CAP, as well as internal consistency within the General Plan, as these are crucial elements for a legally adequate General Plan. Internally inconsistent General Plans are illegal.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

- L-8 CIS states that Contra Costa County is implementing environmental justice and economic development initiatives and lists several. CIS highlights the need to address historical injustices while maintaining economic security as important to the 2045 General Plan and 2024 CAP.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

- L-9 CIS requests an extension of the comment period for the Draft 2045 General Plan, 2024 CAP, and DEIR.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation. Also see response to comment E-3. The County extended the public comment period for the Draft 2045 General Plan and Draft 2024 CAP from April 8 to April 22, 2024, but did not extend the public comment period for the DEIR.

2. Response to Comments

LETTER M – Delta Protection Commission (11 pages)

DELTA PROTECTION COMMISSION

Diane Burgis, Chair (Contra Costa County Board of Supervisors)
2101 Stone Blvd., Suite 200, West Sacramento, CA 95691
(916) 375-4800 | delta.ca.gov



April 8, 2024

William R. Nelson
Principal Planner, Contra Costa County
Department of Conservation and Development
30 Muir Road
Martinez, CA 94553

Dear Mr. Nelson:

The Delta Protection Commission (Commission) is providing comments on the Draft EIR (EIR) for the Contra Costa County General Plan update in anticipation of our duty to make findings required by California Public Resources Code (PRC) Section 29763.5. Our review focuses on the impact analysis sections and conclusions that would materially affect our ability to endorse findings that the General Plan update is consistent with Section 29763.5, and our duty to minimize impacts in the area of our jurisdiction (the Delta Primary Zone) as a CEQA responsible agency. We first discuss the scope of our review and the necessary findings we must prepare before we can submit a staff report proposing that the General Plan is consistent for Delta Protection Commission (Commission) approval. We then provide specific comments.

M-1

Scope of Review and Required Findings

The Delta Protection Act requires the Commission to review General Plan updates for “local governments” as defined in the Delta Protection Act (PRC Section 29763.5). Because Contra Costa County is a “local government” within the meaning of the Act, your update requires these findings (PRC Section 29725). The findings required in Section 29763.5 are limited to the Primary Zone. In addition, we may rely upon your CEQA analysis

M-2

to support our approval of the General Plan, if we find it consistent with the Delta Protection Act under Section 29763.5.

M-2

Specific Comments Regarding Impacts in the General Plan EIR

Comment 1: The Draft EIR Will Support Tiering Best if It Makes Clear How General Plan Policies Will be Enforceable.

The Draft EIR (DEIR) is a program EIR as described in your text:

“This Draft EIR fulfills the requirements for a Program EIR ... Once a Program EIR has been prepared, subsequent activities within the program must be evaluated to determine whether an additional CEQA document is necessary. However, if the Program EIR addresses the program’s effects as specifically and comprehensively as possible, many subsequent activities may be within the Program EIR’s scope, and additional environmental documents may not be required (CEQA Guidelines Section 15168[c]). When a lead agency relies on a Program EIR for a subsequent activity, it must incorporate feasible mitigation measures and alternatives from the Program EIR into the subsequent activities (CEQA Guidelines Section 15168[c][3]).” (DEIR at 1-3 to 1-4).

M-3

While the DEIR properly relies on General Plan policies to explain why some impacts are reduced or avoided, this approach would be reinforced if more actions were included that specifically stipulate that relevant policies or goals will be translated into Zoning Code amendments as provided for in Cal. Government Code Section 65860. This section allows cities and counties to amend their ordinances to enforce land use policies related to their general planning duties under Cal. Government Code Section 65850. This would document how the General Plan policies, goals, and actions will be enforced.

Section 1.2.2 would also better support findings of consistency with Section 29763.5 if it provided, in the text, or an appendix, a short summary of all the kinds of discretionary actions that would be tiered projects, with a citation to the relevant County ordinance or code requiring a discretionary approval. By discretionary actions we do not mean specific projects as this cannot be known at this time; we mean the kinds of approvals that would be tiered from the General Plan EIR and subject to review for consistency with the General Plan and/or zoning code. This would allow us to show how future actions would be reviewed for consistency with the General Plan and zoning code as relevant. This would then show how consistency with the Delta Protection Act would be ensured via review of future projects.

M-4

Comment 2: Buildout Projections for the Horizon Year Comments

As a global issue it is hard to determine if there is consistency between impacts in different chapters and what the potential impact of the General Plan would be without a visual depiction of the full buildout that may occur for the horizon-year projection described in page 3-24. We would appreciate a figure for our use that shows the projected buildout assumption as a graphic depicting all land that would be developed based on the methodologies used in Section 3.7.

M-5

Comment 3: *Impact 5.1-2: Development under the proposed project would alter visual appearance in the county but would not substantially degrade its existing visual character or quality [Threshold AE-3]* May Benefit from Additional Substantiation or Mitigation

This impact statement concludes the impact would be less than significant before mitigation (DEIR at 5.1-15). This conclusion is at odds with Figure 5.2-4 which shows farmland conversion in the Delta Primary Zone and other areas. In addition, Impact 5.2-1 concludes that up to 13,816 acres of farmland could be converted (total, not just in the Delta Primary Zone).

Based on conversations with your agency we understand that some or all of the agricultural land conversion shown in the Primary Zone on Figure 5.2-4 may be, in fact, under the jurisdiction of special districts or other entities and may be attributed to projects that are under way. If the adoption of the General Plan will not itself contribute to these conversions, that should be clarified in the Final Environmental Impact Report (FEIR) so that it is clear that the impact conclusion in Impact 5.1-2 is sound, and that these conversions are not attributable to your project.

M-6

The current document as it exists in the DEIR, suggests that you will cause agricultural land conversion in the Delta Primary Zone. Agricultural land is the primary constituent of the visual landscape in the Primary Zone and conversion of that land is a visual impact. If these conversions are effects of the project, it undermines the credibility of your impact conclusion. The text of the impact thus needs to better substantiate the impact conclusion. Note that a leading desk book states “*an EIR must set forth the bases for its findings on a project’s impacts; a bare conclusion without explanation of its factual and analytical basis is not sufficient analysis of an environmental impact*” (Kostka and Zischke 2023, Section 13.27, citing *Laurel Heights Improvement Association v. Regents of University of California*, 1988, 47 Cal. 3d. 376, 404).

Comment 4: *Impact 5.1-3: The proposed project would not generate substantial light and glare [Threshold AE-4], Requires Better Substantiation*

M-7

Please provide a citation to the relevant County Code with the CalGreen building standards to support this impact. This impact states that these standards will be enforced but a search of the County Code we found online does not contain the sections 74-8.002 to 74-8.006 that correspond to this material in the “CODE COMPARATIVE TABLE AND DISPOSITION LIST.” The online version may be out of date; please clarify. This statement regarding CalGreen building standards supports the overall conclusion that the General Plan will not generate substantial light or glare. This conclusion needs to support the conclusion that the project will not adversely affect aesthetic resources in the Delta Primary Zone which we must also confirm for our findings. The relatively dark, rural character of the Delta Primary Zone is an integral aspect of the feeling of the landscape.

M-7

Comment 5: Impact 5.2-1: The proposed project could convert approximately 13,816 acres of Important Farmland to nonagricultural use, [Threshold AG-1] Requires Additional Explanation, Mitigation, and Possibly Policy Controls

This impact includes farmland conversion in the Delta Primary Zone near Discovery Bay, near Knightsen, and on Jersey Island, in the Delta Primary Zone (see Figure 5.2-4 and 5.11-1).

The text of the DEIR for this impact, in its current form, will not support our required findings under PRC Section 29763 subsections (a) “*The general plan, and any development approved or proposed that is consistent with the general plan, are consistent with the resource management plan*”, and (h) “*The general plan, and any development approved or proposed that is consistent with the general plan, will not adversely impact agricultural lands. . .*”

M-8

The text in the DEIR states: “*Agricultural conservation easements are a possible mitigation measure under CEQA. Programs that establish agricultural conservation easements and in-lieu fees for mitigation banking are most effective when determined concurrent with project approval. However, the effectiveness and extent to which future projects would opt-in to agricultural conservation easements as mitigation measures cannot be determined in this analysis; therefore, this impact would remain significant and unavoidable.*”

We have concerns regarding this language and your need to support CEQA findings for significant and unavoidable impacts required in PRC Section 21081, which require a showing that:

- Mitigation has been adopted to reduce the impact (PRC Section 21081(a)(1), or

- That mitigation is the responsibility of another entity or agency (PRC Section 21081(a)(2), or
- Such mitigation is infeasible (PRC Section 21081(a)(3)).

M-8

There is a feasible mechanism for the County to avoid this farmland conversion: a policy against farmland conversion in the Primary Zone. If the agricultural conversion in the Delta Primary Zone show on Figure 5.2-4 is, in fact, an effect of the General Plan policies and buildout, the County cannot rely on the second and third prongs of PRC Section 21081 (i.e. that the mitigation that could reduce the impact is the responsibility of another entity or agency, or that such mitigation is infeasible). See PRC Section 21002, which states that public agencies shall not approve projects if there is feasible mitigation that would reduce significant effects.

M-9

Communications with the County suggest these farmland conversions are under the jurisdiction of special districts and may already be underway. The impact language for agricultural and conversion is problematic and highlights the need to clarify this issue. Please work with us to resolve this issue and update the impact text for the FEIR accordingly.

Comment 6: *Impact 5.2-5: The proposed project could potentially result in other agricultural impacts not related to the above, such as diminishing available water quality and supply for agricultural uses. [Threshold AG-5] Would Benefit from Better Substantiation.*

This impact states that *“future development under the proposed General Plan would increase water demands, as further described in Section 5.17, Utilities and Service Systems, which would diminish the available water supply for agricultural uses. Such development would occur throughout the county, which spreads the impact over a large geographic area”* (EIR at 5.2-24).

It is clear that the General Plan itself does not approve a *“project”* subject to a water supply analysis as required in Cal. Water Code Section 10912 (which requires strong proof of adequate water availability). Nonetheless more analysis is required. The assertion that the distribution of the development would occur *“over a large geographic area”* as support for its insignificant water demand would benefit from additional support.

M-10

The EIR projects 23,200 housing units and 65,600 residents in the county for the horizon-year project at page 3-25. Assuming a water usage of 48 gallons per person per day, this results in a total additional consumption, assuming full buildout, of 3,160 acre-feet of water per year. While water consumption varies by agricultural land use type and is

becoming more efficient over time, using 1.6 acre-feet per acre per year as a rough metric, this is equivalent to water that could support roughly 1,975 acres of irrigated farmland. While not all of this water would be diverted from Delta sources, the multiple demands on Delta water supplies and connected groundwater basins as well as the general water scarcity in the state suggest more facts are needed to substantiate this conclusion. This is especially important because the water consumed by residential buildout would not be available for other uses, including agricultural uses.

M-10

Please provide stronger support for this assertion showing how the water consumption is accounted for, at least at a program level of analysis, by briefly summarizing relevant water supply planning for utilities serving unincorporated areas of the County. In the alternative or in addition to these revisions, please clarify the status and seniority of water rights held by water districts serving the Delta Primary Zone in Contra Costa County. Communications with the County suggest that these rights may be “pre-1914 rights,” i.e. very senior rights that are likely to be stable over time and relatively immune to curtailment to fulfill other water needs. If these facts are correct, please provide them in the FEIR.

M-11

In the FEIR, please also provide a citation to and summary of the requirement that future developments above relevant thresholds must satisfy the requirements of Cal. Water Code Section 10910 in the impact analysis. See Section 10910 for the general requirement and Section 10912 for the definition of “*projects*” subject to the requirement. This information will better support the conclusion of less than significant, and in turn support our ability to rely on your impact analysis and also make our findings.

M-12

Comment 7: Impact 5.4-1: Implementation of the proposed project would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plan, policies, or regulations or by the CDFW or USFWS [Threshold B-1] is Not Consistent with the Facts Provided in Other Impact Analysis Sections

The biological resources chapter provides a summary of a robust set of policies designed to avoid impacts on natural resources. However, the significant and unavoidable impact for agricultural and conversion in Impact 5.2-1 contradicts this impact conclusion (5.4-1).

M-13

Agricultural land also typically provides foraging habitat for raptors and dispersal habitat for other species. Table 5.4-3 indicates Swainson’s hawk and other raptors are present in Contra Costa County. Swainson’s hawk is a state-listed species.

CDFW must make the determination for a “*threatened*” listing based on facts demonstrating the presence of one or more of the factors provided in California Code of

Regulations Title 14, Section 670.1(i)(1)(A), including “*present or threatened modification or destruction of [a species’] habitat.*” The primary threat to Swainson’s hawk is loss of suitable foraging habitat, including suitable agricultural foraging habitat (CDFW 2016:3).

The impact conclusion of less than significant for Impact 5.4-1 is not consistent with the impact conclusions of significant and unavoidable for Impact 5.2-1 because the magnitude of farmland loss in the Delta Primary Zone suggests, absent other facts, that you are contributing to the factors that have caused the of threatened status of certain raptor species per the CDFW listing criteria and analysis. This reinforces the need to clarify the cause of and jurisdiction over the agricultural land conversion you depict in Figure 5.2-4. Please revise the relevant agricultural impact language text and Impact 5.4-1, to show that this conversion is not an effect of the General Plan itself, if true.

M-13

Comment 8: Please Provide Mapping of Pacific Flyway Habitat in the Delta Primary Zone to Support Our Review and Ensure Impacts Are Minimized by Policy of Mitigation Measure

Please include in the EIR some mapping or analysis of Pacific Flyway habitat. We need this impact analysis for our consistency review process.

PRC Section 29726 states:

- “*Pacific Flyway*” means the identified migratory bird flight path, including feeding and nesting habitat, as described in the Central Valley Habitat Joint Venture component of the North American Waterfowl Management Plan (NAWMP-1986).

M-14

PRC Section 29763.5 requires us to show that:

- “*The general plan, and any development approved or proposed that is consistent with the general plan, will not result in the degradation or reduction of Pacific Flyway habitat.*”

If the existing mapping is not sufficiently granular to allow us to show it is being avoided by comparison with your Urban Limit Line and buildout assumptions, please work with us to adopt policy language for protection of Pacific Flyway habitat and mitigation, as need be, in the Delta Primary Zone.

Comment 9: Impact 5.4-4: Implementation of the proposed project could interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede

M-15

the use of native wildlife nursery sites. [Threshold B-4] Would Benefit from Additional Policy Language to Support the Impact Analysis

We support the overall policy approach of avoiding impacts on wildlife movement corridors in the General Plan EIR. The proposed Mitigation Measure BIO-1 states the County will “Encourage development plans that maximize wildlife movement,” which is not adequately specific. We support this mitigation measure but feel it could go further. The County could also adopt a general plan policy that new roads will assess the potential to impact wildlife movement and incorporate crossing opportunities as relevant. This will reduce impacts on wildlife movement in the Delta Primary Zone and other locations.

M-15

The Federal Highway Administration (FHWA) reports that “roads are a serious obstacle to maintaining population connectivity and a threat to the long-term survival of some regionally important wildlife populations” (FHWA 2011:1). This is an especially important issue in light of climate change, which will change the location of suitable habitats and require opportunities for populations to shift accordingly (Costanza et al. 2020). These facts suggest a policy framework for mitigating the effect of any new roadway development would be beneficial from a conservation perspective.

M-16

Comment 10: Impact 5.5-1: Implementation of the proposed project could cause a substantial adverse change in the significance of a historic a historical resource pursuant to CEQA Guidelines, Section 15064.5. [Threshold C-1] and Impact 5.5-2: Implementation of the proposed project could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines, Section 15064.5. [Threshold C-2] Are Not Consistent

The cultural resources policies in the draft General Plan are mostly a robust and sound approach to managing cultural resources impacts. We want to offer minor clarifications regarding the language in the chapter and suggestions regarding the impact conclusions and mitigation approach.

M-17

The impact analysis for Impact 5.5-1 concludes impacts on “historical resources” are potentially significant and unavoidable. Under California law, a “historical resource” is “any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California” (Cal. Public Resources Code Section 5020.1). The eligibility criteria for the California Register of Historical Resources includes but is not limited to resources that have information important in prehistory (i.e. archaeological resources, Cal. Public

Resources Code Section 5024.1(c)(4)) – thus “*historical resources*” include archaeological resources.

Impact 5.5-2 then concludes that impacts on archaeological resources are less than significant (EIR at 5.5-15), based on mitigation consisting of a record search and retention of an on-call archaeologist.

It is unclear why impacts on historical resources, which include archaeological resources by definition, are significant and unavoidable but impacts on archaeological resources are less than significant. In addition, the mitigation measure for impacts on archaeological resources could be stronger. It would be prudent, especially in the Delta Primary Zone, to require future projects to conduct an assessment for buried archaeological sites that may not be detected in a records search. Infrastructure and development projects can inadvertently damage archaeological sites and buried human remains despite a complete and robust environmental review process. Levee repairs along the Feather River, for example discovered 230 plus burials associated with extensive cultural deposits, only in the construction phase (CapRadio, 2015).

See Meyer and Rosenthal (2007) for an example of an assessment for archaeological sensitivity including the presence of buried sites. Please clarify the inconsistency between these two impacts and also work with us to ensure that mitigation and/or policy controls to minimize cultural resource impacts for any discretionary projects in the Delta Primary Zone are provided in your General Plan and/or EIR. This would also reinforce the significance analysis for Impact 5.5-3, which concludes that impacts on buried human remains would be less than significant.

In addition, mitigation for potential impacts on archaeological resources (Mitigation Measure CUL-1) should consist of a survey, recording, and evaluation of resources found in the survey, and implementation of discovery protocols if resources are inadvertently found in construction, at a minimum.

Comment 11: *Impact 5.11-2: Project implementation would not conflict with applicable plans adopted for the purpose of avoiding or mitigating an environmental effect [Threshold LU-2] Should Be Supported by Additional Analysis*

The agricultural land conversion identified in the EIR as a significant and unavoidable impact occurs largely in the Delta Primary Zone. The setting and impact analysis for Impact 5.11-2 do not meaningfully summarize how consistency with the Delta Protection Act and Land Use and Resource Management Plan will be achieved. This gap diminishes the credibility of the impact conclusion for this impact (less than significant). We encourage

you to work with us to prepare in revised text or in an appendix, an analysis of how consistency will be achieved to better support this impact statement.

M-20

Comment 12: Text Summarizing the Land Use and Resource Management Plan Should be Updated

The EIR provides a cursory statement regarding the Land Use and Resource Management Plan on page 5.11-12. It fails to mention the standards the County must meet for approval of their General Plan under PRC Section 29763.5. It also provides no meaningful summary of the content of the Land Use and Resource Management Plan. Please work with us to obtain proposed text revisions to better support this section.

M-21

If you have questions regarding our comments, please direct them to Mike Aviña, Senior Environmental Planner, at Mike.Avina@Delta.ca.gov, or (530)750-6727.

Sincerely,



Bruce Blodgett, Executive Director
Delta Protection Commission

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2. Response to Comments

M. Response to Comments from the Delta Protection Commission, dated April 8, 2024.

M-1 The Delta Protection Commission (DPC) states that it is providing comments on the EIR for the Contra Costa General Plan Update. DPC's review focuses on impact analysis sections and conclusions that could affect the Commission's ability to endorse findings that the General Plan update is consistent with Public Resource Code (PRC) Section 29763.5 and the duty of CEQA to minimize impacts in the Delta Primary Zone (Primary Zone). The scope of the review and necessary findings are discussed before submitting a staff report for DPC approval.

Contra Costa County appreciates DPC comments and recommendations that may assist the County in adequately analyzing and minimizing impacts regarding the Primary Zone. Refer to responses in comments M-2 through M-21.

M-2 DPC states that the Delta Protection Act requires the Commission to review General Plan updates for "local governments" as defined in the Delta Protection Act (PRC Section 29763.5). Since Contra Costa County is considered a "local government," the General Plan Update requires findings as stipulated in PRC Section 29763.5 for the Primary Zone. DPC states that they may rely upon the CEQA analysis to support approval of the General Plan.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation. DEIR Section 5.11, *Land Use and Planning*, acknowledges the requirement for Contra Costa County's General Plan to be consistent with the Land Use and Resources Management Plan for the Primary Zone of the Delta (LURMP).

M-3 DPC quotes the DEIR regarding how the DEIR fulfills the requirements for a Program EIR. DPC highlights that while the DEIR properly relies on General Plan policies to explain why some impacts are reduced or avoided, they believe that the approach would be reinforced if more actions were included specifically stipulating that relevant policies or goals will be translated into Zoning Code amendments as provided for in Government Code Section 65860. This would document how the General Plan policies, goals, and actions will be enforced.

Government Code Section 65860 requires the zoning ordinance of a county or city to align with the adopted general plan of the county or city. The goals, policies, and actions in the General Plan, as cited in the DEIR, need not be translated into the Zoning Code to be enforceable; rather, they need to be compatible. DPC does not provide evidence suggesting that the proposed General Plan policies and actions cited in the DEIR would not be enforced. Nonetheless, as part of its ongoing Zoning Code update, the County will be creating stronger linkages between the General Plan and zoning by adopting new findings for land use entitlements (subdivisions, use permits, etc.) that explicitly require projects to be consistent with the General Plan.

2. Response to Comments

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

- M-4 DPC states Section 1.2.2 of the DEIR could enhance consistency with PRC Section 29763.5 by providing a brief summary of the kinds of discretionary actions that would be tiered projects, citing the relevant County ordinance or code requiring a discretionary approval. DPC states that this list of discretionary actions would not need to include specific projects, but rather approvals tiering from the General Plan EIR and subject to review for consistency with the General Plan and Zoning Code. DPC states that this would demonstrate how future actions would be reviewed for consistency with the General Plan and Zoning Code, thereby ensuring consistency with the Delta Protection Act through review of future projects.

Specific discretionary actions to be reviewed by the County are described in DEIR Section 3.9, *Intended Uses of the EIR and Proposed Project*. See Section 3.2, *DEIR Revisions in Response to Written Comments*, in this FEIR in regard to discretionary approvals.

- M-5 DPC states that it is difficult to determine if there is consistency between impacts in different chapters and what the potential impact of the General Plan would be without a visual depiction of the full buildout that may occur for the horizon-year projection described in DEIR page 3-24. DPC requests a figure that shows the projected buildout assumption as a graphic depicting all land that would be developed based on the methodologies used in Section 3.7.

Table 3-2, *2045 Horizon-Year Growth Projections*, in Chapter 3, *Project Description*, of the DEIR shows the proposed General Plan's development projections, including approved and pending development projects, through 2045. Figure 3-3, *Proposed General Plan Land Use Map*, also in Chapter 3, shows the proposed General Plan land use map, which determines where future development is allowed. Section 3.7, *Development Projections*, describes how future development was projected for residential and non-residential land use designations. Individual environmental chapters in the DEIR use the assumptions and buildout numbers presented in Chapter 3.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

- M-6 DPC disagrees with the less-than-significant determination for Impact 5.1-2 since Figure 5.2-4 shows significant farmland conversion in the Primary Zone and other areas. DPC states that based on conversations with the County, they understand that some or all of the agricultural land conversion shown in the Primary Zone on Figure 5.2-4 may be, in fact, under the jurisdiction of special districts or other entities and may be attributed to projects that are under way. If adoption of the General Plan will not itself contribute to these conversions, DPC suggests that should be clarified in the FEIR so it is clear that the impact conclusion in Impact 5.1-2 is sound, and that these conversions are not attributable

2. Response to Comments

to the County's project. DPC states that the existing DEIR document indicates that agricultural land conversion in the Primary Zone is planned, which could potentially undermine the credibility of the project's impact conclusion, as agricultural land is the primary component of the visual landscape in the area.

The conclusion for Impact 5.1-2 is sound because the 2045 General Plan does not allow for significant farmland conversion in the Primary Zone or other areas. See response to Comment M-8 for further explanation.

M-7 DPC asks that the County provide a citation to the relevant County Ordinance Code with the CalGreen building standards to support the conclusion for Impact 5.1-3. DPC states that Sections 74-8.002 to 74-8.006 are not in the online version of the County Code. DPC suggests that the online version may be out of date and suggests that the County clarify. DPC states that the statement regarding CalGreen building standards supports the overall conclusion that the General Plan will not generate substantial light or glare. However, DPC states that the DEIR needs to support the conclusion that the project will not adversely affect aesthetic resources in the Primary Zone, which is a dark, rural area that is integral to the landscape's feeling.

County Ordinance Code Section 74-2.002(a) states that the County Building Code includes the 2022 California Green Building Standards Code (California Code of Regulations, Title 24, Part 11). Section 5.1, *Aesthetics*, beginning on page 5.1-1 of the DEIR, explains that the County regularly adopts each new iteration of the California Building Code, including the CALGreen standards. Impact 5.1-3 states that new development is required to comply with the lighting standards contained in Chapter 76-4, *Modifications*, of the County Ordinance Code, which requires that lighting fixtures be installed, controlled, or directed so that the light will not glare or be blinding to pedestrians or vehicular traffic, or adjoining property. Any development proposed in the Primary Zone must comply with the County Ordinance Code, and by extension, the CALGreen standards.

M-8 DPC states that Impact 5.2-1 requires additional explanation, mitigation, and possibly policy controls. DPC states that text of the DEIR for Impact 5.2-1 will not support their required findings under PRC Section 29763. DPC is concerned over the DEIR text explaining the significant and unavoidable impact finding, noting that CEQA requires demonstrating that mitigation that has been adopted to reduce the impact (PRC Section 21081(a)(1)), mitigation is the responsibility of another entity or agency (PRC Section 21081(a)(2)), or such mitigation is infeasible (PRC Section 21081(a)(3)).

DPC acknowledges in Comment M-6 that potential agricultural land conversion in the Primary Zone may be overstated. As stated in Impact 5.2-1 of the DEIR, the proposed General Plan could result in conversion of 13,816 acres to nonagricultural uses in the EIR Study Area; however, this analysis is conservative and does not consider site-specific and

2. Response to Comments

other factors that could affect the potential conversion of agricultural land. The acreages of the land with nonagricultural designations that overlie Important Farmland are shown in Table 5.2-3, Nonagricultural General Plan Designations that Intersect with Important Farmland, on page 5.2-19 of the DEIR. Development of land outside the ULL is restricted to non-urban uses by the County's ULL, which would help to prevent conversion of the majority (75 percent) of the total potential 13,816 acres. Additionally, the FMMP data used in this analysis may not accurately represent current conditions on the land. For example, the proposed General Plan land use designation of Water is only applied to areas that are inundated by water (based on County staff knowledge of sites and satellite imagery); therefore, the 22.5 acres of land identified as an area of potential agricultural conversion are inundated and not suitable for farmland.

The analysis may also overstate the proposed General Plan's influence on potential agricultural land conversion. Some areas identified in Table 5.2-3 are already designated for urban use, so the proposed General Plan would not change the potential for conversion from what is currently allowed. Furthermore, as shown in Table 5.2-3, 13,391.6 out of 13,815.6 acres (96.9 percent) of potential conversion identified by this analysis is designated as Parks and Recreation or Public and Semi-Public; these areas are owned by public agencies such as the Department of Water Resources, East Bay Regional Park District, the East Contra Costa Habitat Conservancy, and Ironhouse Sanitary District. While it is likely that these lands will be preserved for non-urban uses, the County cannot state this with certainty, as these are independent agencies and in most cases the County has no jurisdiction over their use of their land. See Figure 2-1, *Agricultural Conversions and Delta Primary Zone*, in this FEIR, which depicts how nearly all areas identified as a potential agricultural land conversion within the Primary Zone are owned by other public agencies. Lands include Jersey Island owned by Ironhouse Sanitary District; Rock Slough Resort (formerly Lindquist Landing Mariana) owned by PSW Legacy Industries, LCC; Knightsen Wetland Restoration Project owned by East Bay Regional Park District and East Contra Costa Habitat Conservancy; and Delta Access owned by East Bay Regional Park District.

As explained on page 5.2-20 of the DEIR, the criterion for mitigation under CEQA is feasible mitigation that lessens a project's impacts. The DEIR considered potential mitigation measures for this impact, such as agricultural conservation easements and in-lieu fees for mitigation banking, which are most effective when determined concurrent with project approval. The DEIR found that the effectiveness and extent to which future projects would opt-in to agricultural conservation easements as mitigation could not be determined in the analysis, and that the impact would remain significant and unavoidable.

- M-9 DPC suggests the County adopt a policy against farmland conversion in the Primary Zone. DPC states that if the agricultural conversion in the Primary Zone shown on Figure 5.2-4 is an effect of the General Plan policies and buildout, the County cannot rely on the second and third prongs of PRC Section 21081. DPC states that public agencies shall not approve projects if there is feasible mitigation that would reduce significant effects. DPC

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understands that some farmland conversions are under special districts' jurisdiction and may be underway. However, DPC believes that the impact language for agricultural land conversion is problematic and requires clarification. DPC requests that the County work with DPC to resolve this issue and update the impact text for the FEIR.

See response to Comment M-8 for a detailed discussion of potential farmland conversion. To address the DPC's concerns, the County has added the following new policy and revised Policy COS-P2.4 in the Conservation, Open Space, and Working Lands Element of the 2045 General Plan:

New Policy COS-P2.4: Consult with the Delta Protection Commission to identify mitigation strategies as relevant, if a change in land use that converts agriculture would significantly affect the sustainability of the Delta agricultural economy.

Revised Policy COS-P2.4 to read as follows (will be renumbered in the Final General Plan): Require new projects adjacent to agriculture to establish buffers on their properties as necessary to minimize conflicts and protect agriculture. Determine appropriate buffers in consultation with the County Agricultural Commissioner.

M-10 DPC states that although the General Plan does not approve a project subject to a water supply analysis, as required by Cal. Water Code Section 10912, more analysis is needed. DPC states that the development's distribution over a large geographic area would benefit from additional support related to conclusions about insignificant water demand. DPC provides their own calculations for water demand.

DEIR Sections 5.10, *Hydrology and Water Quality*, and 5.17, *Utilities and Service Systems*, address impacts to groundwater and municipal water supplies, respectively. Impact 5.17-3 provides a breakdown of the net increase in water demand with the proposed General Plan's land uses and water demand factors. The DEIR was circulated to all municipal water service providers and irrigation districts serving the unincorporated county. No comments were received indicating that the level of development analyzed in the DEIR would cause significant impacts to groundwater or municipal water supplies, and no additional analysis was requested.

M-11 DPC requests stronger support for the assertion that water consumption is accounted for at a program level by summarizing water supply planning for utilities serving unincorporated areas of the county. DPC requests clarification on the status and seniority of water rights held by water districts in Contra Costa County's Primary Zone. DPC reports that the rights in question may be "pre-1914 rights," which are considered very senior and stable over time. If these facts are correct, they should be included in the FEIR.

See response to Comment M-10 in regard to water consumption. See Section 3.2, *DEIR Revisions in Response to Written Comments*, in this FEIR in regard to water rights.

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- M-12 DPC states that the FEIR should include a citation and summary of the requirement that future developments above relevant thresholds must meet Cal. Water Code Section 10910 in the impact analysis. DPC notes that this information will support the conclusion of less than significant and enable DPC to rely on the impact analysis when making their findings.

See Section 3.2, *DEIR Revisions in Response to Written Comments*, in the FEIR in regard to Impacts 5.10-2 and 5.17-3 of the DEIR.

- M-13 DPC states that agricultural land provides foraging habitat for raptors and dispersal habitat for other species. DPC states that the less-than-significant determination in Impact 5.4-1 contradicts the significant and unavoidable determination for Impact 5.2-1 since the farmland loss in the Primary Zone contributes to the threatened status of certain raptor species. DPC emphasizes the need to clarify the cause of and jurisdiction over the agricultural land conversion depicted in Figure 5.2-4 and requests revision of the relevant agriculture impact text and Impact 5.4-1 to demonstrate that the agricultural conversion is not an effect of the General Plan.

Impact 5.2-1 analyzes whether the proposed project would convert Important Farmland while Impact 5.4-1 analyzes whether the proposed project would impact any species identified as sensitive or special-status in local or regional plans, policies, or regulations by the California Department of Fish and Wildlife or United States Fish and Wildlife Service. As mentioned in Impact 5.4-1, there are a number of federal and State regulations in place to protect biological resources, including special-status species and their habitat, within the EIR Study Area. Impact 5.4-1 notes that the goals, policies, and actions in the proposed General Plan, in combination with existing policies and regulations under the Federal Endangered Species Act, Migratory Bird Treaty Act, California Endangered Species Act, California Fish and Game Code, Clean Water Act, and California Native Plant Protection Act, as well as consistency with the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan, would ensure that the potential impacts of the proposed General Plan on special-status species would be less than significant. Future projects that would modify any habitat, including Important Farmland, must comply with the proposed policies in the General Plan as well as State and federal regulations that protect sensitive species. No changes to the DEIR are necessary.

Response to Comment M-8 explains the conservative analysis resulting in the significant and unavoidable determination for Impact 5.2-1. While agricultural land inside and outside the Primary Zone could be converted through actions of other public agencies, the 2045 General Plan protects agricultural land and would not result in significant conversion. Thus, the 2045 General Plan would not significantly impact foraging habitat for raptors or dispersal habitat for other species through agricultural land conversion.

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M-14 DPC suggests the County provide mapping of the Pacific Flyway Habitat in the Primary Zone to support their review. DPC highlights PRC Section 29726 and PRC Section 29763.5. DPC recommends that if existing mapping isn't granular enough to demonstrate avoidance based on Urban Limit Line and buildout assumptions, then the County should collaborate with DPC on policy language for Pacific Flyway habitat protection and mitigation in the Primary Zone.

The U.S. Fish and Wildlife Service maps the entire western United States in the Pacific Flyway.¹ PRC Section 29726 refers to the Central Valley Joint Venture, which has prepared a 2020 *Implementation Plan*.² The focus of the Implementation Plan is on the habitat types listed in Table ES.1 on page Executive Summary iv of the Plan and their role in supporting the species discussed elsewhere in the Plan. Contra Costa County is in the Yolo-Delta Planning Region, which is also listed in Table ES.1. Figure 4.1.9 on page 37 of the Plan shows the Delta Basin, a subregion of the Yolo-Delta Planning Region, which extends into Contra Costa County, and encompasses all of the Primary Zone area within the county. The habitat areas shown within Contra Costa County and the Primary Zone in this figure include small patches on Jersey Island and Webb Tract. Both areas are owned by other public agencies, as described in the responses to comment M-8 and shown in Figure 2-1, *Agricultural Conversions and Delta Primary Zone*, in this FEIR. As described in response to Comment M-8, the County generally lacks jurisdiction over the use of this land.

As described in Impact 5.4-1, future projects that would modify any habitat for any species identified in a local or regional plan would need to comply with the proposed policies in the General Plan as well as any local, regional, state, or federal regulations that protect the species. County and DPC staff have worked together to formulate the following new policy to be included in the Conservation, Open Space, and Working Lands Element of the 2045 General Plan under Goal COS-4:

Policy COS-P4.6: Require projects that impact Pacific Flyway habitat in the Delta Primary Zone to incorporate mitigation ensuring no net loss of habitat function, including temporal loss. Impacts to Pacific Flyway habitat will be determined based on best available information at the time of environmental review.

No changes to the DEIR are necessary.

¹ U.S. Fish & Wildlife Service, Migratory Bird Program Administrative Flyways State and Province Map, <https://www.fws.gov/media/migratorybirdprogramadministrativeflywaysstateandprovincemapjpg>, November 24, 2021.

² Central Valley Joint Venture, Central Valley Joint Venture 2020 Implementation Plan, https://www.centralvalleyjointventure.org/assets/pdf/CVJV_2020_Implementation_Plan.pdf, 2020

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- M-15 DPC states that Impact 5.4-4 would benefit from additional policy language to support the impact analysis. DPC supports the policy of avoiding impacts on wildlife movement corridors; however, DPC states that Mitigation Measure BIO-1, which encourages development plans to maximize wildlife movement, is not specific enough and should go further. DPC suggests the County adopt a general plan policy that new roads will assess the potential wildlife movement impacts and incorporate crossing opportunities, thereby reducing impacts on wildlife movement in the Primary Zone and other locations.

New roadways will be constructed either as stand-alone public projects or components of private development projects. In either case, they will require independent environmental analysis under CEQA to evaluate physical impacts, such as impacts to biological resources. There is no need for an additional mitigation measure as the impacts of new roadways will be mitigated through their project-specific approval processes. Impact 5.4-4 lists policies and actions from the 2045 General Plan that would help to mitigate potential impacts associated with the movement of native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. These policies and actions, combined with Mitigation Measure BIO-1, are found to mitigate impacts to a less-than-significant level, and no further mitigation needs to be considered. Therefore, no changes to the DEIR are necessary. Nonetheless, the County will include the following new action in the Conservation, Open Space, and Working Lands Element of the 2045 General Plan:

Action COS-A4.3: Work with conservation agencies to identify appropriate locations and methods for incorporating wildlife crossings into future road projects.

- M-16 DPC states that roads pose a significant threat to population connectivity and the long-term survival of regionally important wildlife populations, particularly in light of climate change. DPC suggests that a policy framework to mitigate the impact of new roadway development would be beneficial from a conservation perspective, as it would allow for the shift of suitable habitats and population movements.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation. See also response to Comment M-15.

- M-17 DPC states that Impact 5.5-1 and 5.5-2 are not consistent. DPC summarizes how Impact 5.5-1 concludes that impacts on historical resources are potentially significant and unavoidable, noting that the eligibility criteria for the California Register of Historical Resources include archaeological resources under the historical resource definition. DPC also summarizes how Impact 5.5-2 determined a less-than-significant-impact on archaeological resources, based on mitigation measures such as a records search and retention of an on-call archaeologist. DPC asks why impacts on historical resources, which

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include archaeological resources by definition, are significant and unavoidable but impacts on archaeological resources are less than significant?

DPC is correct that archaeological resources can meet the definition of historical resources under PRC Section 5020.1; however, the definition of “historical resources” under California Code of Regulations (CCR) Section 15064.5(a) applies to resources that do not meet the definition of archaeological sites or resources. The impacts to historic resources identified in Impact 5.5-1 address the potential for reuse or modification of historic structures to materially impair the significance of the resource, as well as the potential for placement of new buildings adjacent to a historic resource that could result in adverse changes to the resource’s access, visibility, and visual context. These impacts are relevant to resources that cannot be preserved in place or excavated in order to avoid significant and adverse impacts. CCR Section 21083.2 outlines the procedures that shall be followed in the event that a project will cause damage to a unique archaeological resource. Compliance with these procedures, proposed General Plan Policies COS-P10.6 and COS-P10.7, and Mitigation Measures CUL-1, TCR-1, and TCR-2 ensure that future project activities would not disturb, damage, or degrade potential unique archaeological resources or archaeological sites considered historic resources. Note that Mitigation Measure CUL-1 has been modified as shown in Section 3.2, *DEIR Revisions in Response to Written Comments*, of this FEIR.

M-18 DPC states mitigation measures for impacts on archaeological resources should be strengthened, particularly in the Primary Zone, by requiring future projects to assess buried archaeological sites that may not be detected in records searches. DPC further states that infrastructure and development projects can inadvertently damage archaeological sites and buried human remains, as seen in levee repairs along the Feather River. DPC requests clarification on the inconsistency between Impacts 5.5-1 and 5.5-2 and that the County work with DPC to ensure mitigation and policy controls to minimize cultural resource impacts for discretionary projects in the Primary Zone are included in the General Plan and/or EIR, as well as reinforce the significance analysis for Impact 5.5-3, which relates to impacts on buried human remains.

See Section 3.2, *DEIR Revisions in Response to Written Comments*, in this FEIR in regard to edits to mitigation measure CUL-1. DPC has provided these edits to the mitigation measure and no recirculation is required. See response to Comment M-17 regarding the relationship between Impacts 5.5-1 and 5.5-2.

The DEIR finds that impacts to buried human remains are less than significant in Impact 5.5-3 based on proposed General Plan policy guidance, in combination with existing federal and State regulations in place to protect human remains. DPC provides no evidence contradicting this impact finding.

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- M-19 DPC states that mitigation for archaeological resources (Mitigation Measure CUL-1) should consist of a survey, recording, and evaluation of resources found in the survey, and implementation of discovery protocols if resources are inadvertently found in construction, at a minimum.

See Section 3.2, *DEIR Revisions in Response to Written Comments*, in this FEIR in regard to edits to mitigation measure CUL-1. DPC has provided these edits to the mitigation measure and no recirculation is required.

- M-20 DPC states Impact 5.11-2 should be supported by additional analysis. DPC states that the EIR determines a significant agricultural land conversion in the Primary Zone, but the impact analysis for Impact 5.11-2 lacks a comprehensive summary of how consistency with the Delta Protection Act and LURMP will be achieved. DPC asserts that this gap diminishes the credibility of the impact conclusion and urges collaboration to prepare revised text or an appendix to better support the impact statement.

See responses to Comments M-8, M-13, and M-21. No changes to the DEIR are necessary.

- M-21 DPC suggests that the text summarizing the LURMP should be updated. DPC states that the EIR provides a cursory statement regarding the LURMP on page 5.11-12, but fails to mention the standards the County must meet for approval of their General Plan under PRC Section 29763.5 and lacks a meaningful summary of the content of the LURMP. DPC encourages the County to work with them to obtain the proposed text revisions to better support this section.

See Section 3.2, *DEIR Revisions in Response to Written Comments*, of this FEIR in regard to the LURMP. The County will also add text to Policy LU-P6.1 in the Land Use Element of the 2045 General Plan so that it reads:

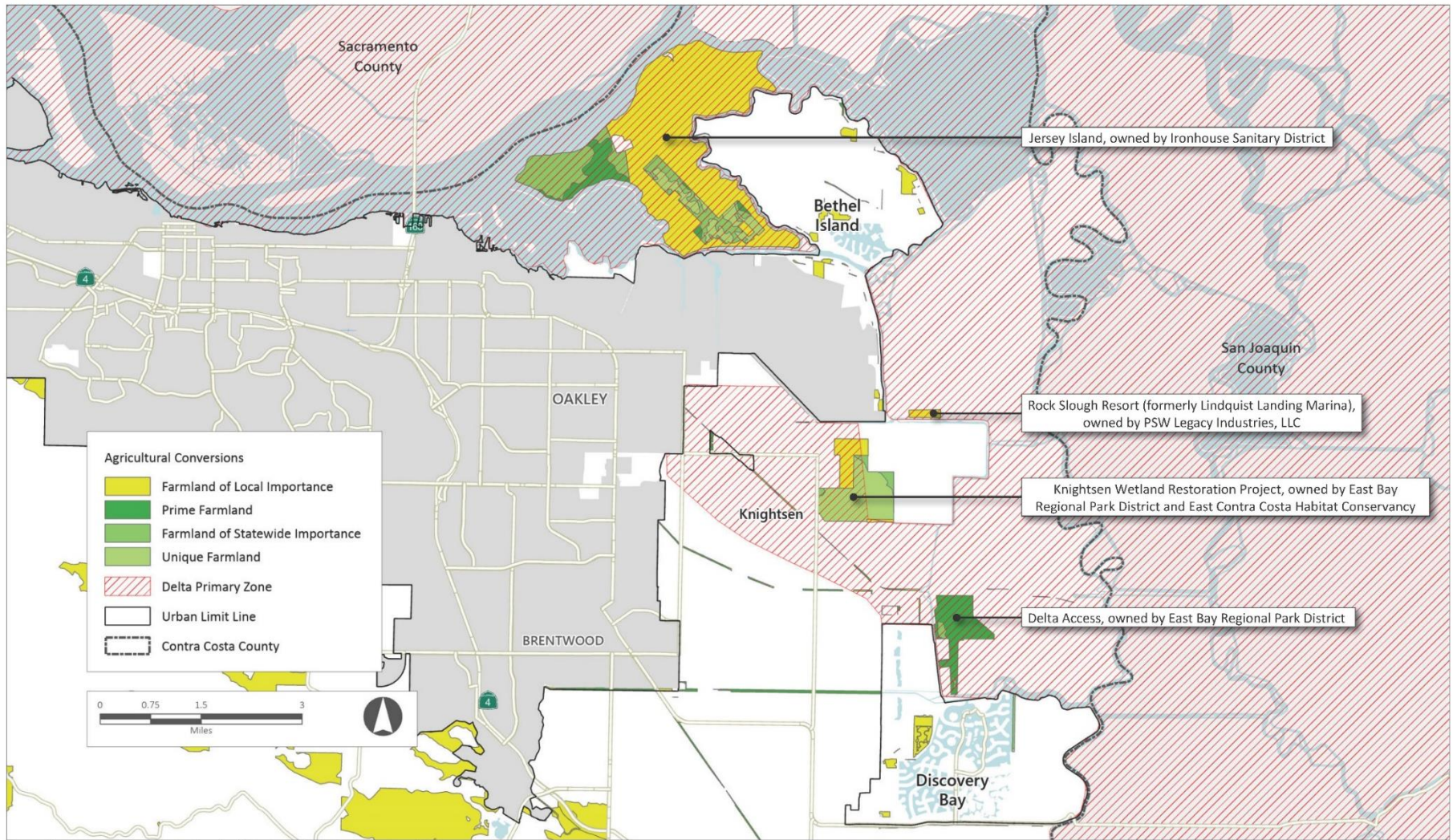
Ensure that County projects and decisions on private development and land use activities within the Legal Delta are consistent with the following plans:

- (a) Land Use and Resource Management Plan for the Primary Zone of the Delta adopted by the Delta Protection Commission.
- (b) Delta Plan adopted by the Delta Stewardship Council.

In addition, screen proposed General Plan amendments affecting the Primary Zone for consistency with Public Resources Code Section 29763.5, including a specific analysis of consistency with each subsection thereof.

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Figure 2-1 Agricultural Conversions in the Delta Primary Zone



Source: Department of Conservation Farmland Mapping and Monitoring Program 2020

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2. Response to Comments

LETTER 1 – Jan Callaghan (1 page)

Contra Costa County Zoning Administrator Meeting
ENVISION CONTRA COSTA (County File #GP18-0001)

March 18, 2024

Jan Callihan:

I live in Rodeo next to Phillips 66 and New star and all the other refineries. And the one thing I saw that was missing that I hope you will address better in the Environmental 2040 is odors.

There are going to be severe odor changes because of the hydrogen plant and the fats and stuff. And odors really need to be addressed because they're still going to be working with stuff that's going to be very smelly along with what they're putting out in the air and using equipment to run and store. And plus, with all the rails and the trains, there will be a lot of difference.

I also want to point out, I don't know exactly how many train cars and rails that they address in it. You've got all the technical from the experts, but I am worried about the Hercules four overcross where the trains come over. I see them and there will be over 40 black tanker cars crossing over the trellis, which to me seems to be in bad shape I think before the county addresses any more rails, they should have an inspection of the trellises that go over an important where highway for people leaving Hercules to get on to Interstate 80 under a trellis through there where the old Clay's property would be.

So those are my comments. Please address odor, the rail overpasses, and what impacts they have on communities because it's increasing severely. We will try to get written comments in, but everything's happening with Easter and ending and lots going on. So thank you for letting me speak.

1-1

1-2

1-3

2. Response to Comments

1 Response to Comments from Jan Callaghan, dated March 18, 2024.

1-1 The commenter, who lives near the Phillips 66 Refinery and NuStar facility (both in Rodeo), expressed concern about the proposed project not addressing odors. The commenter noted that the hydrogen plants will cause severe odor changes. The commenter also expressed concern about potential impacts from trains serving the facilities.

The proposed 2045 General Plan would allow some industrial land uses in the county. Impact 5.3-6 in Section 5.3, *Air Quality*, includes a discussion on operational odors from industrial land uses. Page 5.3-68 of the DEIR acknowledges that industrial land uses can generate objectionable odors. Therefore, future environmental review could be required for industrial projects listed in BAAQMD's CEQA Guidelines Table 4 Project Screening Trigger Levels for Potential Odor Sources to ensure that sensitive land uses, including residences, are not exposed to nuisance odors. In addition to the BAAQMD criteria that will apply to all industrial projects, the General Plan includes Action HS-A1.3 that requires the County to consult with BAAQMD and community stakeholders and amend County Ordinance Code Title 8 – Zoning to include an Industrial-Sensitive Receptor Interface Overlay Zone applied to areas where residential land uses and other sensitive receptors interface or directly abut heavy industrial land uses. In the overlay zone, industrial uses would be required to reduce pollution and employ strategies to mitigate air quality, noise, vibration, odor, light, visual, and safety impacts on nearby sensitive receptors. Additionally, new sensitive receptors within the overlay zone would be required to install enhanced ventilation systems and implement other strategies, paid for by neighboring sources of pollution to the extent possible, to protect residents from health and quality of life impacts.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

1-2 The commenter is concerned about the safety of the Hercules railroad overcrossing and asserts that the County should inspect existing rail facilities before rail traffic is allowed to increase.

The County does not have jurisdiction to inspect railroad bridges, which are owned and maintained by private rail companies. The Railroad Operations and Safety Branch of the California Public Utilities Commission, as well as the Federal Railroad Administration have responsibility for overseeing rail safety. The County shared this comment with the City of Hercules.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

2. Response to Comments

- 1-3 The commenter states that the County should address odors, the rail overpass, and what impacts they have on communities as they are already severely affected.

See response to Comments 1-1 and 1-2.

2. Response to Comments

LETTER N – Committee for Industrial Safety (7 pages)

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April 22, 2024

Sent via email

Supervisor Federal D. Glover
Supervisor Ken Carlson
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Supervisor John M. Gioia
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Director John Kopchik

Re: Comments on Contra Costa County 2024 Climate Action Plan, 2045 General Plan, and General Plan and Draft Environmental Impact Report

Dear Supervisors, Commissioner and Director:

On behalf of the Committee for Industrial Safety (CIS), we respectfully submit this comment letter to ensure that Contra Costa County adopts an internally consistent and legally sufficient Contra Costa County 2045 General Plan and updated 2024 Climate Action Plan (CAP), as required by California Government Code Section 65300.5, and fully complies with the California Environmental Quality Act (CEQA), Public Resources Code § 21000 et seq., and the CEQA Guidelines, California Code of Regulations, title 14, § 15000 et seq. (CEQA Guidelines) with respect to the County's environmental impact report (EIR) for the 2045 General Plan and 2024 CAP. CIS is a nonprofit association, its purpose is to educate the public and advocate on matters of refinery safety and related regulatory policy and environmental protection. Contra Costa County is home to workers, communities and facilities associated with CIS and served by CIS educational and advocacy efforts.

N-1

Oil and gas manufacturing companies are the largest private employers and one of the highest paying industries in Contra Costa County. Contra Costa Conservation & Development [Largest Employers](#) (accessed April 20, 2024); California Employment Development Department [Major](#)

N-2

[Employers in Contra Costa County](#) (accessed April 20, 2024); Data USA [Contra Costa County](#) (accessed April 20, 2024). The 2045 General Plan and 2024 CAP propose to shut down the largest private employers, eliminating those higher paying jobs, and the EIR neither identifies nor analyzes any potential impacts from this substantial change in the workforce, tax base, manufacturing, and transport of goods in the County. Implementation of the climate action policies and measures in the 2045 General Plan and 2024 CAP will have significant impacts on workers, communities and multiple industries in Contra Costa County, on their public, environmental and economic health and vitality, but no attempt is made in the EIR to describe, evaluate or address such impacts. Many of those impacts will fall on communities already disadvantaged by the uneven distribution of economic, educational and social resources.

N-2

N-3

General Plan and CAP Not Consistent

The 2024 CAP is integral to administration of the 2045 General Plan, its implementation is a General Plan requirement, and the 2024 CAP is fully enforceable under CEQA. Consistency between the General Plan and the CAP, and internal consistency within the General Plan, are therefore important elements to a legally adequate General Plan. General Plans that are internally inconsistent are illegal, and courts have and may continue to impose the draconian remedy of halting all new development pending adoption of an internally consistent and legally adequate General Plan. *See, e.g., Save El Toro Assn. v. Days (1977) 74 Cal.Appl. 3d 64*. Failure to address inconsistencies between the 2045 General Plan and the 2024 CAP invites challenges, puts future development at risk, and unnecessarily wastes public resources.

N-4

Given the cultural, ethnic, social and economic diversity of the communities in Contra Costa County, promotion of environmental justice and economic development are significant policy imperatives for Contra Costa County residents and businesses. The 2045 General Plan consistently prioritizes efforts to address environmental justice issues in General Plan goals, policies and actions. Within the Stronger Communities Element of the General Plan, the Environmental Justice section states that the County’s intent is to reduce the disadvantages and burdens on these overburdened and vulnerable communities. The 2024 CAP however does not align with the General Plan environmental justice priorities and fails to implement key General Plan environmental justice priorities.

N-5

The 2045 General Plan and 2024 CAP identify communities in and around North Richmond, San Pablo, Montara Bay/Rollingwood, Rodeo, Crockett, Vine Hill/Mountain View, Pacheco, Clyde, and Bay Point as “Impacted Communities.” General Plan, Figure SC-1. As you know, Impacted Communities are “unincorporated communities in Contra Costa County that are disproportionately burdened by pollution or face disproportionate social or health vulnerabilities.” General Plan, p. 3-3. These communities are burdened by proximity to heavy industry, a range of pollution sources, and a sustained lack of public and private infrastructure and community services investments. Residents of these communities also benefit from “the jobs, tax benefits, and local energy production” provided by the “high concentration of refineries and other large industrial facilities” in their communities. However, these same communities, residents and businesses, may also be particularly vulnerable to the impacts of climate change. Accordingly, the General Plan sets “a priority of the County to protect Impacted Communities

N-6

from additional harm and progressively improve the quality of life and health outcomes of residents.” General Plan, p. 3-3.

N-6

The 2045 General Plan, in support of the equitable distribution of social and economic resources to reduce disproportionate burdens on Impacted Communities, calls for

- Partnerships between residents, workers, business/industry, environmental and environmental justice advocates, institutions and governments to support industry transitions that will provide living-wage jobs;
- Streamline permitting process for new development and redevelopment that promotes community objectives in Impacted Communities;
- Development of neighborhood-serving retail and service uses, cultural and community events, and public infrastructure; and
- Negotiation of community benefit agreements (CBAs) to address the expressed needs of Impacted Communities. See, General Plan Goal SC-1 and Policies SC-P1.1, SC-P1.2, SC-P1.3, SC-P1.4, SC-P1.5, and SC-P1.6.

The 2045 General Plan emphasizes enhanced opportunities for high-quality jobs and workforce development in Impacted Communities. The General Plan specifically sets as a goal “Access to and expansion of high-quality job training, job opportunities, and economic resources so that residents in Impacted Communities can acquire safe jobs, earn a living wage to support their families, and build shared prosperity.” Goal SC-8. For Impacted Communities, the General plan similarly emphasizes reducing barriers to and improving healthcare, increasing quality affordable housing, and providing enhanced fresh, healthy and affordable food opportunities, in those communities.

N-7

With respect to climate change impacts, the 2045 General Plan specifically prioritizes protection of Impacted Communities.

General Plan Policy HS-P4.4: Prioritize efforts to protect Impacted Communities and other vulnerable populations from the impacts of climate change, including through improving community capacity and meaningfully involving community members in decision making.

In contrast to the 2045 General Plan, the 2024 CAP Strategy and Implementation Actions do not prioritize efforts to protect Impacted Communities. For example, although a “high concentration of refineries and other large industrial facilities” are located in Impacted Communities, unlike the General Plan, the 2024 CAP Strategy CE-5 does not prioritize access to high-quality jobs, economic resources, and a living wage for Impacted Communities. The proposed climate action strategies advocate phasing out the largest private employers and associated higher paying jobs and tax benefits, located primarily in Impacted Communities, but does not correspondingly prioritize economic development and job creation in those Impacted Communities. The 2024 CAP does not promote

N-8

- Industry transitions that will provide living-wage jobs in Impacted Communities;

- Streamline permitting process for new development and redevelopment that promotes community objectives in Impacted Communities;
- Development of land uses and public infrastructure in Impacted Communities; or
- Community benefit agreements (CBAs) to address the needs of Impacted Communities.

N-8

The 2024 CAP does little or nothing to further the County’s environmental justice objectives, particularly in the context of economic sustainability, wealth creation or workforce development.

Additional inconsistencies are visible between strategies to (i) “Provide access to affordable, clean, safe, and healthy housing and jobs,” [CAP Strategy CE-1] (ii) implementing actions to phase out existing industries that provide high-paying jobs and tax benefits (employers characterized as “heavily polluting and extractive industries”) [CAP Strategy CE-5 Action], and (iii) “measures to achieve near-zero emissions for large commercial or industrial projects” [General Plan Policy HS-P1.8]. Policies and implementing actions in the 2045 General Plan Health and Safety element identify regulatory agencies and initiatives working to control and reduce emissions and exposures from heavy industrial facilities in Impacted Communities. General Plan and CAP goals and policies also identify job security as a priority for the County. Conversely, the 2024 CAP also seeks to phase out those same highly regulated and controlled, jobs producing industrial facilities.

N-9

We note that the County has otherwise promoted environmental justice and economic development initiatives designed to facilitate continuing dialogue with environmental justice communities, workers, and businesses, and advance strategies to create thousands of new living-wage jobs, emphasize local workforce hiring, and protect and build the regional tax base. Such environmental justice and economic development activities identified by the Contra Costa County Department of Conservation & Development in November 2023 included,

- Northern Waterfront Economic Development Initiative,
- Just Transition Economic Revitalization Plan (JTERP),
- Bay Area Good Jobs Partnership for Equity (Community Economic Resilience Fund),
- Contra Costa Refinery Transition Partnership, and
- Refinery Community Benefits Agreements.

N-10

While the 2023 Interim CAP Progress Report identifies some implementation activity with the JTERP and the County’s support of AB 844, it does not reflect any significant progress on addressing environmental justice and economic development. Reversing historic injustices, while retaining and attracting businesses, jobs, workers and industry, must be an integral part of implementation of the General Plan and the County’s strategic climate action plans. Nevertheless, the 2045 General Plan, 2024 CAP and EIR also fail to address the adverse impact on past and current efforts in the County directed at environmental justice issues and economic development in Impacted Communities.

N-11

Finally, our review of the 2024 CAP indicates that the climate action strategies are also inconsistent with the County’s Housing Element, which prioritizes preserving existing affordable housing and increasing the supply of housing, particularly affordable housing, in the County.

N-12

Climate change strategies that reduce tax benefits from jobs producing industry and reduce opportunities for high-paying jobs, as well as increase costs on existing and new housing, are inconsistent with the goals of the Housing Element. Increasing and improving housing opportunities requires stable incomes, a stable tax base, and reliable economic and jobs growth. The County must revise the 2024 CAP to better align with the 2045 General Plan environmental justice and housing goals.

N-12

EIR Fails to Comply with CEQA

The Project addressed by the Draft EIR is the implementation of the proposed 2045 General Plan and 2024 CAP. The EIR is “the heart of CEQA.” and provides an “environmental ‘alarm bell’ whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return.” *Laurel Heights Improvement Ass’n v. Regents of the Univ. of Cal.* (1998) 47 Cal.3rd 376, 392 (*Laurel Heights*). An EIR is intended to demonstrate that the lead agency “has, in fact, analyzed and considered the ecological implications of its action.” *Id.* The EIR, however fails to fully and accurately inform the public and decision makers of environmental consequences associated with the CAP and the General Plan, and ways to mitigate those consequences, and thus fails to achieve CEQA’s fundamental purpose. To comply with the law, the County must revise the EIR to cure the CEQA errors identified below, and it must recirculate the revised draft so that the public and decision makers have a fair opportunity to assess the full scope of the environmental impact of the General Plan and CAP climate action strategies.

N-13

The 2045 General Plan and 2024 CAP propose to shut down the oil and gas industry, eliminating the County’s largest private employers, and the associated higher paying jobs, tax benefits, and goods and services provided locally by those local employers (goods and services that serve the County, region and the State). The EIR fails to identify and analyze any potential impact to the production, export and import of goods and products in the County, or the adverse impact on jobs, income and revenue for public services in the County, particularly for Impacted Communities. In addition to jobs displacement and loss of revenue and locally produced goods, our communities will also be subject to increased traffic, air quality and hazard impacts from the need to import from outside the region and the state those goods and services that are currently produced locally. None of these or other potential adverse impacts are evaluated in the EIR.

N-14

Climate action strategies under the 2024 CAP also include incentivizing new buildings to be low-carbon or carbon neutral, retrofitting existing buildings and facilities to reduce energy use, and increasing the amount of electricity used and generated from renewable sources in Contra Costa County. Physical changes will be required by these energy strategies. The EIR fails to adequately evaluate the environmental impact of these climate action strategies. Implementation of the 2045 General Plan and 2024 CAP will result in relocation or construction of new or expanded energy facilities to transition to increased use of sources of renewable energy generated in the County. Additionally, substantial increase in County sources of renewable energy will be needed to accommodate transition to all electric new residential buildings, hotels, offices and retail. CAP Strategy B-1. Nevertheless, the EIR determines that the General Plan and

N-15

N-16

CAP would not result in new or expanded energy facilities that would cause significant environmental effects.

N-16

The EIR erroneously concludes that the CAP does not propose land use changes and would not directly result in relocation or construction of new or expanded energy facilities, and that any new or expanded facilities resulting from the proposed General Plan ‘would undergo its own review to mitigate potentially significant environmental effects.’ EIR, p. 5.6-34. Consequently, the EIR does not identify energy transition impacts for the CAP, nor does it evaluate any air quality, traffic, hazards, employment, water supply, or wastewater impacts of the transition to and creation of new energy facilities. Furthermore, the EIR fails to quantify the number, size and scope of renewable energy facilities that would result from General Plan and CAP policies/strategies, and fails to evaluate the potential environmental impacts or provide program-based mitigation measures. Potential impacts from development of new renewable energy facilities in the County include heat island impacts for solar panels, wildlife impacts related to migrating birds and solar and wind facilities, water supply impacts from cleaning solar panel, and construction and other impacts related to development of a varied range of local energy storage, transmission and generation facilities.

N-17

N-18

N-19

The 2045 General Plan, 2024 CAP and EIR advocate the shutdown of the County’s largest private employers, without analysis or discussion of the viability of that proposal, and without identifying or evaluating any potential adverse impacts. The EIR fails to analyze the adverse impacts such proposed climate action strategies will have on jobs, population, housing, revenue, public services, traffic, air quality, and the economy. As such, the 2045 General Plan, 2024 CAP and EIR are fundamentally flawed and promote flawed projections that leave our workers, communities and businesses facing potentially disastrous circumstances without analysis or realistic options or alternatives.

N-20

Sincerely yours,

HOLLAND & KNIGHT LLP



Letitia D. Moore

cc: William R. Nelson, Principal Planner

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2. Response to Comments

N. Response to Comments from the Committee for Industrial Safety, dated April 22, 2024.

N-1 The Committee for Industrial Safety (CIS) submits comments to ensure that Contra Costa County adopts an internally consistent and legally sufficient General Plan Climate Action Plan (CAP) and complies with CEQA. CIS also mentions that they are a nonprofit association with the purpose of educating the public and advocating on matters of refinery safety and related regulatory policy and environmental protection.

Contra Costa County appreciates CIS comments and recommendations that may assist the County. See also responses in L-2 through L-10.

N-2 CIS states that oil and gas manufacturing companies are one of the largest and high paying industries in Contra Costa County, expresses concern that the 2045 General Plan and 2024 CAP would shut down oil and gas manufacturing, and that the EIR does not identify or analyze how this would affect the tax base, workforce, manufacturing, and the transport of goods in the county.

The comment does not identify any specific environmental impacts that the EIR fails to analyze and does not provide any evidence in support of its assertions. As described in CEQA Guidelines Section 15064(f)(5), substantial evidence includes “facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts,” and “argument, speculation, [or] unsubstantiated opinion or narrative...does not constitute substantial evidence.” Lead agencies are required to make impact determinations based on substantial evidence in the record. Under CEQA Guidelines Section 15204(c), “Reviewers should explain the basis for their comments, and should submit data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts in support of the comments. Pursuant to Section 15064, an effect shall not be considered significant in the absence of substantial evidence.”

The County notes that neither the 2045 General Plan nor 2024 CAP propose to prohibit refinery uses or shut down oil and gas manufacturing. The General Plan on page 3-3 states, “Contra Costa County is home to a high concentration of refineries and other large industrial facilities. While these industries contribute to pollution and contamination in Impacted Communities, they also provide jobs, tax revenue, community investments, and local energy production.”

N-3 CIS states that implementation of the climate action policies and measures in the 2045 General Plan and 2024 CAP will have significant impacts on workers, communities, and multiple industries in Contra Costa County, including environmental and economic health impacts, and the EIR makes no attempt to evaluate these impacts.

The comment does not identify any specific environmental impacts that the EIR fails to analyze and does not provide any evidence in support of its assertions. As described in CEQA Guidelines Section 15064(f)(5), substantial evidence includes “facts, reasonable

2. Response to Comments

assumptions predicated upon facts, and expert opinion supported by facts,” and “argument, speculation, [or] unsubstantiated opinion or narrative...does not constitute substantial evidence.” Lead agencies are required to make impact determinations based on substantial evidence in the record. Under CEQA Guidelines Section 15204(c), “Reviewers should explain the basis for their comments, and should submit data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts in support of the comments. Pursuant to Section 15064, an effect shall not be considered significant in the absence of substantial evidence.”

See responses to Comments N-11 and N-13 through N-19, which address individual statements about the DEIR’s compliance with CEQA.

- N-4 CIS states that the General Plan and CAP are not consistent with each other and emphasizes that consistency within the General Plan is important to the document being legally adequate. This comment does not cite any specific instances of inconsistency between the General Plan and the CAP.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

- N-5 CIS notes that the 2045 General Plan aims to address environmental justice issues to reduce the disadvantages in overburdened communities. The comment states, however, that the 2024 CAP does not align with the environmental justice priorities highlighted in the 2045 General Plan.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

- N-6 CIS states that the 2045 General Plan and 2024 CAP identify several communities in Contra Costa County as “Impacted Communities.” CIS also quotes language in the Stronger Communities Element of the 2045 General Plan related to industry and its positive and negative impacts upon Impacted Communities.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation. See also the response to Comment N-2. Some of the Stronger Communities Element text the comment references has been revised.

- N-7 CIS describes several goals and policies of the 2045 General Plan that emphasize economic development and quality of life improvements intended to assist Impacted Communities, as well prioritization of efforts to protect Impacted Communities from climate change impacts.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

2. Response to Comments

- N-8 CIS states that unlike the 2045 General Plan, the CAP does not prioritize efforts to protect Impacted Communities; for example, CAP strategy CE-5 does not prioritize access to high-quality jobs, and economic stability in Impacted Communities. CIS states that the proposed climate action strategies advocate phasing out the largest private employers that provides economic benefits to Impacted Communities, but does not correspondingly prioritize economic development and job creation in those Impacted Communities.
- This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.
- N-9 CIS states that the 2024 CAP does little or nothing to further the County’s environmental justice objectives and cites CAP strategies that are asserted to be inconsistent with 2045 General Plan policies.
- This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.
- N-10 CIS notes that County has promoted environmental justice and economic development initiatives and lists several specific activities.
- This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.
- N-11 CIS states that the County’s 2023 Interim CAP Progress Report does not reflect any significant progress on addressing environmental justice and economic development. CIS also asserts that the 2045 General Plan, 2024 CAP, and DEIR also “fail to address the adverse impact on past and current efforts in the county directed at environmental justice issues and economic development in Impacted Communities.”
- The DEIR analyzes the potential environmental impacts of the proposed project, which includes the 2045 General Plan and 2024 CAP. The DEIR is not intended to address the environmental impacts of other past and current County initiatives. Moreover, CEQA is generally concerned with physical environmental impacts of a particular project, and according to CEQA Guidelines Section 15064(e), “[e]conomic and social changes resulting from a project shall not be treated as significant effects on the environment” unless they result in a physical change that would have “a significant effect on the environment.” The comment does not identify any specific potential physical changes that would result from environmental justice or economic development initiatives affecting Impacted Communities. This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

2. Response to Comments

- N-12 CIS states that their review of the 2024 CAP indicates that the climate action strategies are also inconsistent with the County’s Housing Element and the 2045 General Plan’s environmental justice goals.

This comment does not describe any inadequacies of the DEIR, and therefore no changes to the EIR are necessary. See Master Response 1 for further explanation.

- N-13 CIS asserts that the DEIR fails to fully and accurately inform the public and decision-makers of the environmental consequences of the 2024 CAP and 2045 General Plan and ways to mitigate those consequences, and that the DEIR must be revised and recirculated.

The commenter speculates on potential economic and social effects of the proposed project. CEQA Guidelines Section 15131 specifically precludes considering social or economic effects as significant. The physical impacts of development consistent with the 2045 General Plan are evaluated throughout the DEIR. The comment does not identify any specific environmental impacts that the EIR fails to analyze and does not provide any evidence in support of its assertions. As described in CEQA Guidelines Section 15064(f)(5), substantial evidence includes “facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts,” and “argument, speculation, [or] unsubstantiated opinion or narrative...does not constitute substantial evidence.” Lead agencies are required to make impact determinations based on substantial evidence in the record. Under CEQA Guidelines Section 15204(c), “Reviewers should explain the basis for their comments, and should submit data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts in support of the comments. Pursuant to Section 15064, an effect shall not be considered significant in the absence of substantial evidence.”

- N-14 CIS states that the 2045 General Plan and 2024 CAP propose to shut down the oil and gas industry and that the DEIR fails to identify and analyze potential impact to the production, export and import of goods and products in the county, or the economic impacts on Impacted Communities. The comment states that this could lead to increased traffic, air quality, and hazard impacts due to the need to import goods and services from outside the region, and that these impacts as well as others are not examined in the EIR.

The comment’s assertion that the 2045 General Plan and 2024 CAP propose to shut down the oil and gas industry is inaccurate. As noted in response to Comment N-2, neither the 2045 General Plan nor 2024 CAP proposes to shut down oil and gas manufacturing, nor would it be within the County’s power to do so. Through the 2045 General Plan and 2024 CAP the County contemplates a future in which reliance on fossil fuels has diminished in response to federal and State mandates, technological advances, and market forces, all of which are beyond the County’s control. Since shutting down oil and gas manufacturing is not part of the proposed project, the DEIR is not required to consider the potential environmental effects of this change. The comment does not provide facts or evidence

2. Response to Comments

to support the claim that increased traffic, air quality, and hazard impacts would occur as a result of the proposed project. As explained in response to Comment N-3, the County as lead agency must base its analysis and impact findings on substantial evidence in the record.

- N-15 CIS states that CAP strategies such as incentivizing new buildings to be low-carbon and retrofitting existing buildings to be more energy efficient and run on renewable energy will require physical changes. The comment states that the EIR fails to adequately address potential environmental impacts from relocation or construction of new or expanded energy facilities to transition to increased use of renewable energy generated in the county.

The comment does not identify specific physical environmental impacts of concern. However, each individual impact discussion in each of the chapters of the DEIR considers the potential environmental impacts of implementing the CAP. For example, Section 5.4, *Biological Resources*, Impact 5.4-1, on page 5.4-9, acknowledges that “projects that would implement the proposed CAP strategies and actions could result in the construction of physical improvements and infrastructure in the county that is designed to help meet the emissions targets in the CAP, which could potentially impact special-status species.” The analysis goes on to describe the specific local, State, and federal regulations that would reduce potential environmental impacts to special-status species to a less-than-significant level. The commenter speculates on potential projects that are beyond the ability of the County to predict, and may not be subject to County land use regulations. Section 15145 of the CEQA Guidelines states “If, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact.” Further, as a Program EIR, the focus is on procedures and policies in place to address future projects that are currently unknown. Because the comment speculates about future projects, does not identify which environmental impacts are inadequately addressed, and does not provide facts or evidence to support the statement, a more detailed response is not possible or required.

- N-16 CIS notes that substantial increase in county sources of renewable energy will be needed to accommodate transition to all electric new residential buildings, hotels, offices, and retail. CIS states that the EIR incorrectly determines that the General Plan and CAP would not result in new or expanded energy facilities that would cause significant environmental effects.

Section 15378(a) of the CEQA Guidelines defines a project as “the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a *reasonably foreseeable* indirect physical change in the environment” (emphasis added). The CAP could potentially encourage construction of new renewable energy facilities, such as solar arrays in new commercial parking lots, as called for in CAP Strategy BE-3. However, the specific type, location, size, and features of these facilities cannot be

2. Response to Comments

reasonably foreseen at this time, nor are any specific renewable energy projects called for in the CAP. The County notes that it has already planned for development of renewable energy facilities by adopting General Plan policies and zoning ordinances regulating wind and solar energy production. Those actions were subject to review under CEQA and resulted in regulations designed to reduce potential environmental impacts associated with renewable energy projects. Any renewable energy projects encouraged by the CAP would be subject to these *existing* County regulations.

It is also important to note that, regardless of the proposed project, new residential and commercial construction is required to meet specific State-level requirements for Zero Net Energy (ZNE), as explained in Section 5.6, *Energy*, beginning on page 5.6-3 of the DEIR. Moreover, as explained on page 5.6-4 of the DEIR, Senate Bill 100 established an overall State policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all State agencies by December 31, 2045. Therefore, potential future new or expanded energy facilities are likely to be constructed to serve future development in Contra Costa County even without the proposed project, and the future construction of an individual renewable energy facility will not be directly attributable only to the proposed General Plan or CAP.

The 2045 General Plan is a long-range land use planning document and growth is anticipated to occur over the next 20 years. Table 5.6-4 on page 5.6-26 of the EIR shows that over the planning period the service population usage of energy for the county will be reduced because of the 2045 General Plan policies and adherence to energy conservation regulations. Similarly, Table 5.6-5 on page 5.6-27 of the EIR shows a reduction in natural gas and propane usage per service population over the same planning period. Finally, the discussion of Impact 5.6-3 on page 5.6-33 of the EIR outlines the process for approval of new or expanded energy facilities by the State and concludes that energy providers work with the State to prepare the facilities, and that each new facility undergoes its own environmental analysis with the State as the lead agency. The CAP demonstrates that the proposed 2045 General Plan is consistent with State goals regarding energy efficiency and renewable energy, including a decreased reliance upon non-renewable sources over time.

The comment does not provide any evidence in support of its assertions. See Comment N-13 for a discussion of the commenter's obligation to provide supporting evidence.

- N-17 CIS states that the EIR erroneously concludes that the CAP does not propose land use changes and would not result in relocation or construction of new or expanded energy facilities, and that any new or expanded facilities resulting from the proposed General Plan would require their own review to mitigate potentially significant impacts.

2. Response to Comments

The CAP supports implementation of the General Plan, but it is not a land use planning document. Land use policy and land use changes are under the purview of the General Plan. As stated on Page 5.6-31 of the DEIR, the proposed CAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions; it does not compel any land use changes that could lead to indirect growth or changes in building density or intensity. Regarding whether other components of the CAP could potentially result in relocation or construction of new or expanded energy facilities, see response to Comment N-16.

- N-18 CIS states that the EIR does not identify energy transition impacts for the CAP, nor does it evaluate any air quality, traffic, hazards, employment, water supply, or wastewater impacts of the transition to and creation of new energy facilities.

See responses to Comments N-15 and N-16.

- N-19 CIS states the EIR fails to quantify the number, size, and scope of renewable energy facilities that would result from General Plan and CAP policies and strategies, evaluate potential environmental impacts, or provide proper mitigation. CIS summarizes potential impacts from development of new renewable energy facilities such as heat island impacts, wildlife impacts related to migrating birds and solar and wind facilities, water supply impacts from cleaning solar panels, and construction and other impacts related to development of a varied range of local energy storage, transmission, and generation facilities.

See response to Comments N-15 and N-16. The CAP does not propose construction of any individual renewable energy facility. The specific type, location, size, and features of these facilities cannot be reasonably foreseen at this time and therefore the environmental impacts of these projects are not analyzed in the DEIR. Individual renewable energy facilities will require project-level environmental review at the time they are proposed.

- N-20 CIS reiterates the comment that the General Plan, CAP, and DEIR advocate the shutdown of the county's largest private employers, without analyzing or evaluating any potential adverse impacts or alternatives.

See response to Comment N-2. The commentor fails to "submit data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts in support of the comments" as called for under CEQA Guidelines Section 15204(c). As explained in response to Comment N-3, the County as lead agency must base its analysis and impact findings on substantial evidence in the record. In the absence of substantial evidence, no changes to the DEIR are necessary. As explained in response to Comment N-14, the comment's assertion that the 2045 General Plan and 2024 CAP propose to shut down the oil and gas industry is inaccurate.

2. Response to Comments

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3. Revisions to the DEIR

3. Revisions to the DEIR

3.1 INTRODUCTION

This section contains revisions to the DEIR based upon (1) additional or revised information required to prepare a response to a specific comment; (2) applicable updated information that was not available at the time of DEIR publication; and/or (3) typographical errors. This section also includes revisions to Mitigation Measure CUL-1 to fully respond to DPC concerns as well as provide additional clarification to mitigation requirements included in the DEIR. The revisions to this mitigation measure do not alter any impact significance conclusions as disclosed in the DEIR. Changes made to the DEIR are identified here in ~~strikeout text~~ to indicate deletions and in underlined text to indicate additions.

3.2 DEIR REVISIONS IN RESPONSE TO WRITTEN COMMENTS

The following text has been revised in response to comments received on the DEIR.

Page 3-30, Chapter 3, *Project Description*, under Heading “Intended Use of the EIR and Proposed Project.” The following revisions are made in response to Comment M-4, from the Delta Protection Commission.

This EIR is a program-level EIR intended to review potential environmental impacts associated with adoption and implementation of the proposed General Plan and CAP, and determine corresponding mitigation measures, as necessary. This EIR does not identify or evaluate the impacts of specific, individual developments that may be allowed under the proposed General Plan. Future projects may require separate project-level environmental review, as required by CEQA, to secure the necessary discretionary development permits. Subsequent environmental review may be tiered off this EIR pursuant to CEQA Guidelines Section 15162. Subsequent projects will be reviewed by the County for consistency with the General Plan, CAP, and this EIR. Projects successive to this EIR include, but are not limited to, the following:

- Approval and funding of major public projects and capital improvements.
- Issuance of permits and other approvals necessary for implementation of the proposed General Plan and CAP
- Future General Plan amendments
- Future specific plan and planned unit development approvals
- Property rezoning consistent with the proposed General Plan
- Development ~~plan~~ approvals such as tentative subdivision maps, variances, conditional use permits, development plans, and other land use ~~permits~~ entitlements
- Permit issuances and other approvals necessary for public and private development projects
- Development agreement processes and approvals

3. Revisions to the DEIR

Page 5.5-15 and 5.5-19, Section 5.5, *Cultural Resources and Tribal Cultural Resources*, under Heading “Mitigation Measures” (also repeated on pages 1-14 to 1-15 in Section 1, *Executive Summary*, Table 1-1, “*Summary of Environmental Impacts, Mitigation Measures and Levels of Significance After Mitigation*”). The following revisions are made in response to Comment M-19, from the Delta Protection Commission.

Mitigation Measures

CUL-1 Prior to initiation of construction activities for discretionary projects that are not exempt from CEQA and would involve ground-disturbing activities on previously undisturbed sites or alteration of potentially significant built environment resources, or as otherwise directed by the County, the project applicant shall be required to retain an cultural resources consultant with staff archaeologist that meets the Secretary of the Interior’s Professionally Qualified Standards to conduct a cultural records search and complete the following steps as relevant. ~~If the records search identifies sensitivity for archaeological resources, the archaeologist shall be retained on an on-call basis. The project applicant shall defer to the recommendations of the consulting archaeologist, in consultation with culturally affiliated tribes and their designated monitors, regarding the evaluation and treatment of any cultural resources discovered on the project site.~~

The cultural resources consultant shall:

- Conduct a records search with the California Historical Resources Information System.
- If the record search shows a pedestrian survey has been conducted within the last 10 years and the survey results were negative, the project applicant shall provide those results to the County for summary in environmental analysis.
- If no survey has been performed, or if cultural resources are present, the project applicant shall direct the cultural resources consultant to:
 - Conduct a pedestrian survey (if none has been completed).
 - Update the records for known resources.
 - Record new built environment and archaeological resources.
 - Determine if the resources have been previously evaluated for the California Register of Historical Resources.
 - If the resources were previously determined ineligible for listing, the cultural resources consultant shall describe those results for use in the County’s environmental analysis.
 - If the resources have not been evaluated, the cultural resources consultant shall evaluate the resources for listing on the California Register of Historical Resources, and local registers.
 - If the resources were previously determined eligible or are proposed to be register-eligible, the cultural resources consultant shall determine if the project would result in a “substantial adverse change in the resource” as defined in CEQA Guidelines Section 15064.5(b)(1).

3. Revisions to the DEIR

- If a substantial adverse change would occur, the cultural resources consultant shall support the County in identifying feasible mitigation approaches.

Page 5.10-4, Section 5.10, *Hydrology and Water Quality*, under Heading “State Water Control Board.” The following revisions are made in response to Comment M-11, from the Delta Protection Commission.

State Water Resources Control Board

In California, the SWRCB has broad authority over water quality control issues for the State. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the State by the federal government under the CWA. It also regulates public drinking water systems, NPDES wastewater discharges, water quality monitoring, water recycling programs, landfill disposal, water rights, and drought restrictions. As stated previously, western Contra Costa County is within the jurisdiction of the San Francisco Bay RWQCB (Region 2) and eastern Contra Costa County is within the jurisdiction of the Central Valley RWQCB (Region 5). Each RWQCB regulates surface water and groundwater quality in the watersheds within their jurisdiction.

The SWRCB provides an interactive map which displays the Appropriative water rights and Statements of Water Diversion and Use water rights for islands/areas in the Legal Delta, which includes the Delta Primary and Secondary Zones. This map is available here:
https://www.waterboards.ca.gov/water_issues/programs/delta_watermaster/delta_map/.

Page 5.10-51, Section 5.10, *Hydrology and Water Quality*, Impact 5.10-2. The following revisions are made in response to Comment M-12 from the Delta Protection Commission.

Additionally, future development pursuant to the proposed General Plan would be required to implement the water-efficient requirements specified in the CALGreen and California Plumbing Codes and the MWELO requirements for water efficient landscaping. As specified in California Water Code Section 10910, future ~~Future~~ projects subject to CEQA that also meet the criteria under California Water Code Section 10912 would be required to prepare a Water Supply Assessment (WSA) that demonstrates that project water demands would not exceed water supplies. In addition, residential, commercial, and industrial water usage can be expected to decrease in the future as a result of the implementation of water conservation practices.

Page 5.17-35, Section 5.17, *Utilities and Service Systems*, Impact 5.17-3. The following revisions are made in response to Comment M-12 from the Delta Protection Commission.

Additionally, future development pursuant to the proposed General Plan would be required to implement the water-efficient requirements specified in the CALGreen and California Plumbing Codes and the MWELO requirements for water-efficient landscaping. As specified in California Water Code Section 10910, future ~~Future~~ projects subject to CEQA that also meet the criteria under California Water Code Section 10912 would be required to prepare a WSA that demonstrates that project water demands would not exceed water supplies.

3. Revisions to the DEIR

In addition, residential, commercial, and industrial water usage can be expected to decrease in the future as a result of the implementation of water conservation practices. In the case of a water shortage, each water purveyor would implement their Water Shortage Contingency Plan, as described in the 2020 UWMPs. Also, the proposed General Plan policies and actions presented in Section 5.17.2.3 would further reduce future water demands.

Page 5.11-2, Section 5.11, *Land Use and Planning*, under the heading “Land Use and Resource Management Plan for the Primary Zone of the Delta”. The following revisions are made in response to Comment M-21 from the Delta Protection Commission.

Land Use and Resource Management Plan for the Primary Zone of the Delta

The Delta Protection Act of 1992 established the Delta Protection Commission to manage the conservation and enhancement of the Delta’s natural resources, sustain agriculture, and meet recreational demands. The Act defines a Primary Zone as the principal jurisdiction, while the Secondary Zone is outside the Primary Zone and within the Legal Delta (see Figure 5.11-1). The Primary Zone of the Delta includes approximately 500,000 acres of waterways, levees, and farmed lands extending over portions of five counties: Solano, Yolo, Sacramento, San Joaquin, and Contra Costa.

The Delta Protection Commission must prepare and adopt a Land Use and Resource Management Plan (LURMP) for the Primary Zone, meeting specific goals. The goals of the LURMP are to "protect, maintain, and where possible, enhance and restore the overall quality of the Delta environment, including but not limited to agriculture, wildlife habitat, and recreational activities; assure orderly, balanced conservation and development of Delta land resources and improve flood protection by structural and nonstructural means to ensure an increased level of public health and safety." The LURMP is divided into three sections: planning program and objectives, individual elements, and implementation program.

The Land Use and Resource Management Plan LURMP guides local land use decisions related to agriculture, flood protection, Delta communities, natural resources, recreation, and utilities and infrastructure. General plans and projects within the Primary Zone in the five Delta counties listed above must be consistent with the Land Use and Resource Management Plan LURMP and are subject to review by the Commission (DPC 2010). Contra Costa County’s 2045 General Plan must satisfy the findings enumerated in Public Resource Code Section 29763.5 to allow the Commission to determine that it is consistent with the LURMP. The findings include ensuring the General Plan aligns with the LURMP, will not cause wetland or riparian loss, will not result in water quality degradation, will not increase nonpoint source pollution, will not result in Pacific Flyway habitat degradation, will not reduce public access, will not increase flood hazard, will not adversely impact agricultural lands, will not cause levee integrity impairment, will not adversely impact navigation, and will not result in any increased requirements or restrictions upon agricultural practices in the Primary Zone.

3. Revisions to the DEIR

3.3 DEIR REVISIONS IN RESPONSE TO PROJECT CHANGES

The Draft 2045 General Plan and CAP were available for public review from October 17, 2023, to April 22, 2024. After reviewing the comments received, County staff identified changes to the Draft General Plan and CAP to respond to public comments, as well as to reflect new information that had become available since the drafts were published and to clarify the content. The changes to the Draft General Plan and CAP are presented in Appendix A, *Staff-Recommended Changes to the Proposed Project*, to this FEIR.

At its meeting on September 10, 2024, the Contra Costa County Board of Supervisors directed County staff to prepare the final versions of the General Plan and CAP for adoption, with the changes recommended in Appendix A included. The Board of Supervisors also directed staff to include the following additional changes in the final version of the General Plan and CAP:

- Minor edits throughout the Community Profiles in the General Plan, including to expand the Alhambra Valley, Reliez Valley, and Briones Community Profile to include Franklin Canyon.
- Develop a comprehensive funding strategy for the CAP.
- Incentivize and increase public-private partnerships for the CAP.

As shown in Appendix A, the changes to the proposed General Plan include changes to the Proposed General Plan Land Use Map, which is provided as Figure 3-3 on page 3-13 of the DEIR. The map changes address various anomalies and inconsistencies, reflect significant changes in ownership or use since the previous version (such as East Bay Regional Park District land acquisitions and recording of conservation easements), and further support the proposed General Plan's policy goals, such as environmental protection and promotion of infill development. The updated version of DEIR Figure 3-3 is provided as Figure 3-1 of this FEIR, with changes listed in Table 3-1 of this FEIR.

3. Revisions to the DEIR

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3. Revisions to the DEIR

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3. Revisions to the DEIR

Table 3-1 Changes to DEIR Figure 3-3, Proposed General Plan Land Use Map

| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|----------------|-----------|-----------------------------------|------------------------------|----------------------|
| Acalanes Ridge | 175141001 | RL | RLM | 0.37 |
| Acalanes Ridge | 175141002 | RL | RLM | 0.37 |
| Acalanes Ridge | 175141003 | RL | RLM | 0.37 |
| Acalanes Ridge | 175141004 | RL | RLM | 0.36 |
| Acalanes Ridge | 175141005 | RL | RLM | 0.42 |
| Acalanes Ridge | 175143003 | RL | RLM | 0.41 |
| Acalanes Ridge | 175143004 | RL | RLM | 0.44 |
| Acalanes Ridge | 175143031 | RL | RLM | 0.31 |
| Acalanes Ridge | 175143032 | RL | RLM | 0.54 |
| Acalanes Ridge | 175150008 | RL | RLM | 0.44 |
| Acalanes Ridge | 175150009 | RL | RLM | 0.64 |
| Acalanes Ridge | 175150010 | RL | RLM | 0.57 |
| Acalanes Ridge | 175150015 | RL | RLM | 0.41 |
| Acalanes Ridge | 175150016 | RL | RLM | 0.45 |
| Acalanes Ridge | 175150017 | RL | RLM | 0.39 |
| Acalanes Ridge | 175150018 | RL | RLM | 0.39 |
| Acalanes Ridge | 175150019 | RL | RLM | 0.43 |
| Acalanes Ridge | 175150020 | RL | RLM | 0.35 |
| Acalanes Ridge | 175150030 | RL | RLM | 0.41 |
| Acalanes Ridge | 175150031 | RL | RLM | 0.33 |
| Acalanes Ridge | 175150032 | RL | RLM | 0.34 |
| Acalanes Ridge | 175150033 | RL | RLM | 0.60 |
| Acalanes Ridge | 175150046 | RL | RLM | 0.67 |
| Acalanes Ridge | 175150047 | RL | RLM | 0.71 |
| Acalanes Ridge | 175150048 | RL | RLM | 0.32 |
| Acalanes Ridge | 175150049 | RL | RLM | 0.30 |
| Acalanes Ridge | 175150050 | RL | RLM | 0.35 |
| Acalanes Ridge | 175150051 | RL | RLM | 0.50 |
| Acalanes Ridge | 175150053 | RL | RLM | 0.46 |
| Acalanes Ridge | 175150054 | RL | RLM | 0.43 |
| Acalanes Ridge | 175150057 | RL | RLM | 0.56 |
| Acalanes Ridge | 175150058 | RL | RLM | 0.95 |
| Acalanes Ridge | 175150059 | RL | RLM | 0.58 |
| Acalanes Ridge | 175150061 | RL | RLM | 0.56 |
| Acalanes Ridge | 175150063 | RL | RLM | 0.36 |
| Acalanes Ridge | 175150064 | RL | RLM | 0.48 |

3. Revisions to the DEIR

| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|----------------|-----------|-----------------------------------|------------------------------|----------------------|
| Acalanes Ridge | 175260010 | RL | RLM | 0.35 |
| Acalanes Ridge | 175260011 | RL | RLM | 0.38 |
| Acalanes Ridge | 175260012 | RL | RLM | 0.75 |
| Acalanes Ridge | 175260013 | RL | RLM | 0.42 |
| Acalanes Ridge | 175260014 | RL | RLM | 0.43 |
| Acalanes Ridge | 175260015 | RL | RLM | 0.44 |
| Acalanes Ridge | 175260028 | RL | RLM | 0.43 |
| Acalanes Ridge | 175260029 | RL | RLM | 0.44 |
| Acalanes Ridge | 175260030 | RL | RLM | 0.36 |
| Acalanes Ridge | 175260032 | RL | RLM | 0.36 |
| Acalanes Ridge | 175260033 | RL | RLM | 0.52 |
| Acalanes Ridge | 175260034 | RL | RLM | 0.45 |
| Acalanes Ridge | 175260035 | RL | RLM | 0.39 |
| Acalanes Ridge | 175260036 | RL | RLM | 0.65 |
| Acalanes Ridge | 177181013 | RL | RLM | 0.41 |
| Acalanes Ridge | 177181017 | RL | RLM | 0.46 |
| Alamo | 187190008 | RL | PS | 0.21 |
| Alamo | 197030025 | RVL | RL | 1.50 |
| Alamo | 197050025 | RVL | RL | 7.64 |
| Alamo | 197050026 | RVL | RL | 2.50 |
| Alamo | 192240017 | RM | RVL | 1.02 |
| Alamo | 192240025 | RM | RVL | 0.58 |
| Alamo | 197060028 | RC | PR | 0.33 |
| Alamo | 197050004 | PR | RC | 4.25 |
| Alamo | 192060027 | RC | RL | 0.04 |
| Alamo | 192272011 | RC | RL | 1.04 |
| Alamo | 192272012 | RC | RL | 0.88 |
| Alamo | 192272013 | RC | RL | 1.02 |
| Alamo | 192272014 | RC | RL | 0.80 |
| Alamo | 188382014 | RC | RVL | 0.21 |
| Alamo | 197170015 | RL | PR | 0.12 |
| Alamo | 197170015 | RVL | PR | 0.28 |
| Alamo | 197380036 | RVL | PR | 0.52 |
| Alamo | 192030014 | RL | RC | 0.06 |
| Alamo | 192060027 | RL | RC | 0.13 |
| Alamo | 192272011 | RL | RC | 0.56 |
| Alamo | 192272012 | RL | RC | 0.34 |
| Alamo | 192272013 | RL | RC | 0.45 |

3. Revisions to the DEIR

| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|-------|-----------|-----------------------------------|------------------------------|----------------------|
| Alamo | 192272014 | RL | RC | 0.29 |
| Alamo | 192240017 | RM | RC | 0.14 |
| Alamo | 192240025 | RM | RC | 0.94 |
| Alamo | 188381009 | RVL | RC | 0.41 |
| Alamo | 188381010 | RVL | RC | 0.25 |
| Alamo | 188381011 | RVL | RC | 0.17 |
| Alamo | 188381012 | RVL | RC | 0.23 |
| Alamo | 188381015 | RVL | RC | 0.14 |
| Alamo | 188381019 | RVL | RC | 0.19 |
| Alamo | 188381020 | RVL | RC | 0.23 |
| Alamo | 188382009 | RVL | RC | 0.51 |
| Alamo | 188382010 | RVL | RC | 0.28 |
| Alamo | 188382011 | RVL | RC | 0.35 |
| Alamo | 188382012 | RVL | RC | 0.61 |
| Alamo | 188382014 | RVL | RC | 0.07 |
| Alamo | 188382015 | RVL | RC | 0.21 |
| Alamo | 188391008 | RVL | RC | 0.14 |
| Alamo | 188391009 | RVL | RC | 0.41 |
| Alamo | 188391010 | RVL | RC | 0.23 |
| Alamo | 188391013 | RVL | RC | 0.20 |
| Alamo | 188391014 | RVL | RC | 0.14 |
| Alamo | 188391015 | RVL | RC | 0.18 |
| Alamo | 188391016 | RVL | RC | 0.19 |
| Alamo | 188392009 | RVL | RC | 0.17 |
| Alamo | 188392010 | RVL | RC | 0.25 |
| Alamo | 188392011 | RVL | RC | 0.24 |
| Alamo | 188392014 | RVL | RC | 0.36 |
| Alamo | 188392015 | RVL | RC | 0.32 |
| Alamo | 188392016 | RVL | RC | 0.62 |
| Alamo | 188392018 | RVL | RC | 0.39 |
| Alamo | 188392019 | RVL | RC | 0.34 |
| Alamo | 188401003 | RVL | RC | 0.08 |
| Alamo | 188401004 | RVL | RC | 0.17 |
| Alamo | 188401005 | RVL | RC | 0.25 |
| Alamo | 188402005 | RVL | RC | 0.13 |
| Alamo | 188402006 | RVL | RC | 0.19 |
| Alamo | 188402007 | RVL | RC | 0.10 |
| Alamo | 188402008 | RVL | RC | 0.14 |

3. Revisions to the DEIR

| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|-----------|-----------|-----------------------------------|------------------------------|----------------------|
| Alamo | 188403008 | RVL | RC | 0.22 |
| Alamo | 188403009 | RVL | RC | 0.21 |
| Alamo | 188403010 | RVL | RC | 0.30 |
| Alamo | 188403011 | RVL | RC | 0.22 |
| Alamo | 188403012 | RVL | RC | 0.36 |
| Alamo | 188403013 | RVL | RC | 0.43 |
| Alamo | 188412001 | RVL | RC | 0.36 |
| Alamo | 188412002 | RVL | RC | 0.30 |
| Alamo | 188412003 | RVL | RC | 0.30 |
| Alamo | 188412004 | RVL | RC | 0.24 |
| Alamo | 188412007 | RVL | RC | 0.31 |
| Alamo | 188412008 | RVL | RC | 0.20 |
| Alamo | 188412009 | RVL | RC | 0.22 |
| Alamo | 188412010 | RVL | RC | 0.21 |
| Alamo | 188412014 | RVL | RC | 0.27 |
| Alamo | 188412015 | RVL | RC | 0.13 |
| Alamo | 192250002 | RVL | RC | 1.89 |
| Alamo | 192260028 | RVL | RC | 0.80 |
| Alamo | 192350003 | RVL | RC | 1.34 |
| Alamo | 192350004 | RVL | RC | 0.94 |
| Bay Point | 093021005 | RM | MUC | 0.16 |
| Bay Point | 093021006 | RM | MUC | 0.09 |
| Bay Point | 093036002 | RM | MUC | 0.15 |
| Bay Point | 093036003 | RM | MUC | 0.12 |
| Bay Point | 093036004 | RM | MUC | 0.12 |
| Bay Point | 093050006 | RM | MUC | 0.26 |
| Bay Point | 095083013 | RMH | MUC | 0.16 |
| Bay Point | 095083014 | RMH | MUC | 0.04 |
| Bay Point | 095083021 | RMH | MUC | 0.28 |
| Bay Point | 095083022 | RMH | MUC | 0.24 |
| Bay Point | 098040027 | CO | MUL | 0.76 |
| Bay Point | 098040028 | CO | MUL | 3.06 |
| Bay Point | 093091004 | RH | MUM | 0.46 |
| Bay Point | 093091005 | RH | MUM | 0.23 |
| Bay Point | 093091006 | RH | MUM | 0.22 |
| Bay Point | 093091007 | RH | MUM | 0.23 |
| Bay Point | 093091008 | RH | MUM | 0.22 |
| Bay Point | 093091009 | RH | MUM | 0.23 |

3. Revisions to the DEIR

| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|---------------|-----------|-----------------------------------|------------------------------|----------------------|
| Bay Point | 093091010 | RH | MUM | 0.23 |
| Bay Point | 093091013 | RH | MUM | 0.23 |
| Bay Point | 093091022 | RH | MUM | 0.19 |
| Bay Point | 093091023 | RH | MUM | 0.12 |
| Bay Point | 093170055 | RH | MUM | 0.41 |
| Bay Point | 093170056 | RH | MUM | 0.50 |
| Bay Point | 093170056 | RLM | MUM | 0.06 |
| Bay Point | 093170057 | RH | MUM | 1.45 |
| Bay Point | 093170057 | RLM | MUM | 0.10 |
| Bay Point | 093113041 | RM | PS | 0.60 |
| Bay Point | 093160001 | RLM | RM | 0.21 |
| Bay Point | 098481030 | RC | PR | 1.34 |
| Bay Point | 098421016 | RLM | PR | 0.30 |
| Bay Point | 098421016 | RM | PR | 0.07 |
| Bay Point | 098520035 | RM | RC | 0.10 |
| Bay Point | 098520036 | RM | RC | 0.11 |
| Bay Point | 098520037 | RM | RC | 0.11 |
| Bay Point | 098520038 | RM | RC | 0.11 |
| Bay Point | 098520039 | RM | RC | 0.12 |
| Bay Point | 098520040 | RM | RC | 0.12 |
| Bay Point | 098520041 | RM | RC | 0.14 |
| Bay Point | 098520042 | RM | RC | 0.10 |
| Bethel Island | 028010003 | RC | AL | 1.27 |
| Bethel Island | 028010004 | RC | AL | 3.01 |
| Bethel Island | 028020001 | RC | AL | 4.26 |
| Bethel Island | 028030002 | RC | AL | 1.11 |
| Bethel Island | 028030004 | RC | AL | 41.16 |
| Bethel Island | 028040012 | RC | AL | 1.76 |
| Bethel Island | 028040013 | RC | AL | 4.54 |
| Bethel Island | 028040014 | RC | AL | 27.04 |
| Bethel Island | 028060014 | RC | AL | 3.00 |
| Bethel Island | 028060015 | RC | AL | 7.76 |
| Bethel Island | 028060021 | RC | AL | 1.15 |
| Bethel Island | 028070004 | RC | AL | 1.73 |
| Bethel Island | 028070005 | RC | AL | 2.61 |
| Bethel Island | 028070006 | RC | AL | 3.00 |
| Bethel Island | 029010016 | RC | AL | 5.77 |
| Bethel Island | 029010017 | RC | AL | 0.34 |

3. Revisions to the DEIR

| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|---------------|-----------|-----------------------------------|------------------------------|----------------------|
| Bethel Island | 029010018 | RC | AL | 2.31 |
| Bethel Island | 029010019 | RC | AL | 1.50 |
| Bethel Island | 029040010 | RC | AL | 4.92 |
| Bethel Island | 029040011 | RC | AL | 1.47 |
| Bethel Island | 029040012 | RC | AL | 14.86 |
| Bethel Island | 029050014 | RC | AL | 2.12 |
| Bethel Island | 029050056 | RC | AL | 6.38 |
| Bethel Island | 029060022 | RC | AL | 1.65 |
| Bethel Island | 030120001 | RC | AL | 1.95 |
| Bethel Island | 030130006 | RC | AL | 1.33 |
| Bethel Island | 030130009 | RC | AL | 0.40 |
| Bethel Island | 030130010 | RC | AL | 0.45 |
| Bethel Island | 030130011 | RC | AL | 0.91 |
| Bethel Island | 030130012 | RC | AL | 0.70 |
| Bethel Island | 030140004 | RC | AL | 1.38 |
| Bethel Island | 030150004 | RC | AL | 10.68 |
| Bethel Island | 030150005 | RC | AL | 3.75 |
| Bethel Island | 030150009 | RC | AL | 2.41 |
| Bethel Island | 030150010 | RC | AL | 3.00 |
| Bethel Island | 030160003 | RC | AL | 0.28 |
| Bethel Island | 030160011 | RC | AL | 0.09 |
| Bethel Island | 030160012 | RC | AL | 0.21 |
| Bethel Island | 030160013 | RC | AL | 0.03 |
| Bethel Island | 030160014 | RC | AL | 0.61 |
| Bethel Island | 030160015 | RC | AL | 1.44 |
| Bethel Island | 030160016 | RC | AL | 0.49 |
| Bethel Island | 030160017 | RC | AL | 0.33 |
| Bethel Island | 030160018 | RC | AL | 0.25 |
| Bethel Island | 030160019 | RC | AL | 0.30 |
| Bethel Island | 030160020 | RC | AL | 0.42 |
| Bethel Island | 030160022 | RC | AL | 0.97 |
| Bethel Island | 030160024 | RC | AL | 0.10 |
| Bethel Island | 030160025 | RC | AL | 3.44 |
| Bethel Island | 030160027 | RC | AL | 0.65 |
| Bethel Island | 030160031 | RC | AL | 0.14 |
| Bethel Island | 030160032 | RC | AL | 0.15 |
| Bethel Island | 030160035 | RC | AL | 5.36 |
| Bethel Island | 030160XXX | RC | AL | 0.07 |

3. Revisions to the DEIR

| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|------------------------|-----------|-----------------------------------|------------------------------|----------------------|
| Bethel Island | 031010019 | RC | PR | 1.06 |
| Bethel Island | 031021017 | RC | PR | 2.41 |
| Bethel Island | 030120008 | CR | RM | 0.57 |
| Bethel Island | 031010026 | CR | RM | 0.00 |
| Bethel Island | 031270001 | CR | RM | 0.02 |
| Bethel Island | 031270031 | CR | RM | 0.04 |
| Bethel Island | 029050001 | CO | AL | 0.49 |
| Bethel Island | 029050006 | CO | AL | 2.33 |
| Bethel Island | 029050012 | CO | AL | 3.15 |
| Bethel Island | 029050013 | CO | AL | 4.66 |
| Bethel Island | 029050014 | CO | AL | 3.83 |
| Bethel Island | 029050037 | CO | AL | 3.58 |
| Bethel Island | 029050041 | CO | AL | 1.34 |
| Bethel Island | 029050042 | CO | AL | 1.37 |
| Bethel Island | 029050046 | CO | AL | 1.10 |
| Bethel Island | 029050050 | CO | AL | 1.13 |
| Bethel Island | 029050054 | CO | AL | 3.41 |
| Bethel Island | 029050055 | CO | AL | 7.80 |
| Bethel Island | 029050057 | CO | AL | 9.36 |
| Bethel Island | 030160027 | RM | AL | 0.32 |
| Bethel Island | 030160035 | RLM | AL | 0.09 |
| Blackhawk | 203040024 | PR | RC | 7.65 |
| Bollinger Canyon | 208240054 | AL | RC | 141.41 |
| Bollinger Canyon North | 258100001 | RC | AL | 76.06 |
| Bollinger Canyon North | 258110002 | AL | RC | 139.91 |
| Bollinger Canyon North | 258110003 | AL | RC | 106.11 |
| Buchanan | 125010023 | CR | PR | 49.30 |
| Byron | 002140025 | RLM | CO | 0.15 |
| Byron | 002140027 | RLM | CO | 0.15 |
| Byron | 002102016 | RLM | MUL | 0.01 |
| Byron | 003110003 | RLM | RM | 1.12 |
| Byron | 003110005 | RLM | RM | 0.48 |
| Byron | 003110016 | RLM | RM | 0.50 |
| Camino Tassajara | 206030058 | PR | CR | 9.02 |
| Camino Tassajara | 206030087 | PR | CR | 1.92 |
| Camino Tassajara | 206800068 | RLM | PR | 0.23 |
| Crockett | 354091011 | HI | RM | 0.15 |
| Crockett | 354221001 | RLM | RM | 0.15 |

3. Revisions to the DEIR

| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|---------------|-----------|-----------------------------------|------------------------------|----------------------|
| Crockett | 354221012 | RLM | RM | 0.01 |
| Crockett | 354221026 | RLM | RM | 0.20 |
| Crockett | 354221027 | RLM | RM | 0.26 |
| Crockett | 354221028 | RLM | RM | 0.19 |
| Crockett | 354221032 | RLM | RM | 0.34 |
| Crockett | 354232006 | RLM | RM | 0.14 |
| Crockett | 354053009 | RLM | RMH | 0.17 |
| Crockett | 354053010 | RLM | RMH | 0.15 |
| Crockett | 354053026 | RLM | RMH | 0.18 |
| Crockett | 354214015 | RLM | RMH | 0.17 |
| Discovery Bay | 011230047 | PS | RLM | 0.10 |
| Discovery Bay | 011460053 | PS | RLM | 0.19 |
| Discovery Bay | 011510091 | PS | RLM | 0.20 |
| Discovery Bay | 008491046 | RC | PR | 0.07 |
| Discovery Bay | 008492017 | RC | PR | 1.90 |
| Discovery Bay | 008501053 | RC | PR | 0.16 |
| Discovery Bay | 008550045 | RC | PR | 0.11 |
| Discovery Bay | 008550046 | RC | PR | 0.42 |
| Discovery Bay | 008550047 | RC | PR | 0.00 |
| Discovery Bay | 011241028 | RC | PR | 2.44 |
| Discovery Bay | 011510090 | RC | PR | 0.38 |
| Discovery Bay | 011520055 | RC | PR | 0.69 |
| Discovery Bay | 011540048 | RC | PR | 0.34 |
| Discovery Bay | 011550093 | RC | PR | 0.69 |
| Discovery Bay | 011550094 | RC | PR | 0.35 |
| Discovery Bay | 011570049 | RC | PR | 1.07 |
| Discovery Bay | 011670046 | RC | PR | 1.04 |
| Discovery Bay | 011670047 | RC | PR | 0.95 |
| Discovery Bay | 011680062 | RC | PR | 0.47 |
| Discovery Bay | 011680063 | RC | PR | 0.63 |
| Discovery Bay | 011690051 | RC | PR | 1.32 |
| Discovery Bay | 011690052 | RC | PR | 0.66 |
| Discovery Bay | 011690053 | RC | PR | 0.32 |
| Discovery Bay | 011220013 | PR | RC | 0.79 |
| Discovery Bay | 011220014 | PR | RC | 0.03 |
| Discovery Bay | 011230053 | RC | WA | 6.53 |
| Discovery Bay | 011570048 | RC | RLM | 0.01 |
| Discovery Bay | 008210024 | RC | RLM | 0.33 |

3. Revisions to the DEIR

| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|---------------|-----------|-----------------------------------|------------------------------|----------------------|
| Discovery Bay | 008230037 | RC | RLM | 0.06 |
| Discovery Bay | 008230038 | RC | RLM | 0.53 |
| Discovery Bay | 011230047 | RC | RLM | 0.05 |
| Discovery Bay | 011241005 | RC | RLM | 0.25 |
| Discovery Bay | 011490073 | RC | RLM | 0.39 |
| Discovery Bay | 011490074 | RC | RLM | 2.59 |
| Discovery Bay | 011490075 | RC | RLM | 0.08 |
| Discovery Bay | 011500098 | RC | RLM | 0.43 |
| Discovery Bay | 011510089 | RC | RLM | 1.17 |
| Discovery Bay | 011510090 | RC | RLM | 1.03 |
| Discovery Bay | 011550094 | RC | RLM | 0.03 |
| Discovery Bay | 011570052 | RC | RLM | 0.24 |
| Discovery Bay | 011230024 | RC | RM | 0.22 |
| Discovery Bay | 011230025 | RC | RM | 0.39 |
| Discovery Bay | 011241016 | RC | RM | 1.42 |
| Discovery Bay | 011241017 | RC | RM | 0.48 |
| Discovery Bay | 011241018 | RC | RM | 1.06 |
| Discovery Bay | 011241019 | RC | RM | 0.28 |
| Discovery Bay | 011560084 | RC | RM | 0.79 |
| Discovery Bay | 011570053 | RC | RM | 0.38 |
| Discovery Bay | 011570054 | RC | RM | 0.32 |
| Discovery Bay | 011630093 | RC | RM | 0.10 |
| Discovery Bay | 011630094 | RC | RM | 1.07 |
| Discovery Bay | 011630095 | RC | RM | 0.02 |
| Discovery Bay | 011630096 | RC | RM | 0.11 |
| Discovery Bay | 004010011 | RC | PS | 4.08 |
| Discovery Bay | 011230034 | RC | PS | 0.40 |
| Discovery Bay | 011230045 | RC | PS | 0.24 |
| Discovery Bay | 011230046 | RC | PS | 0.11 |
| Discovery Bay | 011241005 | RC | PS | 1.89 |
| Discovery Bay | 011241023 | RC | PS | 3.12 |
| Discovery Bay | 011241028 | RC | PS | 1.12 |
| Discovery Bay | 011270006 | RC | PS | 36.33 |
| Discovery Bay | 011510090 | RC | PS | 1.02 |
| Discovery Bay | 011550094 | RC | PS | 0.24 |
| Discovery Bay | 011241028 | PR | PS | 0.36 |
| Discovery Bay | 011510091 | PS | PR | 0.11 |
| Discovery Bay | 011220013 | RLM | RC | 0.59 |

3. Revisions to the DEIR

| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|--------------|-----------|-----------------------------------|------------------------------|----------------------|
| East Clayton | 075200021 | RVL | AL | 4.90 |
| East Clayton | 078010016 | RVL | AL | 0.20 |
| East Clayton | 078220009 | RC | RVL | 0.01 |
| East Clayton | 078220013 | RC | RVL | 0.19 |
| East Clayton | 078260022 | RC | RVL | 0.55 |
| El Sobrante | 425091010 | RM | MUL | 0.36 |
| El Sobrante | 420010001 | RC | MUL | 0.01 |
| El Sobrante | 420010002 | RC | MUL | 0.11 |
| El Sobrante | 420010005 | RC | MUL | 0.11 |
| El Sobrante | 420010006 | RC | MUL | 0.01 |
| El Sobrante | 420010016 | RC | MUL | 0.01 |
| El Sobrante | 420010022 | RC | MUL | 0.06 |
| El Sobrante | 420193010 | RC | MUL | 0.11 |
| El Sobrante | 420193011 | RC | MUL | 0.10 |
| El Sobrante | 420193012 | RC | MUL | 0.15 |
| El Sobrante | 425160003 | RC | MUL | 0.06 |
| El Sobrante | 425160006 | RC | MUL | 0.03 |
| El Sobrante | 425160007 | RC | MUL | 0.27 |
| El Sobrante | 425160011 | RC | MUL | 0.05 |
| El Sobrante | 425160014 | RC | MUL | 0.19 |
| El Sobrante | 425160017 | RC | MUL | 0.01 |
| El Sobrante | 425160018 | RC | MUL | 0.04 |
| El Sobrante | 425160019 | RC | MUL | 0.16 |
| El Sobrante | 425160022 | RC | MUL | 0.00 |
| El Sobrante | 425160023 | RC | MUL | 0.24 |
| El Sobrante | 425160024 | RC | MUL | 0.06 |
| El Sobrante | 425160025 | RC | MUL | 0.05 |
| El Sobrante | 431030004 | RC | MUL | 0.06 |
| El Sobrante | 431030012 | RC | MUL | 0.02 |
| El Sobrante | 431050001 | RC | RL | 0.18 |
| El Sobrante | 431050002 | RC | RL | 0.13 |
| El Sobrante | 431050007 | RC | RL | 0.09 |
| El Sobrante | 425122011 | RC | RLM | 0.02 |
| El Sobrante | 425122012 | RC | RLM | 0.04 |
| El Sobrante | 425123001 | RC | RLM | 0.08 |
| El Sobrante | 425123002 | RC | RLM | 0.01 |
| El Sobrante | 425130029 | RC | RLM | 0.01 |
| El Sobrante | 425130030 | RC | RLM | 0.04 |

3. Revisions to the DEIR

| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|-----------------|-----------|-----------------------------------|------------------------------|----------------------|
| El Sobrante | 425141007 | RC | RLM | 0.01 |
| El Sobrante | 425142018 | RC | RLM | 0.01 |
| El Sobrante | 425150007 | RC | RLM | 0.02 |
| El Sobrante | 425150012 | RC | RLM | 0.09 |
| El Sobrante | 425150026 | RC | RLM | 0.01 |
| El Sobrante | 425150036 | RC | RLM | 0.22 |
| El Sobrante | 425150044 | RC | RLM | 0.04 |
| El Sobrante | 425150045 | RC | RLM | 0.03 |
| El Sobrante | 425150050 | RC | RLM | 0.15 |
| El Sobrante | 425150051 | RC | RLM | 0.02 |
| El Sobrante | 425150052 | RC | RLM | 0.02 |
| El Sobrante | 425150053 | RC | RLM | 0.05 |
| El Sobrante | 431060004 | RC | RLM | 0.27 |
| El Sobrante | 431060012 | RC | RLM | 0.06 |
| El Sobrante | 420010006 | MUL | RC | 0.04 |
| El Sobrante | 420010007 | MUL | RC | 0.06 |
| El Sobrante | 420010008 | MUL | RC | 0.07 |
| El Sobrante | 420010009 | MUL | RC | 0.05 |
| El Sobrante | 420010015 | MUL | RC | 0.04 |
| El Sobrante | 420010023 | MUL | RC | 0.04 |
| El Sobrante | 420010024 | MUL | RC | 0.04 |
| El Sobrante | 420010025 | MUL | RC | 0.04 |
| El Sobrante | 420021002 | MUL | RC | 0.15 |
| El Sobrante | 420021022 | MUL | RC | 0.12 |
| El Sobrante | 420021029 | MUL | RC | 0.20 |
| El Sobrante | 420021047 | MUL | RC | 0.09 |
| El Sobrante | 420021048 | MUL | RC | 0.05 |
| El Sobrante | 420021049 | MUL | RC | 0.07 |
| El Sobrante | 425150012 | RLM | RC | 0.29 |
| El Sobrante | 425150030 | RLM | RC | 0.10 |
| El Sobrante | 433020043 | RLM | RC | 0.01 |
| El Sobrante | 433020067 | RLM | RC | 0.04 |
| Franklin Canyon | 362060011 | AL | PR | 168.26 |
| Franklin Canyon | 362060012 | AL | PR | 129.74 |
| Franklin Canyon | 362060019 | AL | PR | 237.40 |
| Holland Tract | 023060005 | RC | AL | 12.00 |
| Holland Tract | 023070011 | RC | AL | 9.69 |
| Holland Tract | 023070012 | RC | AL | 9.96 |

3. Revisions to the DEIR

| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|---------------|-----------|-----------------------------------|------------------------------|----------------------|
| Holland Tract | 023070020 | RC | AL | 21.62 |
| Holland Tract | 023060005 | AL | RC | 0.07 |
| Kensington | 571050023 | CO | RM | 0.14 |
| Kensington | 572014007 | RM | RLM | 0.29 |
| Kensington | 572014016 | RM | RLM | 0.24 |
| Kensington | 570222013 | RLM | RM | 0.18 |
| Kensington | 570222014 | RLM | RM | 0.19 |
| Kensington | 570231001 | RLM | RM | 0.19 |
| Kensington | 570231002 | RLM | RM | 0.19 |
| Kensington | 570231003 | RLM | RM | 0.19 |
| Kensington | 570231004 | RLM | RM | 0.20 |
| Kensington | 570231005 | RLM | RM | 0.19 |
| Kensington | 570231006 | RLM | RM | 0.18 |
| Kensington | 570231007 | RLM | RM | 0.18 |
| Kensington | 570231008 | RLM | RM | 0.17 |
| Kensington | 570231009 | RLM | RM | 0.15 |
| Kensington | 570231010 | RLM | RM | 0.14 |
| Kensington | 570231011 | RLM | RM | 0.15 |
| Kensington | 570231012 | RLM | RM | 0.15 |
| Kensington | 570231013 | RLM | RM | 0.14 |
| Kensington | 570231014 | RLM | RM | 0.13 |
| Kensington | 570251006 | RLM | RM | 0.14 |
| Kensington | 570251007 | RLM | RM | 0.10 |
| Kensington | 570251008 | RLM | RM | 0.10 |
| Kensington | 570251009 | RLM | RM | 0.12 |
| Kensington | 570251011 | RLM | RM | 0.13 |
| Kensington | 570251012 | RLM | RM | 0.14 |
| Kensington | 570251015 | RLM | RM | 0.13 |
| Kensington | 570251016 | RLM | RM | 0.13 |
| Kensington | 570251017 | RLM | RM | 0.12 |
| Kensington | 570251018 | RLM | RM | 0.11 |
| Kensington | 570252021 | RLM | RM | 0.32 |
| Kensington | 570252022 | RLM | RM | 0.25 |
| Kensington | 570252023 | RLM | RM | 0.16 |
| Kensington | 570252024 | RLM | RM | 0.17 |
| Kensington | 570252025 | RLM | RM | 0.15 |
| Kensington | 570252026 | RLM | RM | 0.14 |
| Kensington | 570252027 | RLM | RM | 0.13 |

3. Revisions to the DEIR

| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|------------------------|-----------|-----------------------------------|------------------------------|----------------------|
| Kensington | 570253013 | RLM | RM | 0.14 |
| Kensington | 570253014 | RLM | RM | 0.14 |
| Kensington | 570253015 | RLM | RM | 0.15 |
| Kensington | 570253016 | RLM | RM | 0.14 |
| Kensington | 570253017 | RLM | RM | 0.16 |
| Kensington | 570253018 | RLM | RM | 0.15 |
| Kensington | 570253019 | RLM | RM | 0.14 |
| Kensington | 570253020 | RLM | RM | 0.20 |
| Kensington | 572012012 | RLM | RM | 0.14 |
| Kensington | 572090001 | RLM | RM | 0.17 |
| Kensington | 572090002 | RLM | RM | 0.14 |
| Kensington | 572040011 | PR | PS | 2.02 |
| Kirker Pass | 091040002 | AL | to City | 115.24 |
| Kirker Pass | 092010002 | AL | to City | 4.67 |
| Kirker Pass | 092010006 | AL | to City | 62.10 |
| Kirker Pass | 092020002 | AL | to City | 52.52 |
| Kirker Pass | 092020003 | AL | to City | 158.52 |
| Kirker Pass | 092030012 | AL | to City | 9.83 |
| Kirker Pass | 092040008 | AL | to City | 161.95 |
| Kirker Pass | 092050002 | AL | to City | 53.17 |
| Martinez/Pleasant Hill | 154690001 | RC | RVL | 0.10 |
| Martinez/Pleasant Hill | 154690001 | RVL | RC | 0.43 |
| Montalvin Manor | 403020011 | PR | PS | 1.87 |
| Mount Diablo | 078110005 | PR | RC | 177.62 |
| Mountain View | 375022007 | CO | RM | 0.05 |
| North Concord | 099220007 | LI | CO | 0.05 |
| North Concord | 159130028 | RC | HI | 8.72 |
| North Concord | 159260013 | RC | HI | 1.25 |
| North Concord | 159270006 | RC | HI | 98.07 |
| North Concord | 159280010 | RC | HI | 76.07 |
| North Concord | 159280011 | RC | HI | 10.17 |
| North Concord | 159110XXX | RC | HI | 1.68 |
| North Concord | 159120007 | RC | LI | 0.12 |
| North Concord | 159120016 | RC | LI | 7.33 |
| North Concord | 159120031 | RC | LI | 12.97 |
| North Concord | 159120036 | RC | LI | 124.26 |
| North Concord | 159120037 | RC | LI | 62.83 |
| North Concord | 159010005 | HI | RC | 12.49 |

3. Revisions to the DEIR

| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|---------------|-----------|-----------------------------------|------------------------------|----------------------|
| North Concord | 159020001 | HI | RC | 2.86 |
| North Concord | 159120001 | HI | RC | 0.12 |
| North Concord | 159120009 | HI | RC | 0.13 |
| North Concord | 159120016 | HI | RC | 13.97 |
| North Concord | 159120018 | HI | RC | 3.95 |
| North Concord | 159120019 | HI | RC | 0.58 |
| North Concord | 159130017 | HI | RC | 0.37 |
| North Concord | 159270006 | HI | RC | 3.48 |
| North Gate | 138091064 | RC | CR | 1.95 |
| North Gate | 138091065 | RC | CR | 6.10 |
| North Gate | 138150003 | RVL | RC | 0.25 |
| North Gate | 138150014 | RVL | RC | 0.10 |
| North Gate | 138150015 | RVL | RC | 0.09 |
| North Gate | 138150018 | RVL | RC | 0.09 |
| North Gate | 138150022 | RVL | RC | 2.05 |
| North Gate | 138150023 | RVL | RC | 0.33 |
| North Gate | 138150024 | RVL | RC | 0.04 |
| North Gate | 138180002 | RVL | RC | 0.57 |
| North Gate | 138180006 | RVL | RC | 0.09 |
| North Gate | 138180008 | RVL | RC | 0.46 |
| North Gate | 138180009 | RVL | RC | 0.14 |
| North Gate | 138180010 | RVL | RC | 0.15 |
| North Gate | 138190006 | RVL | RC | 0.09 |
| North Gate | 138190007 | RVL | RC | 0.18 |
| North Gate | 138190010 | RVL | RC | 0.08 |
| North Gate | 138190011 | RVL | RC | 0.21 |
| North Gate | 138190014 | RVL | RC | 0.36 |
| North Gate | 138190015 | RVL | RC | 0.37 |
| North Gate | 138190016 | RVL | RC | 0.27 |
| North Gate | 138200002 | RVL | RC | 0.16 |
| North Gate | 138200007 | RVL | RC | 1.46 |
| North Gate | 138210005 | RVL | RC | 0.19 |
| North Gate | 138210008 | RVL | RC | 0.00 |
| North Gate | 138210009 | RVL | RC | 0.12 |
| North Gate | 138210011 | RVL | RC | 1.23 |
| North Gate | 138210012 | RVL | RC | 0.37 |
| North Gate | 138210013 | RVL | RC | 0.26 |
| North Gate | 138230019 | RVL | RC | 0.38 |

3. Revisions to the DEIR

| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|--------------------|-----------|-----------------------------------|------------------------------|----------------------|
| North Gate | 138230020 | RVL | RC | 0.15 |
| North Gate | 138230026 | RVL | RC | 0.17 |
| North Gate | 138230027 | RVL | RC | 0.40 |
| North Gate | 138230029 | RVL | RC | 0.21 |
| North Gate | 138230033 | RVL | RC | 0.33 |
| North Gate | 138230034 | RVL | RC | 0.18 |
| North Gate | 138240001 | RVL | RC | 0.36 |
| North Gate | 138240002 | RVL | RC | 0.15 |
| North Gate | 138240003 | RVL | RC | 0.25 |
| North Gate | 138240004 | RVL | RC | 0.21 |
| North Gate | 138240005 | RVL | RC | 0.08 |
| North Gate | 138240006 | RVL | RC | 0.28 |
| North Gate | 138250001 | RVL | RC | 0.27 |
| North Gate | 138250002 | RVL | RC | 0.06 |
| North Gate | 138250003 | RVL | RC | 0.02 |
| North Gate | 138250004 | RVL | RC | 0.44 |
| North Gate | 138260001 | RVL | RC | 0.36 |
| North Gate | 138260007 | RVL | RC | 0.29 |
| North Gate | 138260008 | RVL | RC | 0.23 |
| North Gate | 138260015 | RVL | RC | 0.32 |
| North Gate | 138260016 | RVL | RC | 0.20 |
| North Gate | 138260018 | RVL | RC | 0.05 |
| North Mount Diablo | 121030041 | RC | AL | 0.02 |
| North Mount Diablo | 121030042 | RC | AL | 0.20 |
| North Mount Diablo | 121030044 | RC | AL | 0.15 |
| North Richmond | 408170064 | RC | PR | 0.04 |
| North Richmond | 409300036 | RC | PR | 0.41 |
| North Richmond | 409311001 | RC | PR | 0.75 |
| North Richmond | 409300CCC | RC | PR | 2.36 |
| North Richmond | 409300XXX | RC | PR | 0.62 |
| North Richmond | 408201017 | PS | LI | 3.13 |
| Oakland Hills | 257020009 | AL | CR | 7.56 |
| Oakland Hills | 267010008 | CR | PR | 124.75 |
| Oakland Hills | 267010009 | CR | PR | 5.68 |
| Reliez Valley | 169090002 | RC | RM | 0.20 |
| Reliez Valley | 365170031 | RC | PS | 2.45 |
| Rodeo | 358030028 | AL | RC | 29.03 |
| Rodeo | 357163XXX | RC | MUC | 0.05 |

3. Revisions to the DEIR

| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|------------------|-----------|-----------------------------------|------------------------------|----------------------|
| Rodeo | 357163031 | RC | RMH | 0.07 |
| Rodeo | 358010008 | HI | RC | 0.62 |
| Rodeo | 358030028 | LI | RC | 1.43 |
| Rodeo | 358320003 | PS | RC | 1.58 |
| Rodeo | 358320004 | PS | RC | 0.66 |
| San Miguel | 182102003 | RL | RLM | 0.25 |
| San Miguel | 182102004 | RL | RLM | 0.26 |
| Sandmound Slough | 032290002 | RC | AL | 0.37 |
| Sandmound Slough | 032290003 | RC | AL | 1.18 |
| Sandmound Slough | 032330013 | RC | AL | 3.10 |
| Sandmound Slough | 032330017 | RC | AL | 0.55 |
| Sandmound Slough | 032202011 | RC | RL | 0.16 |
| Sandmound Slough | 032330018 | CR | PS | 0.46 |
| Sandmound Slough | 032330018 | RC | PS | 0.40 |
| Saranap | 185220018 | RL | RLM | 0.52 |
| Saranap | 238021021 | RL | RLM | 0.35 |
| Saranap | 184010059 | RM | RLM | 0.19 |
| Saranap | 184450022 | RM | RLM | 0.25 |
| Saranap | 185220013 | RC | RL | 0.02 |
| Saranap | 185220014 | RC | RL | 0.04 |
| Saranap | 185220015 | RC | RL | 0.02 |
| Saranap | 185230017 | RC | RL | 0.20 |
| Saranap | 185230029 | RC | RL | 0.09 |
| Saranap | 185230033 | RC | RL | 0.00 |
| Saranap | 185230044 | RC | RL | 0.05 |
| Saranap | 184100030 | RC | RLM | 0.02 |
| Saranap | 184100043 | RC | RLM | 0.00 |
| Saranap | 184100044 | RC | RLM | 0.01 |
| Saranap | 184100045 | RC | RLM | 0.03 |
| Saranap | 184100046 | RC | RLM | 0.04 |
| Saranap | 184100050 | RC | RLM | 0.07 |
| Saranap | 184100051 | RC | RLM | 0.03 |
| Saranap | 184100052 | RC | RLM | 0.05 |
| Saranap | 184100053 | RC | RLM | 0.03 |
| Saranap | 184140001 | RC | RLM | 0.02 |
| Saranap | 184140052 | RC | RLM | 0.01 |
| Saranap | 184140065 | RC | RLM | 0.04 |
| Saranap | 184150019 | RC | RLM | 0.18 |

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| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|---------|-----------|-----------------------------------|------------------------------|----------------------|
| Saranap | 184150020 | RC | RLM | 0.35 |
| Saranap | 184150038 | RC | RLM | 0.04 |
| Saranap | 184150062 | RC | RLM | 0.01 |
| Saranap | 184150067 | RC | RLM | 0.06 |
| Saranap | 184170056 | RC | RLM | 0.00 |
| Saranap | 184191014 | RC | RLM | 0.06 |
| Saranap | 184191016 | RC | RLM | 0.09 |
| Saranap | 184191017 | RC | RLM | 0.10 |
| Saranap | 184191018 | RC | RLM | 0.08 |
| Saranap | 184191019 | RC | RLM | 0.06 |
| Saranap | 184191020 | RC | RLM | 0.06 |
| Saranap | 184191021 | RC | RLM | 0.05 |
| Saranap | 184191024 | RC | RLM | 0.01 |
| Saranap | 184214006 | RC | RLM | 0.02 |
| Saranap | 184214007 | RC | RLM | 0.13 |
| Saranap | 184214008 | RC | RLM | 0.04 |
| Saranap | 184214012 | RC | RLM | 0.02 |
| Saranap | 185230011 | RC | RLM | 0.01 |
| Saranap | 185230013 | RC | RLM | 0.00 |
| Saranap | 185230015 | RC | RLM | 0.05 |
| Saranap | 185230049 | RC | RLM | 0.16 |
| Saranap | 185242016 | RC | RLM | 0.01 |
| Saranap | 185242017 | RC | RLM | 0.15 |
| Saranap | 185242024 | RC | RLM | 0.05 |
| Saranap | 185242025 | RC | RLM | 0.20 |
| Saranap | 185242026 | RC | RLM | 0.01 |
| Saranap | 185250017 | RC | RLM | 0.01 |
| Saranap | 185250018 | RC | RLM | 0.07 |
| Saranap | 185250035 | RC | RLM | 0.22 |
| Saranap | 185290030 | RC | RLM | 0.11 |
| Saranap | 18414C002 | RC | RLM | 0.13 |
| Saranap | 185230033 | RL | RC | 0.05 |
| Saranap | 185230044 | RL | RC | 0.02 |
| Saranap | 184130001 | RLM | RC | 0.11 |
| Saranap | 184130002 | RLM | RC | 0.36 |
| Saranap | 184130005 | RLM | RC | 0.07 |
| Saranap | 184130006 | RLM | RC | 0.05 |
| Saranap | 184130009 | RLM | RC | 0.05 |

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| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|------------------------|-----------|-----------------------------------|------------------------------|----------------------|
| Saranap | 184130010 | RLM | RC | 0.14 |
| Saranap | 184130012 | RLM | RC | 0.12 |
| Saranap | 184130018 | RLM | RC | 0.13 |
| Saranap | 184140001 | RLM | RC | 0.00 |
| Saranap | 184140052 | RLM | RC | 0.00 |
| Saranap | 184140065 | RLM | RC | 0.00 |
| Saranap | 184140068 | RLM | RC | 0.01 |
| Saranap | 184150034 | RLM | RC | 0.05 |
| Saranap | 184150035 | RLM | RC | 0.04 |
| Saranap | 184150036 | RLM | RC | 0.01 |
| Saranap | 184150037 | RLM | RC | 0.04 |
| Saranap | 184150050 | RLM | RC | 0.04 |
| Saranap | 184150059 | RLM | RC | 0.06 |
| Saranap | 184150060 | RLM | RC | 0.08 |
| Saranap | 184150063 | RLM | RC | 0.03 |
| Saranap | 184150067 | RLM | RC | 0.00 |
| Saranap | 184150068 | RLM | RC | 0.02 |
| Saranap | 184150070 | RLM | RC | 0.01 |
| Saranap | 184170013 | RLM | RC | 0.04 |
| Saranap | 184170017 | RLM | RC | 0.09 |
| Saranap | 184490003 | RLM | RC | 0.04 |
| Saranap | 184490004 | RLM | RC | 0.05 |
| Saranap | 185230011 | RLM | RC | 0.12 |
| Saranap | 185230012 | RLM | RC | 0.02 |
| Saranap | 185242011 | RLM | RC | 0.01 |
| Saranap | 185242012 | RLM | RC | 0.02 |
| Saranap | 185242015 | RLM | RC | 0.03 |
| Saranap | 185242016 | RLM | RC | 0.02 |
| Tassajara Valley | 223020021 | AL | RC | 6.90 |
| Unincorporated Clayton | 122020007 | RVL | AL | 0.11 |
| Vine Hill | 161221020 | RM | MUC | 0.13 |
| Vine Hill | 161221023 | RM | MUC | 0.16 |
| Vine Hill | 380231005 | RM | MUC | 0.14 |
| Vine Hill | 159210004 | LI | RH | 0.26 |
| Vine Hill | 159210039 | LI | RH | 1.05 |
| Vine Hill | 159210042 | LI | RH | 4.78 |
| Vine Hill | 159210043 | LI | RH | 0.87 |
| Vine Hill | 161250010 | AL | PS | 0.45 |

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| Place | APN | GP Designation DEIR (Oct 2023) | GP Designation (Oct 2024) | GP Change Acreage |
|-------------|-----------|-----------------------------------|------------------------------|-------------------|
| Kirker Pass | 092010006 | AL | to City | 62.10 |
| Kirker Pass | 092020002 | AL | to City | 52.52 |
| Kirker Pass | 092020003 | AL | to City | 158.52 |
| Kirker Pass | 092030012 | AL | to City | 9.83 |
| Kirker Pass | 092040008 | AL | to City | 161.95 |
| Kirker Pass | 092050002 | AL | to City | 53.17 |

In addition, as shown in Appendix A, the changes to the proposed General Plan also include changes to the Existing and Proposed Road Network, which is provided as Figure 3-4 on page 3-19 of the DEIR. The changes to the roadway network are listed below, with the updated version of DEIR Figure 3-4 provided as Figure 3-2 of this FEIR:

- **San Pablo Avenue between Rodeo and Crockett:** The County is in the design phase for a road diet project to reduce the number of lanes from 4 lanes to 3 lanes and provide a two-way cycle track along this segment. Therefore, the map has been revised to denote “(3-4)” for this segment, indicating that the roadway will have 3 lanes but right-of-way width equivalent to 4 lanes to accommodate planned multi-modal improvements.
- **San Pablo Dam Road from Appian Way to Castro Ranch Road:** The County is pursuing a project to reduce the number of lanes from 4 lanes to 3 lanes to accommodate multi-modal improvements along this segment. Therefore, the map has been revised to denote “(3-4)” for this segment, indicating that the roadway will have 3 lanes but right-of-way width equivalent to 4 lanes to accommodate planned multi-modal improvements.

The revisions to the General Plan and CAP listed in Appendix A and the additional revisions identified by the Board of Supervisors on September 10, 2024, listed above do not alter any impact significance conclusions as disclosed in the DEIR. To demonstrate this, the remainder of this section presents revisions to the DEIR impacts and alternatives analysis text that references General Plan policies and actions that reduce environmental impacts associated with the proposed project. These policies and actions were identified as reducing environmental impacts by italicizing them in the list of relevant policy guidance in the sections titled “*Proposed General Plan Goals, Policies, and Actions*” in each section of Chapter 5, *Environmental Analysis*, of the DEIR. This section does not show DEIR revisions to account for all project changes, since other changes would not affect the project’s impact on the environment.

As indicated in Appendix A, one project change is to change the name of the Climate Action Plan (CAP) to the Climate Action and Adaptation Plan (CAAP). Except for the change below to the list of acronyms, this name change is not shown in the revisions to the DEIR text presented in this section because it does not affect the analysis, but it called out here to address any potential confusion.

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Page vii, Section 5.4, *Abbreviations and Acronyms*. The following revisions are made.

~~CAP~~ ~~Climate Action Plan~~

CAAP Climate Action and Adaptation Plan

Pages 5.1-13 to -14, Section 5.4, *Aesthetics*, under Heading “Proposed General Plan.” The following revisions are made.

Public Resources Code Section 12220(g) defines “forest land” as land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. As noted in Section 5.2, *Agriculture and Forestry Resources*, there are a total of approximately 63,806 acres of forested area in the county. Although development allowed by the proposed General Plan would consist mainly of infill and redevelopment, future development could create aesthetic impacts through the conversion of forest to non-forest lands. However, Chapter 816-6, *Tree Protection and Preservation*, of the County Ordinance Code requires that a property owner obtain a tree permit from the County before trenching, grading, or filling within the dripline of any protected tree or before cutting down, destroying, trimming by topping, or removal of any protected tree. In addition, the proposed Conservation, Open Space, and Working Lands Element includes policies aimed at preserving and protecting trees from future development. Specifically, Policy COS-P6.1 directs the County to preserve natural woodlands and significant trees, particularly mature native species, intact coastal scrub and chaparral, and grasslands, especially those with native grass and wildflower populations and Action COS-A6.2 directs the County to establish an Oak Woodland Conservation Program with mitigation ratios and tree replacement and planting standards.

Pages 5.2-19 to -20, Section 5.2, *Agriculture and Forestry Resources*, under Heading “Proposed General Plan.” The following revisions are made.

Moreover, the intent of the proposed General Plan is to preserve this land. For example, Policy COS-P2.2 directs the County to preserve and protect productive agricultural land from urban conversion, particularly land designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland on the Important Farmland Map, land with Class 1 or Class 2 soils, and land designated Agricultural Core. This policy, along with the following, would help to preserve agricultural lands from future urban development:

- **Policy LU-P2.1:** Continue implementing the 65/35 Land Preservation Standard, using the County ULL to focus future development in the county’s established urban and suburban communities while preserving agricultural land, rangeland, natural habitats, watersheds, and open space.
- **Policy LU-P2.3:** Limit development outside the ULL to non-urban uses, such as agriculture, mineral extraction, wind and solar energy production, natural carbon sequestration, other resource-based uses, and essential infrastructure.

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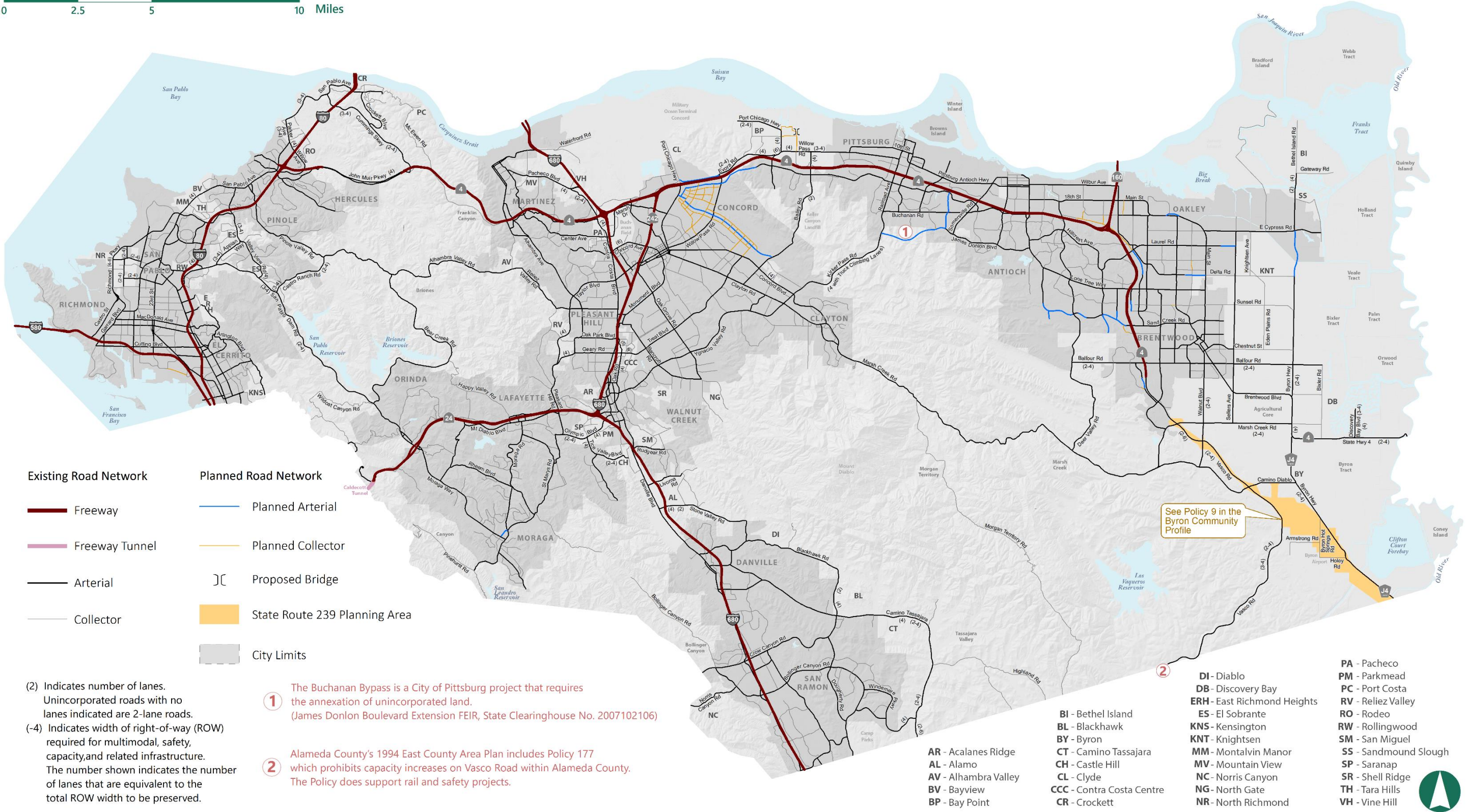
- **Policy LU-P2.4:** ~~Prohibit Deny applications for major subdivisions outside the ULL as well as~~ and successive minor subdivisions of lots outside the ULL that were created through previous subdivisions.
- **Policy LU-P2.8:** Discourage extension of water and sanitary sewer lines into areas outside the ULL, except to serve public and semi-public uses that are not growth inducing, or when such extension is necessary to address a declared public health emergency. When lines are extended outside the ULL, they should be designed to service the intended use only, and not allow for additional future service connections.

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Figure 3-2 Existing and Proposed Road Network



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Page 5.2-23, Section 5.2, *Agriculture and Forestry Resources*, under Heading “Proposed General Plan.” The following revisions are made.

The proposed Conservation, Open Space, and Working Lands Element includes policies that aim to preserve forested areas:

- **Policy COS-P6.1:** Preserve natural woodlands and significant trees, particularly mature native species, intact coastal scrub and chaparral, and grasslands, especially those with native grass and wildflower populations.
- **Policy COS-P6.2:** Encourage planting and propagation of native trees throughout the county to enhance the natural landscape, provide shade, sustain wildlife, absorb stormwater, and sequester carbon.
- **Policy COS-P6.3:** Support protection of native trees, especially oaks, in foothill woodlands and agricultural areas by encouraging voluntary installation of fencing around individuals or clusters of trees to prevent grazing and promoting replanting of native species.
- **Policy COS-P6.5:** Encourage revegetation of native species in areas that were previously converted for agriculture but are no longer in production.

Page 5.2-24, Section 5.2, *Agriculture and Forestry Resources*, under Heading “Proposed General Plan.” The following revisions are made.

In addition, the proposed General Plan also includes Policy COS-P2.4, which requires new projects adjacent to agriculture to establish appropriate buffers, with consultation with the County Agricultural Commissioner, on their properties, as necessary to minimize conflicts and protect agriculture. The General Plan also includes Action COS-A2.4, which would amend County Ordinance Code Title 8 – Zoning to include development standards and design guidelines for urban land uses that interface with agricultural uses, addressing setbacks on urban properties. Therefore, the other agricultural impacts of the proposed General Plan would be less than significant.

Pages 5.3-1 to -80, Section 5.3, *Air Quality*. Given the extent of changes to this section, the entire section with all changes is provided in Appendix B.

See Appendix B for all updates and revisions to Section 5.3, *Air Quality*. See also Appendix C for a revised version of DEIR Appendix 5.3-1, *Air Quality and Greenhouse Gas Emissions Data*.

Pages 5.4-25 to -26, Section 5.4, *Biological Resources*, under Heading “Proposed General Plan.” The following revisions are made.

For example, Policy COS-P4.3 requires a biological resources assessment to be prepared according to State and federal protocols for projects with the potential to affect rare, threatened, endangered, or special-status species or their habitat, with appropriate mitigation implemented for identified impacts, preferably near the impact and

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within the county; Policy COS-P4.6 requires well-timed, comprehensive floristic and vegetation surveys to be prepared according to State and federal protocols when development is proposed on land with potentially suitable habitat for special-status plant species, sensitive natural plant communities, or locally rare plants, including areas mapped by CNPS as Botanical Priority Protection Areas; Policy COS-P5.3 requires avoidance, minimization, and/or compensatory mitigation for development that would affect a wetland, wetland species, or adjacent upland habitat areas; and Policy COS-9.3 opposes all efforts to construct an isolated conveyance (e.g., peripheral canal, tunnel) or any other water diversion system that would reduce Delta water flows unless and until it can be conclusively demonstrated that such a system would protect, preserve, and enhance water quality and fisheries of the San Francisco Bay/Delta estuary system.

Pages 5.4-27 to -28, Section 5.4, *Biological Resources*, under Heading “Proposed General Plan.” The following revisions are made.

Construction activities could have direct and indirect impacts on riparian habitat and other sensitive natural communities. Construction projects in the EIR Study Area could also affect sensitive natural communities by spreading or introducing invasive plant species to currently uninfected areas. Invasive species spread aggressively and crowd out native species, potentially altering the species composition of natural communities. A predominance of invasive species reduces the overall habitat quality for native plants and wildlife. However, given that most development under the proposed General Plan is anticipated to occur within the ULL, specific impacts may be lessened through implementation of the goals, policies, and actions of the proposed General Plan. The Conservation, Open Space, and Working Lands Element of the proposed General Plan includes policies and actions that would mitigate potential impacts on riparian habitat or other sensitive natural communities, including policies and actions associated with goals that aim to preserve open space for environmental protection (Goal COS-1); preserve and enhance ecological resources and wildlife habitat (Goal COS-4); protect and restore natural watercourses, riparian corridors, and wetland areas (Goal COS-5); preserve and enhance native upland habitat (Goal COS-6); protect water quality (Goal COS-8); and protect, preserve, and enhance natural resources of the San Francisco Bay/Sacramento-San Joaquin Delta estuary system and shoreline (Goal COS-9). For example, Policy COS-P1.3 discourages converting land designated Resource Conservation or Parks and Recreation to urban uses and requires permanent protection of other open space or parklands if conversion is to occur; Policy COS-P4.7 ~~COS-P4.6~~ requires avoidance, protection, and restitution related to sensitive ecological resources; Policy COS-P5.2 requires ~~new~~ public infrastructure and development projects to preserve and, whenever possible, restore and enhance, natural watercourses, floodplains, and riparian habitat; Policy COS-P5.3 requires avoidance, minimization, and/or compensatory mitigation for development that would affect a wetland, wetland species, or adjacent upland habitat areas; Policy COS-P6.1 requires the preservation of natural woodlands and significant trees; and Policy COS-9.4 requires plans for land uses along shorelines to not pose a threat to Bay or Delta resources, including water quality and shoreline and marshland habitats. In addition, Action COS-A4.1 directs the County to prepare and maintain a detailed inventory of ecologically significant resource areas, including unique natural areas, wetlands, floodplains, and riparian resources, for the portion of the county not covered by the HCP/NCCP; Action COS-A6.1 directs the County to update County Ordinance Code Chapter 816-6, Tree Protection and Preservation, to enhance protection for specified native trees and strengthen mitigation requirements/restitution for ~~tree~~ removal

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commensurate with the benefits the tree provides; and Action COS-A6.2 directs the County to develop an Oak Woodland Conservation Program that establishes special mitigation ratios for the removal of oak trees, along with specific tree replacement and planting standards to ensure long-term growth and survival.

Page 5.4-28, Section 5.4, *Biological Resources*, under Heading “Proposed General Plan.” The following revisions are made.

Regarding the spread or introduction of invasive plant species, Policy COS-P4.8 requires the use of California native plant species in large landscaped areas in the majority of landscaping for new developments as well as construction practices that avoid the spread of invasive plant species by minimizing surface disturbance, seeding and mulching disturbed areas with certified weed-free native mixes, disinfecting/decontaminating equipment, and using native noninvasive, drought-resistant species in erosion-control plantings. Policy COS-P6.4 encourages the removal of invasive non-native tree species, and Policy COS-P8.3 supports development and implementation of a long-term, areawide integrated vegetation management program to control invasive weeds in a way that reduces pesticide use and preserves water quality. Furthermore, any disturbance or alteration of streams, lakes, or non-federally protected (non-jurisdictional) wetlands would require a permit with conditions that would protect sensitive natural communities. A Section 1602 SAA would be needed from the CDFW prior to initiation of project construction activities that would divert, obstruct, or change the natural flow of a river, stream, or lake or use material from a streambed. Non-jurisdictional wetlands include wetland features that are not hydrologically connected to navigable waters in rivers and are not under Corps jurisdiction. These wetlands would still be considered waters of the State and would be regulated according to the waste discharge requirements that would be issued by the RWQCB.

Page 5.4-29, Section 5.4, *Biological Resources*, under Heading “Proposed General Plan.” The following revisions are made.

The EIR Study Area contains waters of the United States, which include jurisdictional wetlands and other waters. Construction activities could have direct and indirect impacts on waters of the United States. However, given that most development under the proposed General Plan is anticipated to occur within the ULL, specific impacts may be lessened through implementation of the goals, policies, and actions of the proposed General Plan. The Conservation, Open Space, and Working Lands Element of the proposed General Plan includes policies and actions that would mitigate potential impacts on wetlands, including policies and actions associated with goals that aim to protect and restore natural watercourses, riparian corridors, wetland areas (Goal COS-5) and water quality (Goal COS-8). For example, Policy COS-P5.1 supports the protection, restoration, and enhancement of creeks, wetlands, marshes, sloughs, and tidelands; Policy COS-P5.2 requires ~~new~~ public infrastructure and development projects to preserve and, whenever possible, restore and enhance, natural watercourses, floodplains, and riparian habitat; Policy COS-P5.3 requires avoidance, minimization, and/or compensatory mitigation for development that would affect a wetland, wetland species, or adjacent upland habitat areas; Policy COS-P5.4 requires new buildings and structures on private property to be set back from the edge of any wetland area and allows encroachment into a required wetland setback area only when a parcel

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would otherwise be rendered unbuildable and impacts have been adequately mitigated; Policy COS-P5.5 requires acquisition of deeded development rights to setback areas surrounding wetlands, floodplains, and natural watercourses to ensure preservation of the resources and protect adjacent improvements; Policy COS-P5.8 prohibits direct runoff of pollutants and siltation into marsh, creek, and wetland areas from outfalls serving urban development; and Policy COS-8.2 requires coordination with other agencies to control point and non-point sources of water pollution and maintain water quality standards.

Pages 5.4-31 to -32, Section 5.4, *Biological Resources*, under Heading “Proposed General Plan.” The following revisions are made.

For example, Policy COS-P1.1 supports efforts to acquire and permanently protect areas that connect protected lands in order to form a cohesive system of open space and plan infrastructure so as to avoid interfering with such acquisitions whenever possible; Policy COS-P1.3 discourages the conversion of designated Resource Conservation or Parks and Recreation land to urban uses and requires permanent protection of other open space or parklands if conversion is to occur; Policy COS-P1.4 requires new projects adjacent to protected open space areas to establish buffers; Policy COS-P4.1 requires setbacks around ecologically significant resource areas and prohibits projects that would lead to fragmentation of ecologically significant resource areas; Policy COS-P4.4 protects ~~habitat and~~ wildlife migration corridors including natural and channelized creeks providing habitat in urban settings; Policy COS-P4.5 discourages ~~the~~ use of fencing that poses risks to wildlife; Policy COS-P5.1 supports protection, restoration, and enhancement of creeks, wetlands, marshes, sloughs, and tidelands; Policy COS P5.2 requires ~~new~~ public infrastructure and development projects to preserve and, whenever possible, restore and enhance, natural watercourses, floodplains, and riparian habitat; Policy COS-P5.3 requires avoidance, minimization, and/or compensatory mitigation for development that would affect a wetland or adjacent upland habitat; Policy COS-P5.4 requires new buildings and structures on private property to be set back from wetlands; and Policy COS-P6.1 requires preserving natural woodlands and significant trees.

Page 5.4-34, Section 5.4, *Biological Resources*, under Heading “Proposed General Plan.” The following revisions are made.

The policies in the proposed General Plan would not conflict with existing aforementioned County ordinances for the protection of biological resources but, rather, would expand on them to address issues regarding sensitive biological resources. Regarding County Ordinance Code Chapter 82-1, Policy LU-P2.1 requires continued implementation of the 65/35 Land Preservation Standard, using the County ULL to focus development while preserving agricultural land, rangeland, natural habitats, watersheds, and open space; Policy LU-P2.2 enhances the ULL’s effectiveness by supporting efforts to acquire and permanently protect land along the ULL boundary; and Policy LU-P2.3 limits development outside the ULL to non-urban uses. Regarding County Ordinance Code Chapter 816-6, Policy COS-P6.1 requires the preservation of natural woodlands and significant trees, particularly mature native species, intact coastal scrub and chaparral, and grasslands, especially those with native grass and wildflower populations; Policy COS-P6.3 supports the protection of native trees, especially oaks, in foothill woodlands and agricultural areas by encouraging the voluntary installation of fencing

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around individuals or clusters of trees to prevent grazing and promoting the replanting of native species. Action COS-A6.1 directs the County to update County Ordinance Code Chapter 816-6 to enhance tree protections of specified native trees and strengthen mitigation requirements/restitution for ~~tree~~ removal commensurate with the benefits the tree provides; Action COS-A6.2 directs the County to develop an Oak Woodland Conservation Program that establishes special mitigation ratios for the removal of oak trees, along with specific tree replacement and planting standards to ensure long-term growth and survival and amendments to the County Ordinance Code as needed to implement the program.

The proposed General Plan also includes policies supporting the East Contra Costa County HCP/NCCP. For example, Policy COS-P4.2 supports land conservation and restoration consistent with the HCP/NCCP and discourages development in areas where such conservation is planned. Additional policies for the protection of biological resources are also consistent with the HCP/NCCP, including Policy COS-P4.3, which requires a biological resources assessment, prepared according to State and federal protocols, for projects with the potential to affect rare, threatened, endangered, or special-status species or their habitat and implementation of appropriate mitigation for identified impacts, preferably near the impact and within the county; Policy COS-P4.4, which protects ~~habitat and~~ wildlife migration corridors including natural and channelized creeks providing habitat in urban settings; Policy COS-P4.6, which requires floristic and vegetation surveys, prepared according to State and federal protocols, when development is proposed on land with potentially suitable habitat for special-status plant species, sensitive natural plant communities, or locally rare plants, including areas mapped by CNPS as Botanical Priority Protection Areas; and Policy COS-P5.1, which supports the protection, restoration, and enhancement of creeks, wetlands, marshes, sloughs, and tidelands.

Page 5.5-12, Section 5.5, *Cultural Resources and Tribal Cultural Resources*, under Heading “Proposed General Plan.” The following revisions are made.

As detailed in Section 5.5.1.1, there are a number of federal and State regulations in place to protect historical resources within the EIR Study Area. Currently known or future historic sites or resources listed in the National or California Registers or the Contra Costa County HRI would be protected through State and federal regulations restricting alteration, relocation, and demolition of historical resources. Compliance with the State and federal regulations is intended to ensure that development would not result in adverse impacts to identified historic and cultural resources. Historical resources are protected under the regulations of the NHPA when projects involve federal agencies. In addition, the proposed General Plan policies take a comprehensive approach to the protection of historical resources. The Conservation, Open Space, and Working Lands Element of the proposed General Plan includes policies and actions that would mitigate potential impacts on historical resources, including through the policies and actions under Goal COS-10, which aims to identify and preserve historic resources. For example, Policies COS-P10.1 and COS-P10.2 encourage the preservation and adaptive reuse of historic resources. This includes using the Secretary of the Interior’s Standards for the Treatment of Historic Properties, where possible. Policy COS-P10.11 seeks to incentivize preservation and adaptive reuse by establishing programs and funding mechanisms that support the preservation, restoration, and enhancement of cultural, historic, and archaeological sites. Policy COS P10.5 requires applicants to engage a qualified consultant to prepare an evaluation of historic resources that may be present on a project site when a project

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involves a resource listed on the County's HRI or as otherwise necessitated through the CEQA process. Policy COS-P10.7 requires significant historic resources to be either preserved onsite or adequately documented as a condition of removal. Any documentation of historic resources shall be conducted in accordance with Historic American Building Survey (HABS) Level III standards, as defined by the US Secretary of the Interior. Actions COS-A10.1 through COS-A10.4 support these policies, ensuring that surveys of existing and as-yet unknown resources are performed and updated regularly, and that planning tools, such as ordinances, design guidelines, context statements, and management plans are put in place to support implementation of the policies.

Page 5.5-14, Section 5.5, *Cultural Resources and Tribal Cultural Resources*, under Heading "Proposed General Plan." The following revisions are made.

In addition, the proposed General Plan policies take a comprehensive approach to the protection of archaeological resources. The proposed Conservation, Open Space, and Working Lands Element includes policies and actions that would mitigate potential impacts on archaeological resources, including through the policies and actions under Goal COS-10, which aims to identify and preserve archaeological resources. For example, Policy COS-P10.1 encourages the preservation of sites and areas having identifiable archaeological significance. Policy COS-P10.5 requires applicants to engage a qualified consultant to prepare an evaluation of archaeological resources that may be present on a project site when warranted through the CEQA process. Policy COS-P10.6 requires that upon discovery of a significant archaeological artifact during construction, ground disturbing activities must halt within a 50-foot radius of the find until its significance can be determined by a qualified archeologist and appropriate protection and preservation measures developed. Policy COS-P10.7 requires significant archaeological resources to be either preserved onsite or adequately documented as a condition of removal (any documentation of historic resources shall be conducted in accordance with Historic American Building Survey Level III standards, as defined by the US Secretary of the Interior.), COS-A10.1 through COS-A10.4 support these policies, ensuring that surveys of existing and as-yet unknown resources are performed and updated regularly, and that planning tools, such as ordinances, design guidelines, context statements, and management plans are put in place to support implementation of the policies.

Page 5.5-19, Section 5.5, *Cultural Resources and Tribal Cultural Resources*, under Heading "Impact 5.5-1." The following revisions are made.

No feasible mitigation measures are available. Policies and actions in the proposed General Plan, including Policy COS-P10.5 requiring evaluation of historic resources for projects that may impact a resource listed in the County's Historic Resources Inventory, and Policy COS-P10.7 requiring significant historic resources to be either preserved on-site or adequately documented as a condition of removal (any documentation of historic resources shall be conducted in accordance with Historic American Building Survey Level III standards, as defined by the US Secretary of the Interior.), in addition to federal and State regulations, would reduce impacts to the extent possible and additional project-specific mitigation measures would be incorporated pursuant to future project-specific review.

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Pages 5.6-1 to -38, Section 5.6, *Energy*. Given the extent of changes to this section, the entire section with all changes is provided in Appendix D.

See Appendix D for all updates and revisions to Section 5.6, *Energy*.

Page 5.7-16, Section 5.7, *Geology and Soils*, under Heading “Surface Rupture of a Fault.” The following revisions are made.

The proposed General Plan Health and Safety Element includes policies aimed at reducing potential impacts from development in and near areas with known faults. In particular, Policy HS-P4.3 discourages new below market- rate housing in Alquist-Priolo Fault Zones; Policy HS-P11.1 requires ~~geotechnical reports for all sites in areas of known or suspected seismic or other geologic hazards with effective mitigation measures incorporated into the project design~~ appropriately detailed engineering geologic or geotechnical investigations for projects in Alquist-Priolo Earthquake Fault Zones or Seismic Hazard Zones delineated by the California Geological Survey, as well as any other areas of steep slopes or areas of suspected ground failure known to the county; Policy HS-P11.2 prohibits the construction of buildings for human occupancy in areas where seismic and other geologic hazards cannot be adequately mitigated; and Policy HSP11.3 discourages construction of critical facilities and buildings in Alquist-Priolo Fault Zones, encourages earthquake retrofitting, and requires critical facilities and buildings to be sited, designed, and constructed to withstand seismic stresses.

Page 5.7-17, Section 5.7, *Geology and Soils*, under Heading “Proposed General Plan.” The following revisions are made.

Ground Shaking

Due to the location and underlying geology of Contra Costa County, all future development in the EIR Study Area would likely be subject to strong seismic ground shaking. Several policies in the proposed Health and Safety Element help to mitigate impacts from ground shaking. Policy HS-P11.2 prohibits construction of buildings for human occupancy in areas where seismic and geologic hazards cannot be mitigated. Policy HS-P11.3 discourages construction of critical facilities and buildings in Alquist-Priolo Fault Zones, encourages earthquake retrofitting, and if there are no feasible alternatives to siting critical facilities and buildings intended for human occupancy in the Fault Zones, requires ~~critical facilities and~~ buildings to be sited, designed, and constructed to withstand seismic stresses. Additionally, all future residential development would be required to conform to CBC requirements and standards established to prevent significant damage due to ground shaking during seismic events. Adhering to these requirements would make impacts associated with ground shaking less than significant.

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Liquefaction

As shown in Figure 5.7-2, several areas of the county are susceptible to liquefaction hazards. Therefore, future development under the proposed General Plan has the potential to be subject to liquefaction hazards. However, the proposed General Plan Health and Safety Element includes policies that address development in areas prone to liquefaction hazards and help to mitigate the risks posed by liquefaction. Policy HS-P11.1 requires appropriately detailed engineering geologic or geotechnical investigations for projects in Alquist-Priolo Earthquake Fault Zones or Seismic Hazard Zones delineated by the California Geological Survey, as well as any other areas of steep slopes or areas of suspected ground failure known to the county ~~geotechnical reports for all sites in areas of known or suspected seismic or other geologic hazards, including liquefiable soils, and requires that these reports include recommended means of mitigation of any adverse condition representing a hazard to improvements and recommendations to assure proper implementation of mitigation measures during construction~~ effective mitigation measures incorporated into the project design. In addition, Policy HS-P11.2 prohibits construction of buildings intended for human occupancy in areas where geologic hazards, such as liquefaction, cannot be adequately mitigated.

Additionally, all future development would be required to conform to CBC requirements and standards established to prevent significant damage due to ground shaking during seismic events. Therefore, impacts associated with liquefaction would be considered less than significant.

Landslides

As shown on Figure 5.7-3, large areas of the EIR Study Area with hill terrain are susceptible to landslides. The County restricts development on open hillsides and ridgelines and generally prohibits development on hillsides with slopes exceeding 25 percent, as referenced in Section 82-1.016, Hillside Protection, of the County Ordinance Code. Compliance with CBC requirements, including implementation of recommendations provided in site specific geotechnical reports would reduce or avoid impacts related to landslides. In addition, the proposed General Plan Health and Safety Element includes policies that help to mitigate impacts related to landslides and unstable geologic conditions. For example, Policy HS-P11.5 discourages development on slopes exceeding 15 percent and prohibits development on slopes exceeding 25 percent to avoid instability, extensive grading, and unnecessary land disturbance, and Policy HS-P11.6 prohibits road dedications or private road construction in unstable hillside and landslide hazard areas unless potential hazards have been mitigated to the County's satisfaction ~~without adequate mitigation. All private roads constructed in such areas must be fully compliant with private road standards adopted by the County and local fire protection district with jurisdiction.~~

Pages 5.8-1 to -42, Section 5.8, *Greenhouse Gas Emissions*. Given the extent of changes to this section, the entire section with all changes is provided in Appendix E.

See Appendix E for all updates and revisions to Section 5.8, *Greenhouse Gas Emissions*. See also Appendix F for a revised version of DEIR Appendix 5.8-1, *Climate Action and Adaptation Plan*.

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Page 5.9-40, Section 5.11, *Hazards and Hazardous Materials*, under Heading “Operation.” The following revisions are made.

Furthermore, the proposed Health and Safety Element contains goals, policies, and actions that require local planning and development decisions to consider impacts that contribute to the risk of loss, injury, or death as a result of hazardous materials releases. The proposed policies and actions under Goal HS-9 that are italicized in Section 5.9.3.1, Proposed General Plan Goals, Policies, and Actions, would serve to minimize potential adverse impacts from hazardous materials, including by proposing more stringent regulation on certain hazardous material uses. For example, Policy HS-P9.5 would require industrial projects involving use, management, or generation of hazardous materials or waste, particularly those utilizing stationary or fixed storage tanks, in areas at risk from sea-level rise, surface or emergent groundwater flooding, or tsunami to incorporate best management practices to reduce risk and prepare plans for prevention and remediation of hazardous materials/waste releases resulting from inundation ~~that facilities that manage and store hazardous waste in areas at risk of sea level rise and flooding conduct sea level rise studies to address the risk of hazardous materials release from rising water levels, including rising groundwater.~~ Policy HS-P9.10 specifically prohibits new hazardous waste facilities in ecologically sensitive areas or areas at-risk of flood and geologic hazards. Policies HS-P9.10, HS-P9.11, and HS-P9.12 would also help to ensure that hazardous waste facilities are assessed and sited in compliance with SB 673 (Health and Safety Code Sections 25200.21(b) and (c)).

Page 5.9-44, Section 5.11, *Hazards and Hazardous Materials*, under Heading “Proposed General Plan.” The following revisions are made.

Additionally, several proposed General Plan Health and Safety Element policies and actions support the update and implementation of the County’s LHMP and other emergency planning efforts. Policy HS-P7.3 requires new development within a Very High Fire Hazard Severity Zone in the Local Responsibility Area (LRA) or State Responsibility Area (SRA) or in areas that may be designated as the Wildland-Urban Interface (WUI), and on a residential parcel with evacuation constraints, to prepare a traffic control plan to ensure that construction equipment or activities do not block roadways or interfere with an evacuation plan during the construction period.

Pages 5.11-16 to -17, Section 5.11, *Land Use and Planning*, under Heading “Plan Bay Area 2050.” The following revisions are made.

The Land Use Element of the proposed General Plan sets the foundation for future growth, change, and preservation in the EIR Study Area. In addition to the policies identified in Impact Discussion 5.11-1, the following proposed General Plan goals and policies would serve to support the concepts in Plan Bay Area by encouraging infill and limiting the extent of development (Goal LU-2 and associated policies), supporting a sustainable development pattern that places a mix of jobs and housing in close proximity to each other and to transit (Goal LU-3 and associated policies), directing development to where there is already infrastructure and

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services (Goal LU-5 and associated policies, plus Policy LU-P7.5), and promoting mixed-use development (Goal LU-8 and associated policies):

- **Goal LU-2:** Growth and conservation that are balanced to preserve and enhance the quality of life, protect the environment and public safety, and benefit all those who live or work in Contra Costa County.
 - **Policy LU-P2.1:** Continue implementing the 65/35 Land Preservation Standard, using the County ULL to focus future development in the county's established urban and suburban communities while preserving agricultural land, rangeland, natural habitats, watersheds, and open space.
 - **Policy LU-P2.3:** Limit development outside the ULL to non-urban uses, such as agriculture, mineral extraction, wind and solar energy production, natural carbon sequestration, other resource-based uses, and essential infrastructure.
 - **Policy LU-P2.4:** ~~Prohibit~~ Deny applications for major subdivisions outside the ULL ~~as well as~~ and successive minor subdivisions of lots outside the ULL that were created through previous subdivisions.
 - **Policy LU-P2.5:** Encourage infill development.
 - **Policy LU-P2.6:** Encourage clustering of allowable densities to reduce development footprints; protect scenic resources, natural features, and open spaces; and avoid hazardous areas (e.g., floodplains).
 - **Policy LU-P2.8:** Discourage extension of water and sanitary sewer lines into areas outside the ULL, except to serve public and semi-public uses that are not growth inducing, or when such extension is necessary to address a declared public health emergency. When lines are extended outside the ULL, they should be designed to service the intended use only, and not allow for additional future service connections.
- **Goal LU-5:** Coordinated land use, transportation, and infrastructure decisions so that growth occurs in locations where capacity and services are available or committed.
 - **Policy LU-P5.1:** Allow development only where requisite community services, facilities, and infrastructure can be provided.
 - **Policy LU-P5.2:** Consider the potential locations of planned public infrastructure projects (e.g., transit lines, major roadways, drainage improvements) when evaluating development proposals and deny development applications that would interfere with implementation of such projects.
 - **Policy LU-P7.5:** Require new residential projects to provide convenient access/connections to public transit, local destinations, and multi-use trails ~~whenever possible~~.

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Pages 5.11-18 to -19, Section 5.11, *Land Use and Planning*, under Heading “Delta Plan.” The following revisions are made.

As described previously, the Delta Plan is a comprehensive long-term management plan for the Sacramento San Joaquin River Delta. The Delta Plan includes rules and recommendations that support the State’s goals for the Delta to: (1) improve water supply; (2) protect and restore a vibrant and healthy Delta ecosystem; and (3) preserve, protect, and enhance the unique agricultural, cultural, and recreational characteristic of the Delta. As listed below, the proposed General Plan includes goals and policies that support these goals of the Delta Plan.

- **Goal COS-7:** Sustainable surface and groundwater resource management.
 - **Policy COS-P7.1:** Require new development to reduce ~~potable~~ water consumption through use of water efficient devices and technology, drought-tolerant landscaping strategies, and treated recycled water, where available.
 - **Policy COS-P7.4:** For projects in areas without a water service provider, require proof of adequate on-site groundwater during the development review process. In addition to requiring compliance with the County’s well regulations related to water quality and flow rate, require documentation that the proposed project will not have a significant cumulative impact on the aquifer or negatively affect development that already relies on the same groundwater supply.
 - **Policy COS-P7.5:** Prohibit new development that would create or significantly aggravate groundwater overdraft conditions, land subsidence, or other “undesirable results,” as defined in Section 354.26 of the California Water Code.
 - **Policy COS-P7.6:** Support multipurpose water storage options that incorporate water supply, flood control, surface and groundwater storage, groundwater management, and ecosystem components.

Page 5.11-21, Section 5.11, *Land Use and Planning*, under Heading “East Contra Costa HCP/NCCP.” The following revisions are made.

East Contra Costa HCP/NCCP

As discussed in Section 5.4, Biological Resources, the East Contra Costa County HCP/NCCP is intended to provide regional conservation and development guidelines to protect natural resources while improving and streamlining the permit process for take of State and federally listed species. The HCP/NCCP was developed by a team of scientists and planners with input from independent panels of reviewers and stakeholders. The proposed General Plan discourages conversion of land designated Resource Conservation or Parks and Recreation to urban uses and requires mitigation through the replacement of land with equal biologic, scenic, or recreational value if such conversion is to occurs, per Policy COS-P1.3. Additionally, Policy COS-P4.2 encourages consistency with the HCP/NCCP by directing the County to support land conservation and restoration consistent with the HCP/NCCP and discourage development in areas where conservation is planned. Policies COS-P1.1 and COS-P1.2 also support the goals of the HCP/NCCP to protect open space and ecologically sensitive areas. As such, the proposed General Plan is consistent with the adopted HCP/NCCP

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in terms of land uses and habitat protection. Implementation of the General Plan would not conflict with the provisions of the East Contra Costa HCP/NCCP.

Page 5.13-30, Section 5.11, *Noise*, under Heading “Proposed General Plan.” The following revisions are made.

As part of implementing the proposed project, various individual future development projects would generate temporary noise level increases on and adjacent to construction sites in the EIR Study Area. Construction within the EIR Study Area would be limited to weekdays and non-holidays to the hours set forth in the proposed General Plan Policy HS-P14.7. The hours would be from 7:30 ~~8:00~~ a.m. to 5:00 p.m. when construction occurs within 1,000 feet of a noise sensitive receptor; and 7:00 a.m. to 6:00 p.m. when construction occurs at distances greater than 1,000 feet from the nearest noise-sensitive receptor. Construction is performed in distinct steps, each of which has its own mix of equipment, and, consequently, its own noise characteristics. Table 5.13-9, Reference Construction Equipment Noise Levels, lists typical construction equipment noise levels recommended for noise-impact assessments based on a distance of 50 feet between the equipment and noise receptor.

Pages 5.14-12 to -13, Section 5.14, *Population and Housing*, under Heading “Proposed General Plan.” The following revisions are made.

The proposed Land Use Element serves as the blueprint for the development of public and private property in the EIR Study Area and sets the foundation for future growth, change, and preservation. The following Land Use Element policies and actions would serve to minimize potential adverse impacts related to growth:

- **Policy LU-P1.1:** The General Plan Update Environmental Impact Report (EIR) assumes the following maximum development projections for the year 2045:
 - a) 23,200 new dwelling units.
 - b) 1.2 million square feet of new commercial and office space.
 - c) 5 million square feet of new industrial space.

If new development approved within the unincorporated county reaches the maximum number of residential units and commercial/office and industrial square feet projected in the General Plan EIR, require that environmental review conducted for any subsequent development project address growth impacts that would occur from development exceeding the General Plan EIR’s projections.

- **Action LU-A1.1:** Track growth to ensure it does not exceed the development projections analyzed in the General Plan EIR and described in Policy LU-P1.1 without subsequent environmental review.
- **Policy LU-P2.1:** Continue implementing the 65/35 Land Preservation Standard, using the County ULL to focus future development in the county’s established urban and suburban communities while preserving agricultural land, rangeland, natural habitats, watersheds, and open space.

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- **Policy LU-P2.3:** Limit development outside the ULL to non-urban uses, such as agriculture, mineral extraction, wind and solar energy production, natural carbon sequestration, other resource-based uses, and essential infrastructure.
- **Policy LU-P2.4:** ~~Prohibit~~ Deny applications for major subdivisions outside the ULL ~~as well as and~~ successive minor subdivisions of lots outside the ULL that were created through previous subdivisions.
- **Policy LU-P2.5:** Encourage infill development.
- **Policy LU-P2.6:** Encourage clustering of allowable densities to reduce development footprints; protect scenic resources, natural features, and open spaces; and avoid hazardous areas (e.g., floodplains).
- **Policy LU-P3.1:** Support regional efforts to achieve a jobs-housing balance within the county and within subregions of the county by maintaining an adequate supply of developable land designated for job-generating uses. For any General Plan amendment proposing to convert commercial, industrial, or office land uses to residential or non-urban land uses, evaluate the project's effect on the local and countywide jobs-housing balance.
- **Policy LU-P5.1:** Allow development only where requisite community services, facilities, and infrastructure can be provided.
- **Policy LU-P5.2:** Consider the potential locations of planned public infrastructure projects (e.g., transit lines, major roadways, drainage improvements) when evaluating development proposals and deny development applications that would interfere with implementation of such projects.
- **Action LU-A5.2:** Work with LAFCO and utility service providers to:
 - a) Annex lands planned for urban development by this General Plan into their service areas.
 - b) Detach private lands, especially agricultural or rural lands, from district boundaries if they are not planned for urban development and are not currently served.

Page 5.15-42, Section 5.7, Public Services and Recreation, under Heading "Proposed General Plan." The following revisions are made.

To offset impacts from future development, all new projects must adhere to County Ordinance Code Division 720 (Ordinance No. 2007-17), which collects impact fees from new development to fund parks and recreation services. The County's continued implementation of park improvement and development projects would ensure that the adequate amount of parkland would be available. Each RPD and CSD (of those that provide parks and recreation services) also collect revenue from property taxes, assessments, and service charges to fund improvements, which in turn would serve to reduce the potential for deterioration of existing facilities. Several additional policies and actions under Goal PFS-8 of the proposed Public Facilities and Services Element would also help to provide adequate local facilities. For example, Policy PFS-P8.5 states that ~~whenever possible,~~ the County shall require projects subject to the Park Dedication or Park Impact Fee Ordinances to develop parks and recreation amenities ~~listed identified in, or added proposed for addition~~ listed identified in, or added proposed for addition to, the County's Park Capital Improvement Plan. Park impact fees or in-lieu fees should be assessed only when the County determines developer improvements are not feasible. Action PFS-A8.3 would help to implement this policy by requiring

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an annual update of the park dedication and in-lieu fee requirements. Action PFS-A8.1 would also support local parks by creating a cross-agency County entity that coordinates the planning and funding of local parks, recreational facilities, and trails.

Page 5.16-38, Section 5.16, *Transportation*, under Heading “Roadway.” The following revisions are made.

Roadway

CCTA implements and manages several countywide programs that direct circulation improvements on County roadways, including the CMP and Growth Management Program. These programs help to ensure that County roadway improvements are organized and funded. The County’s Transportation Demand Management Ordinance (Chapter 82-32 of the County Ordinance Code) helps to implement these CCTA programs within the EIR Study Area. Development under the proposed General Plan would be subject to TDM requirements in addition to transportation impact development fees, as applicable. Projects would also be subject to review under the County’s Transportation Analysis Guidelines. Several proposed General Plan policies and actions also demonstrate compliance with and support CCTA’s and the County’s roadway-related programs. These include Policy TR-P1.4, which would ~~direct development to~~ reduce single-occupant vehicle use and vehicle miles traveled (VMT) by improving infrastructure, implementing supportive policies such as the TDM Ordinance, and enhancing public transit options. ~~comply with the TDM strategies for reducing single-occupant vehicle usage, and~~ Policy TR-P1.6, which directs the County to partner with CCTA and Caltrans to better manage traffic operations on the State highway system in the county. Action TR-A1.1 would ensure that the County reviews and updates the TDM guidelines at least every five years to incorporate best practices. Through these and other policies and actions throughout the Transportation Element, the proposed General Plan shows consistency with the goals and intent of the County/CCTA’s roadway-related programs, plans, policies, and ordinances. Therefore, impacts are less than significant.

Page 5.16-48, Section 5.16, *Transportation*, under Heading “Proposed General Plan.” The following revisions are made.

Additionally, the proposed General Plan includes several policies and actions that would help to ensure that roadways accommodate emergency access, including Policy TR-P4.10 in the proposed Transportation Element, which would ensure that roadway infrastructure within new development areas balances the accommodation of emergency response vehicles with the day-to-day safety of vulnerable road users. Additionally, policies and actions in the proposed Health and Safety Element that apply to evacuation routes would have similar impacts on emergency access routes. These include Policy HS-P7.3, which requires new development within a Very High Fire Hazard Severity Zone in the Local Responsibility Area (LRA) or State Responsibility Area (SRA) or in areas that may be designated as the Wildland-Urban Interface (WUI), and on a residential parcel with evacuation constraints, to prepare a traffic control plan to ensure that construction equipment or activities do not block roadways or interfere with evacuation plans during the construction period; this policy would ensure that temporary roadway impairments are addressed within traffic control plans. In addition, Policy HS-P13.1 requires new development in High and Very High Fire Hazard Severity Zones, the WUI, and 100-year or 200-

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year floodplains to have access to at least two emergency evacuation routes. Action HS-A13.1 would direct the County to partner with cities and public protection agencies to delineate evacuation routes, identifying their capacity, safety, and viability under different hazard scenarios, as well as emergency vehicle routes for disaster response, and where possible, alternate routes where congestion or road failure could occur.

Page 5.18-26, Section 5.18, *Wildfire*, under Heading “Proposed General Plan.” The following revisions are made.

Additionally, Policy HS-P7.3, which requires new development within a Very High Fire Hazard Severity Zone in the LRA or SRA or in areas that may be designated as the WUI, and on a residential parcel with evacuation constraints, to prepare a traffic control plan to ensure that construction equipment or activities do not block roadways or interfere with evacuation plans during the construction period, would ensure that temporary roadway impairments or evacuation plan impacts are addressed within traffic control plans. With the implementation of this policy, impacts would be less than significant.

Page 5.18-28, Section 5.18, *Wildfire*, under Heading “Slope Impacts.” The following revisions are made.

Slope Impacts

As discussed in Section 5.18.1.2, the topography in the EIR Study Area varies between steeply sloped mountains to flat valleys and shorelines. Construction of future development projects may require grading and site preparation activities that could change the slope of a single parcel or site. Potential future development under the proposed General Plan could increase development density in both flat and steeper areas of the county. However, proposed Land Use Element Policy LU-P5.6 ~~Health and Safety Element Policy HS-P4.6~~ directs the County to allow for decreased residential density below the minimum density requirement in hazard-prone areas, including those with slopes that exceed 15 percent.

All potential future residential development within the EIR Study Area would be required to comply with the CBC, SRA and Very High FHSZ Fire Safe Regulations, and Contra Costa County Ordinance Code grading requirements, which include standards to minimize the ignition and spread of wildfire due to slopes. Furthermore, the proposed Health Safety Element includes several policies and actions that would address potentially significant impacts with regard to development within FHSZs. For example, Policy HS-P7.1 would require denial of entitlements for projects creating additional residential units (i.e., units not allowed by-right) applications for new residential subdivisions in Very High FHSZs in the LRA or SRA, as well as to and discourage residential subdivisions such projects in High FHSZs in the SRA and discourage them in the LRA unless adequate fire protection services are provided. Other potential housing types including below-market-rate housing are discouraged in the WUI and FHSZ areas per Policy HS-P4.3. All development ~~in the WUI or~~ High and Very FHSZs in the LRA or SRA, or in areas that may be designated as the WUI must incorporate fire-safe design features that meet the State Fire Safe Regulations and Fire Hazard Reduction Around Buildings and Structures Regulation for road ingress and egress, fire equipment access, and adequate water supply, as stated in Policy HS-P7.2. Policy HS-P7.4 outlines the requirements for fire protection plans that must be implemented for subdivisions and projects requiring a land use permit in High and Very High FHSZs. The

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proposed Health and Safety Element includes several other policies and actions under Goal HS-7, as shown in Section 5.18.3, Proposed General Plan Goals, Policies and Actions, that would improve fire safety in the county.

Page 5.18-32, Section 5.18, *Wildfire*, under Heading “Proposed General Plan.” The following revisions are made.

Potential future development under the proposed General Plan could contribute to post-fire slope instability or drainage changes upstream. However, as discussed previously, proposed Health and Safety Element Policy HS-P7.1 would require denial of entitlements for projects creating additional residential units (i.e., units not allowed by-right) ~~applications for new residential subdivisions~~ in Very High FHZs in the LRA or SRA and Policy HS-P4.3 discourages locating below market-rate housing development inside of mapped hazard zones as identified in the Health and Safety Element; however, this does not prevent other types of residential development from being in mapped hazard zones.

Page 5.18-34, Section 5.18, *Wildfire*, under Heading “Proposed General Plan.” The following revisions are made.

Though all urban development would occur within the ULL, outside the majority of the most wildfire-prone and inaccessible areas, the proposed General Plan land use map would continue to allow residential and commercial development in FHSZs where topography is steeper and evacuation access is limited per Figure 5.9-4. However, the proposed Health and Safety Element includes several policies and actions that would address potentially significant impacts from development within FHSZs. For example, Policy HS-P7.1 would require denial of entitlements for projects creating additional residential units (i.e., units not allowed by-right) ~~applications for new residential subdivisions~~ in Very High FHSZs in the LRA or SRA, as well as to ~~and~~ discourage ~~residential such subdivisions~~ projects in High FHSZs in the SRA and discourage them in the LRA unless adequate fire protection services are provided. Other potential housing types including below-market-rate housing are discouraged in the WUI and FHSZ areas per Policy HS-P4.3. All development ~~in the WUI or~~ High and Very FHSZs in the LRA or SRA, or in areas that may be designated as the WUI must incorporate fire-safe design features that meet the State Fire Safe Regulations and Fire Hazard Reduction Around Buildings and Structures Regulation for road ingress and egress, fire equipment access, and adequate water supply, as stated in Policy HS-P7.2. Policy ~~HS-P7.3~~ HS-P7.4 outlines the requirements for fire protection plans that must be implemented for subdivisions and projects requiring a land use permit in High and Very High FHSZs. The proposed Health and Safety Element includes several other policies and actions under Goal HS-7 that would improve fire safety in the county.

Page 7-6, Chapter 7, *Alternatives to the Proposed Project*, under Heading “Reduction of Warehousing Uses Near Impacted Communities Alternative.” The following revisions are made.

The proposed General Plan includes policy guidance that addresses impacts from heavy-duty trucks, including Policy HS-P1.8, which requires industrial projects ~~over~~ resulting in 25,000 square feet or more of gross habitable floor area to be near zero-emission ~~(NZE)~~ operations, including from the associated fleet, by providing ~~ZE~~ zero-emission ~~vehicle-capable~~ parking for all anticipated truck traffic to prevent idling and off-site queuing,

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providing electrified loading docks with receptacles allowing plugin of refrigerated trucks, using heavy-duty trucks that are model year 2014 or later and expediting a transition to ~~ZE~~ zero-emission trucks, and using a clean fleet of delivery vehicles.

Page 7-8, Chapter 7, *Alternatives to the Proposed Project*, under Heading “No Project/Existing Plans Alternative.” The following revisions are made.

Additionally, this Alternative would prevent the adoption and implementation of the new policies, strategies, and actions under the proposed General Plan and CAP that would reduce impacts associated with development in the county. For example, Policy HS-P7.1 in the proposed Health and Safety Element would deny entitlements for projects creating additional residential units (i.e., units not allowed by right) ~~prohibit approval of residential subdivisions~~ in Very High FHSZs in the LRA or SRA, which would reduce impacts associated with wildfire hazards when compared to the policy guidance under the existing General Plan. Policies and actions in the proposed Land Use and Transportation Elements, in addition to the strategies and actions provided in the proposed CAP, incorporate numerous vehicle miles traveled (VMT) and GHG-reducing measures that would likely lead to increased use of alternative modes of transportation and other types of reductions in VMT and GHGs. When compared to this Alternative, the proposed project would increase densities in community cores, resulting in further reductions in VMT. The full analysis of this alternative for each topical resource issue is shown in Table 7-1, *No Project/Existing Plans Environmental Analysis*.

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APPENDIX A:
STAFF-RECOMMENDED
CHANGES TO THE
PROPOSED PROJECT

MEMORANDUM

DATE August 21, 2024

TO Contra Costa County Department of Conservation and Development

FROM PlaceWorks

SUBJECT Public Review of Draft 2045 General Plan and Draft Climate Action and Adaptation Plan 2024 Update and Staff-Recommended Changes

Introduction

This memo provides a summary of the public outreach efforts and comments on the Draft Contra Costa County 2045 General Plan and the Draft Climate Action and Adaptation Plan 2024 Update. The memo begins with an overview of the public review process, followed by a summary of the public comments received through the various engagement channels. It concludes by presenting the staff-recommended revisions to the General Plan and Climate Action and Adaptation Plan in response to public comments and new information available since the draft documents were published.

Public Review Process

The Draft Contra Costa County 2045 General Plan and the Draft Climate Action and Adaptation Plan 2024 Update were published on the [Envision Contra Costa website](#) on October 17, 2023, starting a public comment period that lasted through April 22, 2024. The public review process included digital and in-person activities and events as a means of sharing the draft documents with the public and receiving feedback. Engagement events included: webinars, in-person open houses held in each supervisorial district, Municipal Advisory Committee (MAC) meetings, meetings with various County boards and commissions, and meetings with various community groups. Comments were accepted in written and verbal form at open houses and MAC meetings; written comments were also accepted through an online commenting platform and via email.

The announcement of the draft documents and promotion of events primarily occurred via email through the Envision Contra Costa mailing list; during the public comment period, 14 eblasts related to the public review process were sent to the 1,277 subscribers on this mailing list. This outreach also occurred via social media, with 12 unique posts shared to Facebook, Instagram, and Twitter/X. Other methods of outreach and communication occurred through flyer distribution and sharing updates through the various District Supervisor mailing lists and newsletters. County staff also contacted community groups that had attended prior engagement events or otherwise expressed interest in the project and offered to provide an overview of the draft documents at their meetings.

To support this public review process, the County prepared the following materials:

- A brief, two-page [user guide](#) describing the draft documents and how to provide feedback
- A 12-page [booklet](#) providing a detailed overview of the draft documents and how to provide feedback
- A five-part [video series](#) describing the draft documents, centered around the four General Plan themes, plus a vision for the future as described by Contra Costa County youth
- A [presentation in Spanish](#) providing an overview of the draft documents and how to provide feedback

The engagement events and channels are described below. Highlights of the public review process include:

- Notifications to 1,277 mailing list subscribers over 14 eblasts
- 12 unique social media posts shared to Facebook, Instagram, and Twitter/X
 - Facebook: 1,141 views, 30 reactions/likes, and 17 shares
 - Instagram: 667 views, 64 likes, and 7 shares
 - Twitter/X: 3,846 views, 8 likes, and 11 retweets/shares
- 38 meetings with over 300 attendees
- 63 comments by 33 commenters on the online commenting platform
- 81 comment letters and emails
- 1,349 views of video series, with 7 likes and 5 comments
 - Nextdoor posts about video series (almost 600,000 followers): viewed by 181,364 users, with 108 thanks and 172 replies
 - Twitter/X posts about video series (over 23,000 followers): viewed by 10,160 users

WEBINARS

The County hosted two webinars to provide an overview of the draft documents and the various methods of providing feedback. These events bookended the district open houses with webinars held in December 2023 and March 2024. Each webinar included a high-level presentation of the Draft General Plan and Climate Action and Adaptation Plan contents and themes, followed by an overview of the methods to provide feedback. There was also time for questions from attendees. Simultaneous interpretation from English to Spanish was available at each event.

The webinars were held from 5:30 to 6:30 on the following dates:

- Webinar 1: December 4, 2023, 25 attendees
- Webinar 2: March 26, 2024, 8 attendees

DISTRICT OPEN HOUSES

The County hosted a series of in-person events in each supervisorial district in the county. The two-hour events were organized in an open house format to allow community members to participate at their own pace. At the sign-in table, attendees received copies of the user guide and the longer booklet summarizing the draft documents, as well as a comment card. There were also printed copies of the public review drafts of the Contra Costa County 2045 General Plan, Climate Action and Adaptation Plan 2024 Update, and Community Profiles (from the General Plan Stronger Communities Element) for viewing. There were seven stations placed around the room with banners presenting key background information and relevant policy topics in English and Spanish. Four of the stations represented the themes of the General Plan: community health, environmental justice, sustainability, and economic development. The three other stations included an overview of the Climate Action and Adaptation Plan, Community Profiles, and countywide land use map. Each station was staffed by a facilitator who recorded comments from the participants, answered questions, and sought feedback to gauge community perspective on the draft documents. A Spanish-speaking facilitator was also available at each event to record comments and answer questions from Spanish speakers. There was also a station with a laptop to demonstrate how to comment on the documents online using the online commenting tool.

Approximately 61 community members attended the five events, which were held from 5:00-7:00 PM on the following dates and locations:

- District 1 (El Cerrito): February 21, 2024, approximately 13 attendees
- District 2 (Alamo): December 14, 2023, approximately 20 attendees

- District 3 (Knightsen): January 10, 2024, approximately 5 attendees
- District 4 (Contra Costa Centre): January 22, 2024, approximately 20 attendees
- District 5 (Martinez): March 14, 2024, approximately 3 attendees

MAC MEETINGS

County staff attended a meeting of each MAC to share information about the draft documents, including the relevant Community Profiles in the General Plan. In total, staff attended 13 MAC meetings, listed below.

- Byron MAC: October 24, 2023, approximately 6 attendees
- Rodeo MAC: October 26, 2023, 12 attendees
- Bay Point MAC: November 7, 2023, approximately 20 attendees
- Pacheco MAC: November 8, 2023, 12 attendees
- Diablo MAC: November 13, 2023, 19 attendees
- Bethel Island MAC: November 14, 2023, 27 attendees
- Discovery Bay Community Services District (CSD): November 15, 2023, 19 attendees
- Kensington MAC: November 29, 2023, 21 attendees
- North Richmond MAC: December 5, 2023, 20 attendees
- Alamo MAC: December 5, 2023, 20 attendees
- El Sobrante MAC: December 13, 2023, 23 attendees
- East Richmond Heights MAC: December 20, 2023, approximately 20 attendees
- Knightsen Town Advisory Council (TAC): April 16, 2024, approximately 20 attendees

COUNTY BOARDS AND COMMISSIONS MEETINGS

Various County boards and commissions held study sessions on the draft documents during the public comment period. County staff presented an overview of the draft documents and ways to provide feedback, and answered questions. There were six study sessions with the following boards and commissions:

- Board of Supervisors Study Session, October 24, 2023
- Sustainability Committee Meeting, November 27, 2023
- Sustainability Commission Meeting, December 11, 2023
- Aviation Advisory Committee Meeting, January 11, 2024
- Fish and Wildlife Committee Meeting, March 20, 2024
- Transportation, Water, and Infrastructure Committee Meeting, May 13, 2024

COMMUNITY GROUP MEETINGS

County staff attended meetings of various community groups and organizations to share information about the draft documents and ways to provide feedback, and answer questions. Staff attended 12 community group meetings, listed below.

- Contra Costa Community Economic Resilience Fund Sub-Regional Table, October 26, 2023
- La Clinica and Lifelong Medical Workshop for Promotoras (Community Health Ambassadors): October 28, 2023
- Richmond Community Foundation (RCF) Connects: November 15, 2023
- Industrial Association of Contra Costa County Board of Directors: November 16, 2023
- East Contra Costa Community Alliance: November 17, 2023
- Western States Petroleum Association/Bay Area Refining Committee: December 14, 2023

- Healthy and Active Before 5: December 19, 2023
- Contra Costa History Alliance: January 17, 2024
- Contra Costa Taxpayers Association: February 23, 2024
- 350 Contra Costa, Bay Miwok Interfaith Climate Action Network of Contra Costa County, Greenbelt Alliance, GRID Alternatives, Sunflower Alliance, Contra Costa Climate Leaders, Center for Human Development and the East County Community Leaders Network, Climate Reality, Citizens Climate Lobby, and Diablo Water District: March 7, 2024
- Contra Costa Watershed Forum: March 14, 2024
- Concord Historical Society: March 21, 2024

ONLINE AND EMAIL COMMENTS

To facilitate online commenting, the County posted the draft documents on [Konveio](#), a document publishing and community engagement software platform. On this platform, community members were able to read the documents in their entirety or search for specific words or phrases of interest and provide comments by clicking anywhere on the document page. Users were also able to view comments made by other users. Nineteen people submitted 39 comments on the Draft General Plan and 14 people submitted 24 comments on the Draft Climate Action and Adaptation Plan.

Community members were also able to email comment letters directly to the County project team. The project team received 81 comment letters and emails from individuals, public agencies, and non-governmental organizations.

VIDEO SERIES

The County prepared a series of short videos describing the draft documents, centered around the core themes of the General Plan – community health, environmental justice, economic development, and environmental sustainability – as well as a vision for the future articulated by Contra Costa County youth. The videos, which featured District Supervisors, community leaders, and students, were hosted on [YouTube](#) and shared via the County’s social media platforms and the Envision Contra Costa mailing list. Social media view statistics are as follows:

- Nextdoor posts (almost 600,000 followers): viewed by 181,364 users, with 108 thanks and 172 replies
- Twitter/X posts (over 23,000 followers): viewed by 10,160 users
- YouTube: Videos viewed 1,349 times, with 7 likes and 5 comments

Public Comments

Comments on the Draft Contra Costa County 2045 General Plan and the Draft Climate Action and Adaptation Plan 2024 Update were received at open houses, MAC meetings, and through the online commenting platform and email.

OPEN HOUSES

Detailed notes from the open house series are available on the [Envision Contra Costa website](#). A summary of the input received for each open house station is provided below.

Land Use

Open house participants voiced the need for homeownership opportunities and “family-friendly” housing. While the majority of comments recognized that more housing is needed, the sentiment regarding where new housing

should be built and at what density was not universal. Some participants suggested putting more homes in high-resource areas with good air quality and health conditions instead of increasing density in areas that are burdened with pollution and other challenges. Others commented on the need to transition density from high to low in a way that aligns with existing neighborhood design. Finally, some felt land use changes were happening too quickly. There was concern about overflow parking in neighborhoods from nearby commercial centers and BART stations and a suggestion to increase residential parking in these areas, such as in Contra Costa Centre.

Environmental Justice

Comments on the Environmental Justice theme related to the placement of housing. Residents voiced concern that too much new housing was being sited in communities with high pollution levels. Participants suggested increasing residential density in affluent, low-pollution neighborhoods.

Community Health

Participants were supportive of policies that expand bicycle and pedestrian infrastructure throughout the county, especially those intending to create a complete bicycle network and reduced the need for cyclists to cross busy roads unprotected. There was also support for additional libraries throughout the county to improve social cohesion, as libraries serve as a gathering space and archive for the area's history.

Economic Development

Comments received at the Economic Development station related to housing, open space, and local representation in governance. Participants suggested a diverse mix of affordable housing sizes and types, including those for young families. Others suggested developing single-family homes instead of more multi-family housing. Participants suggested that new open space in residential developments be at the ground level instead of on rooftops to ensure public accessibility. Participants also noted a feeling of a lack of representation, both from land use decisions made by adjacent incorporated jurisdictions and the viewpoints of elected County officials.

Sustainability

Participants voiced concern regarding water management and climate change as patterns of rainfall and therefore flooding could change. They suggested focusing on solutions for rainwater capture and groundwater management to prevent flooding.

Community Profiles

Feedback received on the Community Profiles was specific to individual communities, often the one where the Open House was hosted or nearest to. Most of the comments received were related to housing and land use. Some residents expressed concern over increasing density in their community while others encouraged it. Participants suggested focusing on homeownership as a community goal. They also suggested clustering development of housing, both single-family and multi-family, and including buffer areas between areas of high and low density. Finally, there was a suggestion to improve pedestrian safety.

Climate Action and Adaptation Plan

In relation to the Climate Action and Adaptation Plan, participants commented on specific activities that produce or reduce emissions and on the concept of public education around environmental issues. There was a suggestion to reduce emissions from wastewater processing. There was concern regarding the negative health impacts of artificial turf. There was a suggestion to provide more education on zero-emission modes of

transportation and transportation planning assistance to encourage residents to switch from personal gas-powered vehicles. There was also a suggestion to create an “integrated communication plan” for sharing climate action commitments and progress with residents. There was concern around streets being too narrow for compost service in specific neighborhoods. Finally, there was concern regarding rising home insurance costs due to wildfire and other hazard risks.

MAC MEETINGS

Given the localized focus of the MAC meetings, the feedback gathered at these meetings was mostly relevant to the Community Profiles section of the General Plan Stronger Communities Element, although some comments relate to countywide General Plan policy. Feedback received at each MAC meeting is summarized below.

Byron

- Questions about the Urban Limit Line and its relation to Byron.
- Comments about proposed density changes in agricultural areas.
- Concerns with the Byron Community Profile inaccurately describing the community.

Rodeo

- New John Swett Unified School District School Garden being planted.
- Concerns about a potential new gas station being built in Rodeo. There’s already one gas station and no grocery store in the community. The nearest grocery store is in the city up a hill.
- There are no bus stops/routes that serve Rodeo.
- Concerns about landscaping and certain areas of the community lying empty with no new vegetation.

Bay Point

- Protect pedestrian corridors.
- Concern about property owned by PG&E in Bay Point and allegations of potential release of unusual substances onto adjacent properties.
- The Community Advisory Panel is working to plant native plant species to absorb metals from the ground in certain areas of Bay Point.
- Questions were raised about what energy efficiency services are offered by the County for low-income residents and if the County has incentives for installing solar and for panel upgrades.
- Question about what the County is doing to get more public EV charging stations in Bay Point. There is only one EV charging station in the community, and it is not easy to get to for many residents.

Pacheco

- Question about whether the General Plan applies to the unincorporated county only.
- Question about whether the GHG reduction goals are in alignment with State targets.
- Question about what climate equity is.
- Question about whether the County will be incentivizing activities that will be required to meet our reduction targets.

Diablo

- Question about how to best get the word out about the updated General Plan and Climate Action and Adaptation Plan.

- Question about what the County is doing to support Historic Districts and whether they are included in the General Plan.
- Question about whether the Climate Action and Adaptation Plan includes estimates/maps for sea level rise in the Bay.

Bethel Island

Flooding Comments:

- High level of concern from community members about flooding.
 - It took 11 months to get an updated map of ditches and drainage.
 - It's unclear who has authority to plan for resilience centers.
 - The Local Hazard Mitigation Plan does not anticipate the flooding experienced in the community in the last few years.
 - Roads are designed with a crown to shed water, and this sends water onto residents' properties. Questions about who should collect and convey that water.
 - Request for an additional evacuation route.
 - Concerns that government won't take responsibility for helping residents with these concerns.
- Concerns about whether/how rescue efforts would happen on Bethel Island if there were an emergency, particularly flooding or bridge closed.
- Residents are frustrated that they have been raising these concerns with the MAC and there does not appear to be any action by the MAC or the Board of Supervisors.

Other Comments:

- Questions about whether there is a change to zoning proposed, and whether a residential property could be rezoned to commercial if it wants to lease out dock space.
- Question about whether the General Plan includes traffic studies.
- Concerns about new homes being built in the area and these new residents are creating traffic congestion. This is particularly worrisome for residents if there is a need to evacuate.
- Community Profile incorrectly states there is a fire station on the island.
- Questions about the relationship between the City of Oakley and the County and which agencies can influence the rate of new housing allowed in Oakley.
- Concerns about road improvements.

Discovery Bay

- Provided an overview of Community Services District's past comment letters and input on the General Plan.
- Question about CEQA review requirements for projects that abide by the General Plan/Climate Action and Adaptation Plan.
- Noted a few edits to the Discovery Bay Community Profile; for example, Discovery Bay refers to waterways as "bays" and information about Slifer Park needs to be updated. The CSD Board will compile comments and submit them to the County.
- Discussion about the residential land use designation on the parcel across from the Community Center. Questions about the County's role in approving the project, whether the County can deny the project, whether the property owner has to build according to the land use designation, and whether the property owner can do nothing.

- Concern about funding for additional utilities, infrastructure, and emergency services if more housing is built.
- Discussion about Cecchini Ranch property.
- Question about how the Climate Action and Adaptation Plan, which aims to reduce emissions, works with the General Plan, which increases emissions due to additional development.

Kensington

- Question about whether seismic retrofit incentives for residential properties were already available.
- Compliments for efficiency of permitting process to retrofit all sidewalks to include ramps for accessibility.
- Question about how to leave comments online.
- Question about whether the General Plan and/or Local Hazard Mitigation Plan address mudslide hazards. Concerns about recent rain levels leading to more mudslide hazards.

North Richmond

- Discussion about the Light Industry land use designation.
- Concern about trucks going through the community.
- Discussion about housing density. Questions about why the General Plan allows more housing in this community and suggestion to provide for lower-density housing.
- Concern about differences in resources and tax value. Discussion about advantages to obtaining State funding when in well-resourced communities.
- Support for trend of homeownership, noting that Parkway Estates and Bella Flores are thriving.
- Question about whether investments in infrastructure will happen.
- Discussion about quality of life and mixed use.
- Discussion about warehouse moratorium for North Richmond.
- Concerns about light industrial impacts on quality of life.
- Question about how the County is getting information to the community.
- Question about what the first sentence about the purpose of the General Plan means and what changes are being considered (e.g., housing, bike lanes, physical activity).
- Questions about GHG emissions from different sectors and why some are higher/lower.
- Questions about the 30-year goals and whether they consider the community that will be here at that time. Questions about how the County accounts for demographics and community preferences.

Alamo

- Questions about current energy efficiency programs, including BayREN.
- Questions and comments on State housing allocation for Alamo.

El Sobrante

- Suggestion to explore creating a noise ordinance for smaller gatherings of less than 75 people. Noise and parties are a big issue after the pandemic.
- Concern about a traffic study to be done looking at a road diet for improved bike lanes.
- Concerns about traffic and not being able to evacuate in an emergency.
- Difficulty reaching Public Works. Community members want to discuss a variety of issues with them but are unable to get them to attend MAC meetings or respond to their concerns.
- Highlighted the Chamber of Commerce.

- Discussion about appointing people to serve on the revitalized Planning and Zoning Committee, which would be focused on going out to sites for which a planning application has been submitted to evaluate in-person the impacts to neighbors, since it's hard to interpret the impacts of plans on paper.
- Concerns about the time it takes to get to the emergency room and receive medical attention. There is a lack of capacity in West County for emergency room service. The only place to receive emergency room care in West County is Kaiser Richmond; otherwise people are transported to Walnut Creek, Martinez, or Oakland.
- Questions about whether land use designations on the land use map are consistent and compatible with the land uses on parcels controlled by the cities. In El Sobrante, one side or segment of a street is within the City of Richmond while the other side/segment of the same street is within the County's jurisdiction, without any clear distinction between the two; there needs to be more coordination between the cities and the County.

East Richmond Heights

- Questions about how the General Plan will protect views.
- Question about how walkability will be addressed in the General Plan.
- Question about whether there is a height limit in the Mixed-Use designation.
- Question about how to access the Draft General Plan.

Knightsen

- Questions and comments about the Urban Limit Line, particularly where Brentwood and Oakley abut the unincorporated county.
- Questions about the density requirements/limitations for agricultural areas.
- Comments about the County's permitting processes.

COMMENT LETTERS/EMAIL AND KONVEIO COMMENTS

Below is a summary of comments received through comment letters and emails and the Konveio platform. Visit [this link](#) to see all letters and emails commenting on the Draft General Plan and Climate Action and Adaptation Plan, organized chronologically. To see the Konveio comments on the Draft General Plan, visit [this link](#), which presents the Draft General Plan with embedded comments. To see the Konveio comments on the Draft Climate Action and Adaptation Plan, visit [this link](#), which presents the Draft Climate Action and Adaptation Plan with embedded comments.

Draft General Plan

- Stronger Communities Element
 - » Increase residential density in areas with low pollution and access to jobs and schools using thoughtful transitions to existing development.
 - » Permanently protect all affordable housing.
 - » Increase accountability and ensure impacts from development are thoroughly reviewed and mitigated.
 - » Increase attention and stringency in policies to protect children and young people, who are sensitive receptors, when considering industrial siting and development.
 - » Ensure that County construction follows high road labor standards to provide living-wage construction jobs and optimal climate performance; organize housing construction under project labor agreements.

- Land Use Element
 - » Address concerns regarding neighborhood character changing as higher densities are proposed, specifically on Cherry Lane in Contra Costa Centre.
 - » Effectively integrate high-density development into existing low-density neighborhoods with thoughtful transitions or buffers.
 - » Encourage homeownership and a diverse mix of housing types.
- Transportation Element
 - » Remove language related to Level of Service and replace with vehicle miles traveled (VMT) as the main metric for measuring traffic impacts.
 - » Add more specificity and detail to the active transportation section.
 - » Improve pedestrian and cyclist safety through expansion of the sidewalk and bicycle network and addition of safety devices (e.g., crossing signals).
 - » Include references to electric bicycles when discussing electric vehicle (EV) charging infrastructure.
 - » Phase out the use of leaded aviation fuel to reduce the health impacts to nearby communities, especially to sensitive receptors like children.
- Conservation, Open Space, and Working Lands Element
 - » Increase attention to ecological and natural resource areas when considering road and highway projects and development.
 - » Revise policy language to include references to "creeks" specifically when discussing other waterways. Expand policies to protect creeks and riparian areas through such practices as removing barriers to fish passage, removing invasive plant species, and planting native plant species.
 - » Establish a moratorium on oil and gas production well permits while the new ordinance is being developed.
 - » Increase the restrictions on oil and gas production well permits (e.g., increased setbacks from sensitive receptors or outright ban).
 - » Require regular, periodic monitoring of emissions at existing oil and gas operations.
- Health and Safety Element
 - » Replace natural gas appliances with electric options to improve indoor air quality and lower greenhouse gas (GHG) emissions.
 - » Address concerns regarding rising insurance costs due to hazards, or cancelation of insurance due to increased risk.
 - » Provide more comprehensive maps that show additional information within the incorporated cities and towns.
 - » Encourage industrial modernization projects that support State energy and climate goals, reduce environmental contamination, and support healthy working conditions.
- Multiple Elements
 - » Add more specific implementation timelines and language, especially for environmental policies.
 - » Rectify inconsistencies between Climate Action and Adaptation Plan strategies and actions and General Plan policies.

Draft Climate Action and Adaptation Plan

- Include language to monitor tree canopies and ensure effective tree replacement.
- Consider the role of artificial turf.

- Provide greater clarification on the role of offsets.
- Increase the certainty of specific commitments and provide more information regarding performance standards.
- Speed up Climate Action and Adaptation Plan implementation.
- Create an online dashboard to monitor implementation of Climate Action and Adaptation Plan strategies and actions.
- Provide more detailed descriptions of tables and charts, as these are complicated technical processes that are not always approachable for the average reader.
- Provide a more detailed explanation of the increases and decreases in GHG emissions between inventory years and forecast years.

Staff-Recommended Changes to the General Plan

Staff conducted a detailed review of the comments received on the Draft Contra Costa County 2045 General Plan. This section presents staff-recommended changes to the Draft General Plan in response to these comments. Each recommended change is presented after a reference to the comment(s) to which the change responds. Not every individual public comment is addressed. For specific comments not referenced in this memo, staff is not recommending a change in response.

This section also presents staff-recommended changes to the Draft General Plan that are based on new information that has become available since the Draft General Plan was published on October 17, 2023, as well as changes recommended by staff to clarify the content.

Changes are presented by ~~striking out~~ text to delete and underlining text to add. Other changes are described as appropriate. Changes are labeled by the page number of the corresponding text from the October 17, 2023, draft. For changes to goals, policies, actions, figures, and tables, the associated number is listed; for introductory narrative or contextual text, the section name is provided.

Please note that staff plans to update photos and captions throughout the document, but those changes are not presented in this memo, as they do not affect the substance of the General Plan. All map figure edits are discussed together at the end of this section.

VISION PAGE (AFTER TITLE PAGE)

The following change is recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club.

- All communities benefit equitably from an environmentally sustainable, prosperous, and just economy.
~~growing economy that is sustainable and just.~~

INTRODUCTION

The following changes are recommended by staff based on new information or to clarify content.

Page 1-1/Legal Authority

California ~~law~~ Government Code Section 65301 requires every county and city in the state to adopt a general plan “for the physical development of the county or city, and of any land outside its boundaries which in the planning agency’s judgement bears relation to its planning.”

Page 1-2/Legal Authority

Together with specific plans adopted for various communities, the Zoning Code and related sections of the County Ordinance Code, Climate Action and Adaptation Plan, and Objective Design Standards, the County’s General Plan serves as the basis for planning- and infrastructure-related decisions made by County staff, the County Planning Commission and other County commissions and committees, and the Board of Supervisors.

Page 1-2/User’s Guide

It was crafted with a constant eye toward keeping it clear, implementable, and useful as time passes, ~~implementable, and easy to understand~~. The graphic on the following page explains the individual components found on a typical page of the Plan ~~that provides~~ providing policy guidance.

Page 1-4/Table INT-1

Stronger Communities/Also incorporated throughout ~~all~~ most other Elements

Page 1-7/Implementing the General Plan

Long-range planning in Contra Costa County ~~does not end~~ begins with adoption of the General Plan. To achieve the community’s vision and objectives, decisions ~~about~~ on development projects, capital improvements, County programs and services, and other issues related to the physical environment must be consistent with the General Plan’s policies. ~~In addition, the~~ The implementing actions identified throughout the Plan must be carried out. Finally, the County ~~needs to~~ must monitor progress in achieving the major goals of the Plan, ~~periodically adjusting policy guidance as needed to advance those goals in response to contextual changes that may occur over the next 20 years~~ through the 2024-2045 planning period.

Page 1-8/Relationship of the General Plan to Other County Planning Documents

- The **Climate Action and Adaptation Plan (CAAP)** implements the General Plan’s policy guidance to adapt to changing climate conditions and reduce greenhouse gas (GHG) emissions. The CAAP addresses behaviors, regulations, and investment decisions that directly reduce GHG emissions or promote climate resilience and lays out an implementation and monitoring program to ensure that the County reduces GHG emissions consistent with State emissions reduction targets.

State law requires consistency between the General Plan and its subordinate implementing documents. ~~Therefore~~ Thus, when the General Plan is amended, the County must review its other planning documents and amend them as necessary to ensure consistency is maintained ~~consistency with the General Plan~~. Pursuant to State law, wherever a conflict or inconsistency exists between the General Plan and its subordinate documents, the General Plan controls and shall be followed.

Page 1-8/General Plan Action Program

The Contra Costa County DCD is responsible for maintaining the Action Program and tracking implementation progress. The Action Program is maintained as an accompanying document to the General Plan so that it can be regularly updated as actions are accomplished without the need for a formal General Plan amendment.

~~As with other County policy documents, The pace of implementation of the aActions Program ultimately is subject to dependent on the resources that the County and its partners have to carry them out available and need to must remain consistent with the County's long-term financial plans, as reflected in its annual budget.~~

Page 1-8/Header and text edit

Tracking Assessing Progress Toward Goals

Every five years over the lifetime of the General Plan, the County will track assess progress in achieving its major goals through a review of the performance measures listed at the end of each General Plan Element.

PLANNING CONTEXT

| |
|--|
| The following changes are recommended by staff based on new information or to clarify content. |
|--|

Page 2-6/Relationship Between Land Use Practices and Socioeconomic Outcomes (new image and caption)

10. The real property above described, or any portion thereof, shall never be occupied, used or resided in by any person not of the white or Caucasian race, except in the capacity of a servant or domestic employed thereon as such by a white Caucasian owner, tenant or occupant.

Restrictive covenants like this were included in the deeds to thousands of residential properties developed in Contra Costa County following World War II.

Page 2-6/The General Plan Update Process

Over the next ~~four~~ five years, the County held or participated in over ~~125~~ 150 public and community-organized meetings with residents, community advocates, stakeholders, and public officials, including:

- ~~Multiple~~ 44 meetings of the Board of Supervisors, Planning Commission, Sustainability Commission, Library Commission, Hazardous Materials Commission, Arts and Culture Commission, Sustainability Committee, Transportation, Water, and Infrastructure Committee, Aviation Advisory Committee, Historic Landmarks Advisory Committee, Aviation Advisory Committee, and all 13 Municipal Advisory Councils.
- ~~Almost~~ Over 50 community meetings, workshops, and open houses held across the county.
- Stakeholder meetings on environmental justice, community health, sustainability, and economic development.
- Native American tribal consultations.
- Over ~~230~~ meetings with various community-based organizations representing a wide range of interests in the county.

Page 2-7/The General Plan Update Process

The countywide policy framework is based on ~~a combination of guidance from the 1991 General Plan~~, input from community members and decision-makers throughout the process, State and local laws, ~~and~~ best practices in the planning field, and to a lesser extent, guidance from the 1991 General Plan.

Page 2-8/The General Plan Update Process

During the second half of 2022 and into 2023, the County refined the countywide goals, policies, and actions and prepared the remaining components of the General Plan (~~e.g., maps, context, and glossary, etc.~~). The entire completed draft General Plan, along with the draft Climate Action and Adaptation Plan (CAAP) and their accompanying draft Environmental Impact Report, were released for public review in Fall October 2023, with the review period ending in April 2024. Nearly 300 individual comments and suggestions were submitted. The County reviewed these comments and presented revised drafts of the General Plan and CAAP to the Planning Commission and Board of Supervisors during study sessions in August and September 2024.

STRONGER COMMUNITIES ELEMENT

The following change is recommended by staff based on new information or to clarify content.

Page 3-1/Introductory text

- The **Economic Vitality and Empowerment** section includes policy guidance to develop and maintain a workforce that possesses the education and skills employers need, promote living wage job opportunities, and cultivate a thriving economy that contributes to the region’s economic health.

The following change is recommended in response to a comment letter received on April 22, 2024, from Holland and Knight on behalf of the Committee for Industrial Safety.

Page 3-3/Environmental Justice

Contra Costa County is home to a high concentration of refineries and other large industrial facilities. While these industries contribute to pollution and contamination in Impacted Communities, ~~many community members also value the~~ they also provide jobs, tax benefits revenue, community investments, and local energy production they provide.

The following change is recommended in response to a comment letter received on February 12, 2024, from the Western States Petroleum Association.

Page 3-5/Policy SC-P1.1

In partnership with residents of Impacted Communities, affected workers, business/industry, environmental and environmental justice advocates, community colleges, workforce development and training entities, local government, and other involved agencies, support transition from ~~petroleum refining and other~~ highly polluting industries to a net-zero emission economy based on renewable and sustainable industries that provide living-wage jobs.

The following change is recommended by staff based on new information or to clarify content.

Page 3-5/Policy SC-P1.2

Streamline ~~the~~ permitting ~~process~~ for new development, redevelopment, and rehabilitation projects that promotes community objectives in Impacted Communities, especially as identified in the Community Profiles.

The following change is recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club.

Page 3-5/Policy SC-P1.3

Support ~~development~~ creation of walkable districts by facilitating development of ~~that provide~~ a range of neighborhood-serving retail and service uses, public amenities, and ~~related~~ essential infrastructure (such as lighting) ~~to~~ for residents of Impacted Communities within walking distance of their homes.

The following changes are recommended by staff based on new information or to clarify content.

Page 3-5/Policy SC-P1.5

Maintain a streamlined process to permit and facilitate partial and temporary street closures for community-~~driven~~ sponsored amenities and activities, such as parklets, farmers' markets, arts and cultural events, and outdoor dining, and assist applicants through the permit process.

Page 3-5/Policy SC-P1.6

For projects with potential to negatively affecting an Impacted Community, support community benefits agreements (CBAs) negotiated with the project applicant to address the community's expressed needs. The primary objective of these CBAs is to mitigate project impacts to the greatest extent possible, which could include mitigations exceeding the requirements of the California Environmental Quality Act (CEQA). Secondly, to compensate for impacts that cannot be fully mitigated, these CBAs should secure community benefits that exceed inherent project benefits and support the community's objectives, especially as identified in the Community Profile. Neighborhood-serving retail uses that fill critical needs are exempt from this policy.

The following change is recommended in response to a comment letter received on February 12, 2024, from the Western States Petroleum Association, and a comment letter received on April 22, 2024, from Holland and Knight on behalf of the Committee for Industrial Safety.

Page 3-6/Action SC-A1.1

Partner with the stakeholders identified in Policy SC-P1.1 to develop and implement a plan to transition from ~~petroleum refining and other~~ highly polluting industries to renewable, sustainable, and clean industries that provide living-wage jobs. The plan should address site remediation responsibilities along with timelines and strategies to improve health, safety, infrastructure, job opportunities, and revenue opportunities during the transition toward a net-zero-emission economy, paying special attention to developing new opportunities for

Impacted Communities to realize economic, health, educational, and other benefits, without placing a disproportionate economic burden on those with the least means.

The following changes are recommended by staff based on new information or to clarify content.

Page 3-6/Action SC-A1.2

- (c) ~~Require preparation of a plan to prevent and remediate any contaminant releases, along with bonds or other financial assurances that guarantee remediation plans are implemented, for projects in areas subject to sea level rise or tsunami inundation. This concept is addressed in Policy HS-P10.3.~~

The following change is recommended in response to a comment letter received on April 22, 2024, from Holland and Knight on behalf of the Committee for Industrial Safety and based on new information or to clarify content.

Pages 3-6 to 3-7/Action SC-A1.3

With input from residents of Impacted Communities, amend County Ordinance Code Title 8 – Zoning to create an Impacted Communities Overlay Zone that applies to areas within and adjacent to Impacted Communities, ~~and establishes requirements for discretionary permits for nonresidential developments of~~ Heavy industrial projects and commercial and light industrial projects resulting in 25,000 square feet or more of gross habitable floor area within. ~~The overlay zone will include additional be required to satisfy additional discretionary permit project findings that promote environmental justice, health, and safety, and economic prosperity.~~ Projects able to satisfy the required findings will:

- (a) Provide benefits that support the community objectives, such as those identified in the Community Profile.
- (b) Provide economic benefits, including jobs, for residents of the community.
- (c) Avoid unwelcome permanent displacement of existing residents or businesses ~~in the community.~~
- (d) Support community resiliency, cohesion, and safety.
- (e) Positively impact health and quality of life within the community.

Create guidance for demonstrating consistency with these findings ~~As part of the process to develop this ordinance, create guidance for demonstrating consistency with these findings.~~

The following changes are recommended by staff based on new information or to clarify content.

Page 3-12/Action SC-A2.1

Study the feasibility of implementing an amortization process to relocate or eliminate non-conforming land uses, with a focus on public nuisances and uses that pose threats to public health and safety.

Page 3-13/Goal SC-3

Move Action SC-A3.1 to instead be Policy SC-P3.4: Welcome establishment of medical clinics, behavioral health facilities, and pharmacies in Impacted Communities. Renumber the remaining actions accordingly.

Page 3-14/Policy SC-P4.3

Encourage urban agriculture, including urban farms and community gardens with collectively shared and managed plots, and demonstration and educational gardens operated by community organizations and

educational institutions. Allow associated, limited on-site sales, processing facilities of value-added products, and complementary agricultural activities when compatible with adjacent uses.

The following change is recommended in response to a comment letter received on April 4, 2024, from the Alameda County Water District.

Page 3-15/Policy SC-P4.4

Support programs administered by water or wastewater service providers that increase the availability of recycled water for urban agriculture and landscaping through self-fill stations and similar facilities.

The following change is recommended by staff based on new information or to clarify content.

Page 3-16/Action SC-A5.5

Study the feasibility of restricting preventing fast-food restaurants from locating near schools, parks, and other places where children normally gather.

The following new policy is recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club.

Page 3-19/Goal SC-6

New Policy SC-P6.4: Support voluntary removal of natural gas infrastructure and appliances from homes and replacement with electric appliances.

The following changes are recommended by staff based on new information or to clarify content.

Page 3-20/Action SC-A7.1

Amend County Ordinance Code Title 8 – Zoning to establish a public art requirement for new development ~~and funding mechanisms to create and maintain public art.~~

Page 3-21/Header edit

Economic Vitality and Empowerment

The following change is recommended in response to a comment letter received on March 11, 2024, from the Contra Costa Building and Construction Trades Council.

Page 3-24/Action SC-A8.1

Establish a First Source Hiring Program ~~requiring~~ encouraging developers, contractors, and employers to make good-faith efforts toward employing the local ~~construction~~ workforce to construct and operate their facilities, with emphasis on residents of Impacted Communities and those who are economically disadvantaged.

The following change is recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club.

Pages 3-24 to 3-25/Action SC-A8.2

Partner with school districts, community colleges, community organizations, large employers, trade associations, unions, and job training centers to support enhanced job-skills training, recruitment programs and services, and childcare services to support the county's workforce, especially workers in Impacted Communities. Work with experienced groups to ensure that programs will be properly staffed and funded. Training and intervention strategies should reduce barriers to employment for youth, formerly incarcerated residents, and residents with limited English proficiency, and should support a just transition from a fossil-fuel reliant economy by re-training displaced workers with skills for living-wage jobs in new, environmentally sustainable industries.

The following change is recommended in response to a comment letter received on April 22, 2024, from Holland and Knight on behalf of the Committee for Industrial Safety.

Page 3-25/Business Innovation

Enhancing Contra Costa County's success as an economic hub depends on retaining, supporting, and attracting a diverse range of businesses that will sustain the local economy despite changing market forces. Petroleum refineries have been ~~Some of the largest employers and strongest economic drivers in the unincorporated~~ county ~~have traditionally been in the petroleum refining industry, for over 100 years. but~~ While demand for refined products remains significant and will persist until replacement technologies exist for current uses, the long-term future of these large facilities is uncertain, and two of the four Contra Costa refineries have begun ~~transitioning~~ ing their operations as global and national energy trends shift toward carbon-free and renewable energy sources. Going forward, the county's economy should be centered on sustainable, clean, and green businesses and industries that provide living-wage jobs while protecting community health and the environment.

The following change is recommended by staff based on new information or to clarify content.

Page 3-27/Policy SC-P9.2

Position Contra Costa County to be a hub of production and employment for industries that spur economic growth and innovation in the transition toward a zero-emission economy.

The following new action is recommended by staff based on new information or to clarify content.

Page 3-28/Goal SC-9

New Action SC-A9.3: Nominate the Phillips 66 San Francisco (Rodeo) Refinery and surrounding industrial areas, including the site of the former Phillips 66 Carbon Plant in Franklin Canyon, as a Priority Production Area. Renumber the subsequent actions accordingly.

| |
|--|
| The following change is recommended by staff based on new information or to clarify content. |
|--|

Page 3-28/Action SC-A9.3

Evaluate commercial and industrial regulations and permitting practices on an ongoing basis to ensure that they:

- (a) Address contemporary uses and activities.
- (b) Promote compatibility between new and ~~legacy~~ existing uses.
- (c) Avoid creating unnecessary barriers that hinder economic ~~expansion~~ prosperity, investment, and sustainable growth.

STRONGER COMMUNITIES ELEMENT: COMMUNITY PROFILES

ALL PROFILES

The following global changes are recommended by staff for each Community Profile to clarify content.

Under the “Major Vulnerabilities” heading “single-access roads” should be hyphenated.

All parenthetical references to the existing General Plan and Richmond Quality of Life Plan should be removed. For example: “Encourage ~~commercial uses to be~~ neighborhood-scale ~~and commercial uses that~~ serve the needs of the community. Discourage large-scale commercial uses catering to a more regional customer base. ~~(3-117, 3-123)”~~”

The first sentence in the “Planned Land Use” section should be revised as follows: “Land use designations for [COMMUNITY NAME] are shown on Figure LU-1, General Plan Land Use Map, and ~~are~~ defined in Table LU-1 in the Land Use Element.

ALAMO AND CASTLE HILL

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

The Alamo and Castle Hill communities are located between Walnut Creek and DanvilleA, with a portion of Castle Hill within Walnut Creek’s Sphere of Influence. They communities are renowned known for their comfortable residential neighborhoods, wooded hillsides, excellent schools, well-maintained parks, and strong sense of community. ~~A portion of Castle Hill is within the Sphere of Influence of the City of Walnut Creek.~~ Alamo and Castle Hill are mostly comprised of single-family ranch-style homes on relatively large lots. However, Alamo also includes multiple-family ~~housing~~homes along Danville Boulevard south of Stone Valley Road and estates on large rural tracts.

Planned Land Use

Alamo contains an area along Danville Boulevard designated Mixed-Use Community-Specific Density, which overlaps a well-established commercial core comprised of existing uses that serve many residents' daily needs. The commercial viability of this mixed-use area is to be maintained while allowing for development of higher-density residential uses that provide a mix of housing options. Over time, ~~more diverse~~a variety of housing types may be developed, diversifying the housing stock and accommodating housing needs at different stages of life.

Guiding Principles

1. Multiple-family ~~units~~homes should generally be located within one mile of ~~the Downtown-Alamo’s~~ commercial core to provide residents access to transit, commercial services, and the Iron Horse Trail.

Policies

1. Preserve the ~~Downtown~~-Alamo mixed-use area’s role as a business district serving nearby neighborhoods. Support retention of active commercial uses and local-serving businesses while promoting new residential development.

5. Encourage ~~commercial uses to be~~ neighborhood-scale ~~and commercial uses that~~ serve the needs of the community. Discourage large-scale commercial uses catering to a more regional customer base. ~~(3-117, 3-123)~~

The following change is recommended in response to a comment letter received on March 26, 2024, from the Alamo Improvement Association as well as to clarify context.

Policies

6. Maintain Danville Boulevard and Stone Valley Road as two-lane roadways outside of Alamo's business district. Support ~~infrastructure and roadway improvements, including potential projects and strategies that improve safety and traffic flow, such as~~ turn lanes ~~and other strategies to improve traffic flow.~~

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Policies

10. Require ~~new~~ commercial, multiple-family residential, and mixed-use projects along or near the west side of Danville Boulevard to provide unobstructed bicycle/pedestrian paths and public access to the Iron Horse Trail whenever feasible.

11. Require commercial, multiple-family residential, and mixed-use projects in ~~the Downtown~~ Alamo's commercial core to enhance the streetscape; emphasize pedestrian orientation, safety, and amenity; and provide outdoor civic space for gathering and entertainment.

Actions

1. Assist with a community-led process to create design guidelines and standards for new development that complement the County's Objective Design and Development Standards and aim to further enhance community character and preserve historic landmarks.

~~3. Proactively address hazards on County-owned land, including removing dead trees, trimming healthy trees, preserving creeks and natural resources, and encouraging planting of native trees.~~

5. Assist ~~with~~ community-led processes to develop congestion management plans for problem areas, including areas near schools and along local streets that are used for cut-through traffic. ~~The planning process should~~ Engage the Sherriff's Office in the planning process to promote effective traffic enforcement.

ALHAMBRA VALLEY, RELIEZ VALLEY, AND BRIONES

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

Alhambra Valley, Reliez Valley, and Briones are small communities that value their ~~close~~ proximity to open space, rolling hills, wildlife, and ~~seasonal~~ creeks. The three communities are situated in central Contra Costa County and border Briones Regional Park and watershed lands owned by East Bay Municipal Utility District land. Portions of Alhambra Valley and Reliez Valley are in the Spheres of Influence of the cities of Martinez and Pleasant Hill, respectively. Land uses primarily consist of ranches, small-scale agriculture, and low- or very-low-density housing.

Given the relatively isolated location, residents are concerned about access to emergency services and safety. Timely Roadway maintenance is essential, as collapses have occurred and there are many unmet road repair needs, which must be addressed given the heightened need for emergency access is crucial in a high-fire-risk area. The communities are proud of/appreciate Fire Station #19 and excited about its recent reopening the services it provides. ~~However, r~~Residents are still concerned, however, about the lack of telecommunication services and communication reliability during an emergency.

Major Vulnerabilities

Agricultural operations in Briones and Alhambra Valley are vulnerable to damage from agricultural pests and diseases.

Planned Land Use

Each community ~~has been~~is planned to maintain existing low- ~~or~~and very-low-density residential uses, surrounded by rural agricultural lands, resource conservation, and parks and recreation areas. There are no commercial areas planned in Alhambra Valley, Reliez Valley, or Briones. The Land Use Map envisions that As most of the land in these communities is outside the Urban Limit Line, new development will either enhance and diversify existing agricultural uses or serve and accommodate the community's existing population there will not be a substantial increase in density or introduction of urban uses.

Guiding Principles

3. The diversity of existing agricultural uses in the region, including from vineyards to ranching, should be supported.

Policies

1. Continue adhering to the Briones Hills Agricultural Preservation Area compact, which states that the surrounding jurisdictions (Contra Costa County and the cities of Martinez, Pleasant Hill, Walnut Creek, Lafayette, Orinda, Richmond, Pinole, and Hercules) voluntarily agree not to annex any lands within the 64-square-mile area for the purposes of allowing urban development (see Figure LU-5). This rural area includes large properties owned by the East Bay Municipal Utility District and East Bay Regional Park District, which respectively are designated Resource Conservation and Parks and Recreation on Figure LU 1, General Plan Land Use Map. The remaining properties are used primarily for grazing cattle and are designated Agricultural Lands.

2. Require new development to be consistent with the community's communities' rural character in terms of massing and scale.

3. Prioritize roadway infrastructure maintenance and improvement, especially repair of collapsed roadways. Ensure roads are adequately maintained to provide for emergency access and evacuation.

4. Support ~~and promote the~~ expansion of transportation services, affordable housing, and health resources for the communities' growing senior population.

5. Support and encourage increased establishment of reliable community-wide internet access and telecommunication services.

6. Encourage the Contra Costa County Fire Protection District to Mmaintain Fire Station 19 and adequate fire protection services, particularly to protect from wildfire hazards.

7. Support efforts to have portions of Alhambra Valley/Briones recognized as an American Viticultural Area.
(New Policy)

BAY POINT

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

Originally bordered by a large swath of tule marsh, Bay Point was settled for ranching in the 1800s. It became a lumber manufacturing and distribution port in the early 1900s. The area's prime location along the Southern Pacific Company's transcontinental railroad tracks and the deep water of Suisun Bay facilitated shipment of raw materials and products by ~~both~~ land and water, spurring quick economic growth in the community.

Today, most of the community consists of single- and multiple-family ~~residential uses~~ homes. While there are some commercial uses in Bay Point, primarily along the major thoroughfares of Willow Pass Road and Bailey Road, ~~local~~ neighborhood-serving amenities are limited. The Bay Point ~~waterfront shoreline~~, meanwhile, has mostly reverted to a fairly natural state, retained its though a marina and some industrial character uses remain.

In 1993, the community voted to be renamed from "West Pittsburg" to "Bay Point" to solidify its identity as separate from the City of Pittsburg to the east, though the community remains within Pittsburg's Sphere of Influence.

The ~~nearby Pittsburg/Bay Point~~ BART ~~s~~Station is an important node for the community, as well as a key development opportunity. BART provides many residents with an essential regional transportation link to jobs in Concord, Walnut Creek, and beyond.

Major Vulnerabilities

The Amtrak line, neighborhoods connected by single-access roads, the library, and ~~the~~ fire station are vulnerable to coastal flooding.

The Amtrak line, neighborhoods connected by single-access roads, the library, Pittsburg/Bay Point BART ~~stop~~, and commercial buildings are vulnerable to sea level rise.

Impacted Community

This law is based on the understanding that some communities have experienced a combination of historic discrimination, ~~negligence~~ neglect, and political and economic disempowerment.

While there are multiple Census tracts that make up Bay Point, this chart presents only the most-impacted Census tract in Bay Point the community.

Water quality has long been a concern among Bay Point residents. In the last decade, relatively high levels of disinfection byproducts were identified in the drinking water. After strong community advocacy, the local private water company began purchasing treated water, and today the water company is compliant with all water quality standards. ~~However, residents still cite concerns about bad tastes and odor in the water.~~

Planned Land Use

Bay Point includes a variety of land uses. Most of the community is planned for continued residential uses at a variety of various densities. Over 200 acres toward the center of the community are designated for industry to encourage job-generating uses to locate here. Most of the land along the waterfront north of the railroad tracks is designated for

protection, though McAvoy Harbor is designated for commercial recreation and medium-density residential development surrounded primarily by park, conservation, public, and industrial uses. Hillside areas defining the west end of the community will be preserved through Public and Semi-Public, Resource Conservation, Parks and Recreation, and Agricultural Lands designations.

The Land Use Map envisions Willow Pass Road and the areas around near the Pittsburg/Bay Point BART Station are envisioned as transitioning into a denser and more vital vibrant community nodes. This vision will be accomplished by creating three distinct mixed-use areas, each with a slightly different character. The three mixed-use areas share a common set of design principles intended to create a more walkable, pedestrian-friendly environment. Key principles include allowing varied setbacks, encouraging new buildings to be located close to the street frontage, and locating surface parking to the rear of the buildings rather than in the front. The text to the right provides a summary of the three mixed-use areas and the vision for each.

Willow Pass Road Corridor

The mixed-use area along Willow Pass Road is envisioned as a unified, well-designed corridor, with new mixed-use development and improved services that acts as the heart of the community. Public and private improvements in this area will stimulate reinvestment. The area will should incorporate a range of residential, neighborhood shopping commercial, residential entertainment, and office and civic uses, with parking located behind commercial uses along Willow Pass Road. Landscaping, signage, public art, and other amenities will establish a sense of place and enhance the pedestrian experience. Because the corridor is nearly two miles long, development of smaller nodes within the node is encouraged.

Bailey Road Urban Center

This mixed-use area north of the Highway 4/Bailey Road interchange aims to create a more unified and vibrant urban center offering a mix of uses at a compact and walkable scale. Multiple-family residential development proximate to employment uses and services is highly encouraged desired. This area should develop into a pedestrian-oriented district serving residents who live nearby, with access to quality local and regional transportation.

Pittsburg/Bay Point BART Station Area

This mixed-use area south of the Highway 4/Bailey Road intersection is planned for dense residential development that takes advantage of the area's proximity to the BART Station and Ambrose Park. Limited commercial uses are secondary to residential development and should provide goods and services to commuters, neighborhood residents, and visitors to Ambrose Park. The Pittsburg/Bay Point BART Station Area Specific Plan (2002) is still remains in effect and provides more detailed guidance for this area.

Guiding Principles

2. The entire community should enjoy streetscapes and open spaces that are free from abandoned cars, debris, and litter, with ample street lighting to improve visibility and safety when walking at night.

7. Bay Point's waterfront north of the railroad tracks should be developed with water recreation and commercial uses while ensuring greater resilience to near- and long-term hazards associated with sea-level rise.

8. Park and recreation facilities should be made safe and inviting to residents and families through quality amenities and ongoing maintenance. The ARPD should have the funding it needs to enhance park and recreation services, including improving the community center and Ambrose and Lynbrook Parks and establishing a new community-oriented park, potentially in Shore Acres.

9. ~~The~~ Agencies that provide community services should coordinate efforts to maximize effectiveness and reach all those who need their services.

Policies

1. Ensure ~~that land use and new~~ development projects ~~will~~do not create negative impacts such as increased toxic exposure, a net loss of affordable housing, or ~~the~~permanent displacement of residents and local legacy businesses ~~that are valued by the community.~~

2. Coordinate with the Housing Authority of Contra Costa County, affordable housing developers, and other organizations to transition vacant and underutilized land into affordable rental and ownership housing that serves Bay Point's diverse population, ~~including single people, couples, families, youth, seniors, and people with disabilities.~~

4. ~~Proactively enforce County codes to~~Support community beautification and safety, curb illegal dumping, improve trash collection, and remove graffiti. Encourage improved community appearance through graffiti removal, improved trash collection litter reduction, street and sidewalk maintenance, abatement of illegal dumping, and code enforcement.

6. Encourage development of neighborhood-oriented shopping and services ~~to be developed, especially~~ within walking distance of housing.

7. ~~Actively seek and incentivize commercial development, including grocery stores, on vacant lots near the BART station while avoiding concentrating all development along Willow Pass Road.~~

8. Encourage assembly of parcels in medium- ~~or~~and higher-density residential areas to allow for higher-quality, denser residential development, ~~including adequate infrastructure for drainage and traffic.~~

9. Minimize the number of streets and driveways intersecting or entering Willow Pass Road by using secondary roads, assembling frontage parcels, using shared access on abutting properties, and ~~for~~ other approaches.

12. ~~Engage with schools, non-profit organizations, and faith-based organizations to recognize and work with at-risk youth to support their meaningful growth.~~

13. ~~Support healthy relationships between the community and law enforcement.~~

15. ~~Encourage existing liquor stores, convenience stores, and ethnic markets to stock fresh produce and other healthy foods.~~

Actions

1. ~~Clean up major~~Implement strategies to curb illegal dumping, ~~sites particularly~~ at Port Chicago Highway and Driftwood Drive, and along Pullman Avenue and Suisun Avenue ~~and pursue stricter enforcement with higher penalties and improved regulation.~~

2. Conduct education and outreach to inform residents about proper waste disposal opportunities beyond curbside trash and recycling collection. ~~Promote vehicle donation opportunities for unwanted vehicles.~~

3. Prepare and implement streetscape plans for Willow Pass Road, Bailey Road, and other major streets that include protected bike lanes, speed bumps, stop signs, ~~cameras,~~ upgraded sidewalks (including widening and closing gaps), street trees, and landscaping to slow traffic and enhance transit corridors. Streetscape plans should also address on-street parking, traffic movements, and transit facilities. ~~If appropriate, r~~Revise precise alignment plans for consistency with to facilitate the streetscape plans wherever necessary.

4. Install pedestrian-~~scale~~ lighting throughout the community to enhance safety and deter crime.

5. Work with BART, Tri-Delta Transit, and County Connection to:

- a. Improve ~~the~~ coordination of bus and BART arrival and departure times.
- ~~c. Extend first- and last-mile services with micro-mobility infrastructure for BART commuters.~~

6. When coordinating with the ARPD, highlight the following goals identified by the community:

- ~~c. Locate facilities to ensure visibility along public roadways where appropriate.~~
- c. Improve the community center and Ambrose and Lynbrook Parks.
- d. Establish a new community-oriented park, potentially in Shore Acres.
- d. Provide clear access points to their facilities.
- g. Install more lighting to improve visibility and safety.

7. Use the County's outreach platforms to promote available park and recreation services and programs, based on information provided by the ARPD.

9. Work with the community to ~~create~~ a mural or public art program to provide a positive alternative and deterrent to graffiti.

~~10. Conduct outreach about the negative effects of old pipes and water fixtures on water quality in older homes.~~

BETHEL ISLAND

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

The community may support limited job-generating uses, also but seeks to retain and enhance local agricultural vibrancy and character. ~~The community is strongly opposed to development of heavy industrial uses but is amenable to a limited amount of light industry.~~

Planned Land Use

The majority of Bethel Island is planned to preserve its rural ~~open space~~ agricultural character ~~and while supporting and enhancing~~ local tourism businesses and water-oriented recreation. Most of the area is designated ~~for~~ Agricultural Lands, Commercial Recreation, and Resource Conservation uses. The commercial core of Bethel Island is located along Bethel Island Road and supports public, recreation, and residential uses. This core is envisioned to expand east along Gateway Road to allow for more retail uses, increased parking, and community events, enhancing community character and vibrancy. The perimeter of the island will continue to host most of the community's ~~residential neighborhoods~~ residences.

Guiding Principles

3. To maintain a safe community, public services such as the Contra Costa County Fire Protection District and Sheriff's Office should be supported and enhanced.

Policies

3. Encourage rehabilitation of distressed properties, including by improving aging structures and reducing vegetation overgrowth, ~~both~~ on land and along waterways.

4. To the extent permitted by State law, limit new residential development to already-approved development and one dwelling unit per legal parcel.
5. ~~Do not approve~~ Deny requests for General Plan Amendments that would increase residential density unless at least the following are accomplished:
 - b. ~~The~~ Levee improvement plans are approved by the Bethel Island Municipal Improvement District (BIMID) and ~~the~~ US Army Corps of Engineers.
6. Prohibit levee breaches unless the entire perimeter levee is improved to US Army Corps of Engineers standards.
7. Require that any new internal levees meet US Army Corps of Engineers standards.
8. Require ~~that~~ new construction to be set back from levee centerlines a minimum of 100 feet unless adequate substantiation for reduction of the setback is approved by Reclamation District 799 or BIMID.
9. Require ~~that~~ any new construction that is not protected by certified levees to meets FEMA flood protection standards.
10. ~~Establish Bethel Island Road between Dutch Slough and Gateway Road, and Gateway Road between Bethel Island Road and Piper Road, as the community's commercial core.~~

The following changes are recommended to Action 2, which would be moved to the Policies section as Policy 10, in response to a comment received via Konveio on January 24, 2024, from Dan Muelrath, Diablo Water District.

~~Action 2~~ Policy 10. Encourage the ~~Support~~ Diablo Water District's efforts to examine the feasibility of annexing consolidate independent water mutuals on Bethel Island into their service area to improve access to a reliable source of water for fire protection services and general consumption and extend service island-wide. (New Policy moved from Action 2.)

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with Countywide goals, policies, and actions.

11. Encourage establishment and growth of locally--serving businesses that fulfill the needs of Bethel Island residents.
13. ~~Prioritize~~ Coordinate with the City of Oakley to implement roadway improvements ~~to that~~ reduce traffic congestion on Bethel Island and directly connected public roads. Incorporate pedestrian, bicycle, and stormwater infrastructure improvements ~~when feasible~~ to improve safety and facilitate mobility throughout the island and onto the mainland.

Actions

2. ~~Encourage the Diablo Water District to examine the feasibility of annexing Bethel Island into their service area to improve access to a reliable source of water for fire protection services and general consumption.~~ (Revise Action 2 and move to be Policy 10.)
3. Work with the California Department of Boating and Waterways to improve signage along waterways to minimize boat wakes and reduce accidents.
4. Work with the community to ~~Explore~~ determine the feasibility of establishing a centralized parking area in the commercial core.

The following new action is recommended in response to a comment received at the Bethel Island MAC meeting.

5. Study the feasibility of providing additional evacuation options, including by boat.

BYRON

The following changes are recommended by staff based on new information or to clarify content. Some edits are in response to comments received at the Byron MAC meeting.

Context

Located near the eastern edge of the county, Byron is an agricultural community that prides itself on its rural roots. The area's fertile soil supported its initial settlement as a farming center. In 1878, Byron was the site of a new Southern Pacific railroad line that allowed the community to quickly expand. Early Byron attracted visitors from across the nation to the renowned Byron Hot Springs. This resort featured warm mineral pools and luxury accommodations prior to its closure ~~during~~just prior to World War II. In 1994, the County opened Byron Airport, providing opportunities for general aviation and recreational flight operations.

~~Now an established community,~~ Residents enjoy the area's respite from busy city life, preferring Byron's small-town nature, though some have indicated that increased noise is an issue. Businesses in Byron are generally concentrated in the downtown along Camino Diablo, ~~and the~~ Byron Highway, and Main Street. However, business development and retention has been challenging. The County's Urban Limit Line (ULL) prohibits ~~growth~~intense development outside of Byron's core area, preserving this land for farming and open space. Residents identify the surrounding agricultural land as a part of their community, although a lack of trail connections prevents residents from accessing potential recreational benefits. While growth is constrained by the ULL, traffic through the community to nearby cities has continued to grow, impacting local roads and safety. Key roadway projects, like ~~the~~ State Route 239 and the Vasco Road-Byron Highway Connector ~~project~~, may improve connections and accommodate increased traffic throughout the area. Community members in Byron are also concerned about housing affordability and homelessness.

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Major Vulnerabilities

~~The~~ Byron Airport is vulnerable to coastal flooding, extreme heat, flooding, and severe storms.

~~The~~ Byron Highway is vulnerable to coastal flooding, flooding, extreme heat, and severe storms.

Planned Land Use

Land use designations for Byron are shown on Figure LU-1, General Plan Land Use Map, and are defined in the Land Use Element. ~~Downtown Byron, which encompasses the triangle-shaped area bounded by Byron Highway, Camino Diablo, and Holway Drive, is designated for Mixed Use, allowing business uses that both manufacture and sell goods and services, particularly those that exemplify the historic and agricultural roots of the community. Residential uses will also continue in parts of this downtown area. Most of Main Street is designated Mixed-Use Low Density to promote development of vacant and underutilized lots, ideally with residences above street-level businesses planned primarily for commercial uses that support redevelopment, provide a wide array of services for that support residents, and boost local tourism. Commercial and other light industrial uses are allowed at between Byron Highway's major intersections with Holway Drive and Camino Diablo. Outside~~ Around the downtown area and commercial core, but within the Urban Limit Line (ULL), the Land Use Map indicates continued residential uses will continue at a variety of varying densities, as well as along with public and airport-related uses around the Byron Airport to the south.

Beyond the ULL, ~~the map indicates continuation of the agricultural, open space, recreation, and public uses that already exist~~will continue, along with potential development of renewable energy facilities.

Guiding Principles

6. Regional travel should be improved through projects like the Vasco Road--Byron Highway Connector ~~Road project~~.

Policies

1. Encourage ~~business~~commercial development that supports a full range of services for residents and is tailored to Byron's small-town character, ideally celebrating the historic and agricultural roots of the community.

3. ~~Attract small businesses and facilitate~~Support efforts to organize community events downtown.

4. Maintain ~~and effective code enforcement and regulations~~implement strategies to curb illegal dumping and littering.

6. Support agriculture, including animal keeping and raising, as an important part of Byron's history and character.

7. Encourage CCTA to prioritize the completion of the Vasco Road--Byron Highway Connector ~~Road project~~.

8. Address traffic conflicts and safety concerns around U-Pick areas, including along Marsh Creek Road, Vasco Road, and Walnut Boulevard, with consideration given to agricultural equipment on roads.

9. Ensure that ~~new development projects~~does not conflict with potential alignments for the Vasco Road--Byron Highway Connector Road, and State Route 239 projects, as shown in Figure TR-3, Roadway Classifications, in the Transportation Element. Work with project applicants avoid placing permanent buildings and structures within the potential alignments.

10. Support community-led efforts to establish a community services district to provide basic services to Byron.

Actions

2. Adopt zoning regulations that provides more flexibility for downtown development, including relaxing parking requirements when street parking is available and expanding allowed uses to include light manufacturing for businesses that ~~both~~ manufacture and sell products on-site.

3. Install sidewalks and bikeways with ~~street trees~~, signage, and crosswalks that connect downtown Byron to Byron Park and Saint Anne Church.

4. ~~Install and maintain~~ street trees in downtown Byron to support walkability and provide a more vibrant downtown atmosphere.

5. Study the feasibility and need for traffic calming along Byron's major roadways.

6. Upon completion of the Vasco Road-Byron Highway Connector ~~Road~~, designate a truck route to separate truck traffic from other modes of transportation, including around U-Pick agricultural areas, such as along Marsh Creek Road, Vasco Road, and Walnut Boulevard.

7. Work with local and regional stakeholders, such as East Bay Regional Park District, to develop a trails plan that provides local and regional trail connections for Byron, including trails that connect to local destinations like Byron Hot Springs and trails that provide regional connections to recreational and commute destinations. As part of the planning process, consider potential recreational re-use along railroad rights-of-way as well as strategies to effectively communicate trail information to the public. ~~(3-76)~~

CANYON

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

At the time California became a ~~S~~state, there were more registered voters in Canyon than in other East Bay precincts.

In the 1950s, East Bay Municipal Utility District (EBMUD) acquired much of the land for watershed protection and tore down many homes.

Major Vulnerabilities

Children and seniors are vulnerable to extreme heat, human health hazards, and wildfire.

Policies

4. Support establishment of reliable community-wide internet access and telecommunication services.

Actions

The following new action is recommended in response to a comment received at an open house engagement event.

10. Work with the Central Contra Costa Solid Waste Authority (RecycleSmart) to incorporate Canyon into its service area.

CLYDE

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

Clyde is located 3 miles from downtown Concord on the east side of the Port Chicago Highway, north of Highway 4. The community is entirely within the County's Urban Limit Line and the City of Concord's Sphere of Influence, ~~and Clyde is also included in the Concord General Plan, although Concord has no plans to for annexation Clyde at this time.~~

Clyde's future was imperiled by the 1944 Port Chicago explosion and subsequent decline of the Port Chicago community. Following the closure of the shipyards, Clyde became a residential enclave surrounded by industrial and military uses. While these uses isolated Clyde from Concord and Bay Point, they also contributed to its strong sense of identity. The community added about 70 homes during the 1990s in the Clyde Commons subdivision, but otherwise has remained ~~stable static~~. There are a few small parks, a community center, and roughly 370 homes. County Service Area M-16 maintains Clyde's parks, recreation areas, and landscaping.

Impacted Community

This law is based on the understanding that some communities have experienced a combination of historic discrimination, ~~negligence~~ neglect, and political and economic disempowerment.

Major industrial facilities near Clyde include the ~~Martinez Refinery Company~~ Marathon Refinery, the Contra Costa Hazardous Materials disposal facility, and ~~the~~ Military Ocean Terminal – Concord (MOTCO). Residents have raised

concerns about foul odors coming from the refinery along with poor air quality caused by heavy industrial land uses. Also among the top concerns for residents are the lack of affordable housing in the area and the resulting increase in homelessness, lack of access to nearby open space, and poor drainage near Port Chicago, resulting in standing water and associated health risks, including mosquitos.

Planned Land Use

~~This community is primarily residential, with a handful of light industrial parcels at its southern edge. Most of the community is planned for continued residential use at a density consistent with existing development. This community is primarily residential, with a handful of light industrial parcels at its southern edge. Heavy industrial lands directly west of Clyde are buffered through an open space designation along the west side of Port Chicago Highway. A greenway and Port Chicago Highway separate Clyde from light industrial lands immediately to the west. A wide area designated for resource conservation provides additional buffer from heavy industrial uses farther west; this buffer zone is intended to remain undeveloped. Directly east of Clyde are the Contra Costa Canal and large agricultural parcels owned by the United States government and private landowners. These lands, characterized by primarily by undeveloped rolling hills, are planned to remain in public and agricultural use.~~

Guiding Principles

4. Clyde residents should be safe and healthy while living adjacent to ~~both~~ heavy industry and MOTCO. Risks from industrial or military accidents and exposure to air pollutants and odors should be monitored and mitigated.

Policies

2. Expand access to local and regional parks and recreational facilities, such as the Delta de Anza Regional Trail and ~~future Concord Hills~~ Thurgood Marshall Regional Park.

Actions

1. Establish a comprehensive, long-term strategy that coordinates efforts from ~~all~~ various regulatory agencies to mitigate the impacts of surrounding uses on the community, both acute and long-term.

3. Coordinate with East Bay Regional Park District and Contra Costa Water District to enhance Clyde's bicycle and pedestrian connections to local and regional trails and open spaces. This ~~should~~ may include a bikeway along Port Chicago Highway connecting to the countywide bicycle network or a bicycle and pedestrian path along the Contra Costa Canal that provides a future connection to Thurgood Marshall Regional Park.

4. Work ~~with the Public Works Department~~ to improve maintenance of County parks in the vicinity of Clyde.

5. Encourage tree planting, and beautification projects, ~~and a bicycle and pedestrian path along the Contra Costa Canal, including a future connection to Concord Hills Regional Park.~~

CONTRA COSTA CENTRE

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

Situated between Pleasant Hill, Walnut Creek, and Concord, and divided among the Spheres of Influence of each. Contra Costa Centre is a bustling transit center adjacent to the Pleasant Hill/Contra Costa Centre BART station. The community has a diverse mix of land uses ranging from low-density single-family homes to very high-density multi-family ~~uses~~ homes and BART-oriented mixed-use. The community's vision is to be a cutting edge, mixed-use

neighborhood that serves all types of households and provides convenient services, safe outdoor public spaces, and multiple transportation choices. In particular, residents support more transit-oriented infill development that is concentrated and sustainable, addressing the growing need for regional transit. The community enjoys living within walking distance of restaurants and outdoor gathering spaces ~~or~~ and parks, and would like its walkable, mixed-use character to be enhanced.

The Iron Horse Trail runs north-south through Contra Costa Centre and provides opportunities for high-quality outdoor recreation. Residents use this trail for a ~~wide~~ variety of trips ranging from active commutes to family outings. Connecting parks, schools, and transit with a network of trails is a high priority for Contra Costa Centre residents. ~~In addition,~~ Traffic safety is also a primary concern. Residents support changing the streetscape to slow traffic while enhancing transportation options.

Planned Land Use

Land use designations for Contra Costa Centre are shown on Figure LU-1, General Plan Land Use Map, and are defined in the Land Use Element. Contra Costa Centre aims to be a model for mixed-use, transit-oriented neighborhoods, while maintaining and enhancing its identity as a safe, family-~~friendly~~, walkable community. ~~An~~ The new and expanded ~~Mixed-Use High Density area designation will attract~~ provides more opportunities for innovative infill development and further improves connectivity to BART, ~~and nearby trails, and the community's multiple uses.~~ Beyond the mixed-use area, the map indicates continuation of ~~Residential uses~~ will continue at a variety of varying densities beyond the mixed-use area, along with new transit-oriented infill development.

Guiding Principles

1. Residents of Contra Costa Centre enjoy convenient access to public transit through the BART ~~s~~Station and numerous bus ~~lines~~ routes. This access to public transit provides an easy alternative to automobile travel and access to the rest of the Bay Area from within their own neighborhood.

Policies

- ~~1. Support innovative mixed-use projects.~~
- ~~2. Support density increases along major thoroughfares.~~
3. Expand and improve bicycle network connectivity to increase safety and access to public transit and minimize collisions with automobiles.
4. Prioritize local-serving retail and community-focused land uses, such as restaurants and farmers' markets.
- ~~5. Require new development to provide walkable, pedestrian-scale streetscapes.~~

~~Policy 6~~ Action 2. Facilitate ~~Encourage~~ installation of facilities that support sustainability, ~~le infrastructure~~ such as zero-emission vehicle charging and fueling infrastructure, bike repair stations, and other green amenities ~~as they become available.~~ *(Revise Action 2 as shown and move to be Policy 6.)*

8. Promote a station area appearance ~~which will~~ that projects a positive image and ~~have~~ has high regional and local identity.

Actions

1. ~~Improve~~ Evaluate traffic signal operations at the intersection of Las Juntas Road and Oak Road and correct any identified deficiencies.

2. Facilitate installation of sustainable infrastructure such as zero-emission vehicle charging and fueling infrastructure, bike repair stations, and other green amenities as they become available. (Revise Action 2 and move to be Policy 6.)

2. Update the Pleasant Hill BART/Contra Costa Centre Specific Plan and consider expanding the Specific Plan area to include all land within one-half mile of the BART property. (New Action)

CROCKETT

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

Crockett is located on the south side of the Carquinez Bridge, at the mouth of the Carquinez Strait just east of San Pablo Bay. The town has a colorful history and eclectic character. It is best known as the home of the C&H Sugar Refinery, which has been in operation since 1906. Crockett was a “company town” during the refinery’s boom years in the early and mid-1900s. Today, the town is home to about 3,000 residents. Its picturesque waterfront setting and relative affordability have attracted a large population of artists. Crockett is home to ~~two~~ museums, two regional parks, a middle school and high school, and a historic downtown business district along Pomona Street and 2nd Avenue. In hillside residential neighborhoods, quaint homes on small lots boast sweeping views of the strait. ~~In addition to the C&H Sugar refinery,~~ The community is also close to and affected by heavy industrial uses west of Interstate 80, including the Phillips 66 Refinery and NuStar Energy storage facility.

Major Vulnerabilities

People and facilities throughout Crockett face significant risks of wildfire, including threats of injury, property loss, and high air pollution from smoke.

Households in poverty are among the most vulnerable to seismic hazards.

Impacted Community

This law is based on the understanding that some communities have experienced a combination of historic discrimination, ~~negligence~~ neglect, and political and economic disempowerment.

While there are multiple Census tracts that make up Crockett, this chart presents only the most-impacted Census tract in Crockett the community.

Some of the factors that contribute to Crockett’s identification as an Impacted Community relate to its industrial roots – ~~both~~ past and present. The Selby Smelting and Lead Company, operated as a metal smelting and refining plant into the 1970s, polluted land and accompanying groundwater ~~north of the bridge~~ with slag that contains arsenic, lead, cadmium, and other compounds. Remedial efforts in previous decades protected residents from direct site exposure but did not fully prevent slag from leaching into ~~the San Pablo Bay~~. Full remediation plans, overseen by the California Department of Toxic Substances Control, are underway to protect groundwater, preserve aquatic habitats, and prevent human exposure to these toxic substances.

Near the Selby site, NuStar Energy leases land previously owned by the Wickland Oil Company, where petroleum products were released ~~at the site~~ through the 1980s. The site currently stores petroleum products from nearby refineries before transfer to gas stations and other consumers. Fires at the storage facility in 2019 required Crockett residents to “shelter in place” and put the community at risk of evacuation and toxic airborne particulates.

Planned Land Use

Land use designations for Crockett are shown on Figure LU-1, General Plan Land Use Map, and are defined in the Land Use Element. The heart of Crockett is the downtown business district along and north of Pomona Street, from 1st Avenue to ~~This area wraps around John Swett High School, encompassing the library to the north, and connecting~~ to a secondary business district extending east along Loring Avenue facing the waterfront. These areas are ~~intended for designated~~ Mixed-Use Community-Specific Density ~~projects to facilitate the creation of a town center, retain the integrity of existing development, and in recognition of~~ the historic mix of ground floor commercial uses, upper story apartments, and small multiple-family residential, office, and civic buildings. Residential neighborhoods are planned for ~~a densities~~ range from 53 to 360 units per net acre, which is consistent with the existing development pattern, with higher density uses located is highest adjacent to the ~~Mixed-Use designation areas to support the business district and decreases as distance from downtown and elevation increase.~~ New development is planned to ~~continue the existing~~ follow this development pattern that mixes residential and open space uses. Areas ~~to the west~~ around the base of the Carquinez Bridge are ~~planned for designated~~ Light Industrial and Commercial Recreation ~~uses in recognition of existing uses and to revitalize the marina area and improve access to the waterfront.~~

Guiding Principles

7. Public facilities and amenities in Crockett, including regional parkland, ~~community~~ local parks and open spaces, schools, and the Crockett Community Center, should be preserved and enhanced. Open spaces should be inviting, clear of trash and debris, support community health and wellness, and serve as classrooms for outdoor education.

Policies

1. In mixed-use areas, ~~preserve adequate square footage of commercial uses to meet the daily needs of the community. Support~~ development of a thriving and diverse local economy with thriving small and local-serving neighborhood-scale businesses to serve the daily needs of the community while promoting new residential development.
2. ~~Maintain~~ Respect Crockett's historic context and maintain its unique character while removing barriers to economic vitality, making the housing stock more resilient and sustainable, and creating new and diverse housing opportunities.
3. Coordinate with the C&H Sugar ~~Refinery~~ to ensure that plans for future use of its properties are consistent with the community's vision for long-term growth.
4. ~~Encourage~~ Support improved community ~~appearance~~ beautification and safety through graffiti removal, litter reduction, street and sidewalk maintenance, abatement of illegal dumping, and effective code enforcement.
7. ~~Consider height and density increases downtown, provided historic context is respected.~~
8. ~~Exempt adaptive reuse or re-tenanting of older downtown buildings from compliance with off-street parking requirements when appropriate. Acknowledge that Crockett's historic development pattern may preclude compliance with various zoning regulations, such as setback and off-street parking requirements, and enforce such regulations accordingly.~~
9. Support efforts to ~~Elevate~~ Crockett's role in the Bay Area as a regional hub for arts and culture, and strongly encourage galleries, artists housing, performance space, special events, and other activities that support the arts as an important part of local identity.
10. ~~Generally preserve~~ Maintain public views of Carquinez Strait, San ~~Francisco~~ Pablo Bay, and other defining natural elements of the local landscape to the greatest extent possible. Encourage new construction that enriches scenic quality of the community.

12. Support the long-term preservation of hillsides, ridgelines, and canyons around Crockett, which are essential to the community's scenic beauty and character and serve as green infrastructure that supports stormwater management, water quality, and climate change strategies. Prohibit extreme topographic modification, such as filling in canyons and removing hilltops.

13. ~~Encourage clustering and planned unit development on hillsides as a means of preserving open space.~~

14. ~~Work Partner~~ with East Bay Regional Park District (EBRPD) and other large landowners to improve non-motorized trails in the Crockett area, including a potential bike lanes trail to Rodeo and Port Costa, and provide better access for hikers from Crockett to the Bull Valley Staging Area and Carquinez Strait Regional Shoreline Park.

Actions

1. Assist a community-led process to develop design guidelines for Crockett that complement the County's Objective Design and Development Standards and are tailored to the unique setting, historic fabric, lot patterns, design character, and mix of uses in the community.

2. Update the Historic Resources Inventory to ~~add structures that may not have been considered historic at the time of the last inventory~~ include Crockett's historically significant buildings and sites. Include information on nearby legacy communities such as Selby and Tormey.

3. Work with the community to ~~D~~develop an economic development strategy aimed at attracting retail, restaurants, grocers, services, and locally-owned and independent businesses.

4. ~~Improve waterfront access, including access to the shoreline from Crockett and lateral access along the shoreline itself.~~ Work with the State Lands Commission, EBRPD, and other agencies Union Pacific Railroad to improve waterfront access, including lateral access along the shoreline itself, provide new amenities along the shoreline, improve pedestrian and bicycle crossings of the railroad, and encourage water-oriented business and commercial activities that enhance Crockett's identity as a waterfront community.

5. Work with the community to ~~D~~develop a communitywide parking management plan that addresses downtown parking and residential street parking.

6. Close sidewalk gaps ~~and improve pedestrian mobility~~ throughout downtown and around schools.

7. Maintain truck routes to limit industrial traffic on Crockett streets and enable safer, more efficient road operations.

8. Work with the West Contra Costa Transit Authority, Caltrans, and Amtrak to improve transit connections between Crockett and other communities, potentially including a rail stop on the Amtrak/Capitol Corridor. ~~In addition, encourage transit agencies to improve transit signage and waiting areas.~~

9. Study the feasibility of providing bicycle lanes between Crockett and Rodeo.

DIABLO

| |
|--|
| The following changes are recommended by staff based on new information. |
|--|

Context

In ~~2022~~2024, the ~~median average~~ home price in Diablo was ~~\$3.18~~ ~~\$2.65~~ million, making it among the 41st most expensive ZIP codes in the United States and ~~the most expensive in~~ the East Bay.

The following changes are recommended in response to a comment letter received on November 21, 2023, comments from the Diablo Historic Preservation Committee via Diablo Community Services District.

Context

Diablo began as the Oakwood Park Stock Farm, a ranch owned by California's "Big Four" (i.e., influential men Leland Stanford, Charles Crocker, Mark Hopkins, and Collis P. Huntington, with a fifth partner, David Colton, who built the Central Pacific Railroad) in the late 1800s. Robert Noble Burgess purchased the property in 1912 from David Colton and transformed ~~it into a swank summer resort~~ the Farm into a family-oriented, parklike community of summer homes.

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Planned Land Use

Diablo is planned to preserve ~~and continue~~ its rural character ~~and~~ with continued residential use at ~~a density~~ consistent with existing development. The large area designated Commercial Recreation supports continued operation of the Diablo Country Club, while the area designated Public and Semi-Public supports the Athenian School. The County's Urban Limit Line, along with Agricultural Lands, Parks and Recreation, and Resource Conservation land use designations protect lands under the County's jurisdiction on the north and east sides of the community.

Policies

2. Coordinate with the community to ~~increase~~ opportunities for ~~community~~ input into planning processes and projects, especially related to historic designations and regulations.

Actions

1. Work with the Town of Danville to ~~Address~~ issues with traffic and speeding along Diablo Road.
2. Coordinate with local agencies to establish a plan for responding to natural disasters, ~~such as~~ especially wildfires and earthquakes, ~~that may include~~ ing a shelter-in-place plan for the community.

DISCOVERY BAY

The following recommendation is made in response to a comment received at the Discovery Bay MAC meeting.

Throughout Profile

Change "~~canals~~" to "bays" throughout profile.

The following changes are recommended by staff based on new information or to clarify content.

Context

Discovery Bay is a relatively new community in eastern Contra Costa County, created as a planned community in 1964 on agricultural land previously known as the "Byron Tract." The original development was envisioned as a recreational community, with a network of excavated canals and residential lots connected to Delta waterways. In the 1990s the County approved "Discovery Bay West," a 2,000-home project built around a new elementary school and four artificial lakes. Newer subdivisions have further expanded the community. ~~Neighborhood-serving amenities also were planned and created.~~

The following changes are recommended in response to a comment letter received on November 27, 2023, from the Discovery Bay Community Services District.

Context

Today, Discovery Bay has grown into a full-service town with a community services district (CSD) that coordinates water, sewer, and recreation services. The CSD also fulfills the role of a municipal advisory council and advises the County on planning, infrastructure, public safety, and other policy matters.

Major Vulnerabilities

~~The Discovery Bay Fire Station and East Contra Costa Fire Protection District buildings are vulnerable to coastal flooding.~~

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Major Vulnerabilities

~~The Discovery Bay Elementary School, All God's Children Christian School, and Timber Point Elementary School are vulnerable to coastal flooding either now or under future sea level rise scenarios.~~

Planned Land Use

Land use designations for Discovery Bay are shown on Figure LU-1, General Plan Land Use Map, and ~~are~~ defined in the Land Use Element. Discovery Bay has been planned to maintain the existing pattern of residential land uses along the ~~canals/bays~~, with pockets of commercial ~~and office~~ uses along Discovery Bay Boulevard and Highway 4. While the former Cecchini property is designated Agricultural Lands, it is inside the County's Urban Limit Line (ULL) and may be redesignated to allow urban uses in the future. The area designated Mixed-Use Community-Specific Density at Discovery Bay Boulevard above Sand Point Road/Willow Lake Road is intended to facilitate ~~the~~ creation of a town center and encourage ~~the~~ development of a variety of uses that would complement and ~~catalyze~~ further utilization ~~of energize~~ existing commercial ~~and office~~ areas.

Policies

1. In mixed-use areas, ~~attract and retain commercial uses to serve the daily needs of the community.~~ Support the development and retention of new commercial uses and local-serving businesses to meet the daily needs of the community while promoting new residential development.
2. Coordinate with East Bay Regional Park District to ~~Enhance~~ access and connections to regional parks and open space.
3. ~~Promote and e~~Encourage ~~the~~ development of job-generating uses.
4. Require development of the southern portion of the former Cecchini Ranch property to include a fire station, sports fields, and substantial acreage set aside as light industrial/flex space to accommodate job-generating uses.
5. Support ~~establishment~~ development of a senior housing project in the vicinity of Point of Timber Road.

Actions

3. ~~Add a sports field complex, possibly on the east side of Discovery Bay.~~

The following changes are recommended in response to a comment received at the Discovery Bay MAC meeting.

4. ~~Work with the Town of Discovery Bay CSD to determine the feasibility of~~ Provide~~providing~~ bathrooms ~~and better maintenance at Slifer Park and consider transitioning ownership to the Community Services District.~~

The following changes are recommended by staff based on new information or to clarify content.

Actions

5. Move the approximately 520.7-acre northern portion of the former Cecchini Ranch, which is under an agricultural conservation easement, outside of the Urban Limit Line~~ULL~~.

EAST RICHMOND HEIGHTS

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

Situated ~~in the Berkeley Hills north of near~~ El Cerrito and Richmond, ~~and within the Spheres of Influence of both in the Berkeley Hills,~~ East Richmond Heights is a primarily residential community of about 3,600 residents. Adjacent open space in Wildcat Canyon provides respite and outdoor recreation ~~for residents~~. Given East Richmond Heights' location, the community has panoramic views of San Francisco Bay, Mount Tamalpais, and beyond. Residents cite access to open space and views as important community assets that should be preserved for generations to come. East Richmond Heights is also home to two schools, Crestmont School and Mira Vista Elementary School, which contribute to the area's family-oriented character. Interstate 80, ~~located about a ½ mile to the west,~~ and the El Cerrito Del Norte BART Station provides regional transportation access, and Arlington Boulevard serves as the major north-south thoroughfare.

Despite the small-town community feel, residents are concerned about safety and formed the East Richmond Heights Neighborhood Watch team to prevent crime, enhance emergency preparedness, and improve neighborhood communication. ~~In addition,~~ Residents would like more street lighting and new and expanded community facilities and events. Residents are also concerned about fire hazards from vegetation in Wildcat Canyon Regional Park and throughout the neighborhood, particularly from dead, standing trees. The community would like to enhance fire protection services and evacuation preparedness to ensure resident safety in the event of a natural disaster

Major Vulnerabilities

Public safety and emergency medical response are vulnerable to ~~flooding~~ earthquakes, landslides, severe storms, and wildfire.

Change the title of the "~~Landslides~~" figure to "Seismic Hazards."

Planned Land Use

The community has two existing small commercial pockets, ~~which that~~ are intended to support neighborhood-serving businesses. The ~~area~~ Adams Middle School site, designated Mixed-Use Low Density, is envisioned to attract neighborhood-serving commercial and services ~~uses~~, affordable housing, and alternative dwelling types, while supporting and encouraging more community events

Policies

1. ~~Prioritize mitigation of wildfire and earthquake exposure. When reviewing new development proposals, consider the need for mitigation of wildfire and earthquake exposure as appropriate.~~
3. When reviewing new development proposals, ensure views of scenic natural features (e.g., San Francisco Bay, distant mountains) and the developed environment (e.g., bridges, San Francisco skyline) are substantially preserved.
4. ~~Ensure that~~Condition new construction development projects and home renovation activities to minimize impacts on neighbors and local roads, which may be compounded by existing small lots and narrow, winding roadways.
6. Promote local-serving commercial ~~establishments~~uses to encourage ~~local~~small business growth, create retail shopping near residents, and provide opportunities for residents to conduct business within their own community.
7. ~~Improve local drainage infrastructure and encourage improvements to local wastewater infrastructure.~~
8. ~~Recognize~~Emphasize affordable housing as a community asset and encourage alternative dwelling types such as ~~accessory dwellings and co-housing.~~
9. Consider the impacts of each project, individually and cumulatively, on emergency access and response to the neighborhood and immediate project area. New projects should not negatively impact access or response by emergency service providers. (New Policy)
10. Determine on a project-by-project basis whether a traffic impact analysis is warranted, considering factors beyond peak-hour trip generation, such as individual and cumulative impacts on pedestrian safety and neighborhood-scale evacuation plans. (New Policy)
11. For new developments, encourage building scale, massing, architectural style, and materials to provide harmonious scale transitions and blend with the surrounding existing residential neighborhood. (New Policy)
12. Encourage a mix of unit types and densities in new housing projects to diversify the housing stock and better serve residents of all ages, incomes, and abilities. To achieve the required density, encourage development of greater numbers of smaller-scaled buildings that are harmonious with surrounding areas and contain fewer units per building, instead of large-scale buildings containing higher numbers of units. (New Policy)
13. Provide pedestrian-friendly streetscape improvements with large-canopied street trees, open spaces, ground cover, and flowering plants where opportunities exist. (New Policy)
14. Encourage new development on large parcels, such as the Adams Middle School site, to closely follow the natural slope of the site with grading and building forms and heights. (New Policy)
15. Encourage seamless integration of new development on large parcels into the surrounding street pattern and evaluate opportunities to reestablish historic street patterns. For example, Loring Avenue and Rosalind Avenue, which are shown as through streets on historic Assessor's maps, were interrupted by consolidation of the Adams Middle School site and may be appropriate for extension. (New Policy)

Actions

1. ~~Coordinate with public safety and health agencies~~Work with East Bay Municipal Utility District and Contra Costa County Fire Protection District to install~~determine whether~~ additional fire hydrants are necessary within the community.

2. ~~Improve/Upgrade pedestrian safety and roadway infrastructure by performing routine pavement management and maintenance, installing continuous street lighting, illuminating pedestrian crossings, adding ADA compliant amenities, and delineating on-street parking spaces along major roads~~Arlington Boulevard and in the North Arlington neighborhood, with emphasis on improving pedestrian safety.
3. ~~Explore~~Study the ~~possibility~~feasibility of constructing a community library.
4. Conduct community workshop(s) to explore options for ~~Assist a community-led process to coordinate with the Richmond Unified School District on a plan for the future development at the~~ of Adams Middle School site. Concepts and direction developed at the workshop(s) would provide community preferences and guidance to the County, local officials, property owner, prospective developer, and design team. The site should be a model for sustainable, green development that meets the housing (including workforce housing), retail, recreational, and service needs of the community while mitigating impacts to ~~existing neighborhoods~~ the surrounding area. Such workshops should also be conducted for projects requiring General Plan amendments or rezonings in East Richmond Heights.
5. ~~Should the Mira Vista Elementary School property ever be redeveloped with a non-public use, r~~Redesignate the western, downslope portion of the Mira Vista Elementary School property, between Zinn Street and Sierra~~Hazel Avenue, to Parks and Recreation should it ever be redeveloped with a non-public use.~~

EL SOBRANTE

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with Countywide goals, policies, and actions.

Important natural features such as San Pablo Ridge, Sobrante Ridge, San Pablo Creek, open hillsides, and oak woodlands provide visual beauty, plant and animal habitat, and opportunities for recreation.

El Sobrante is oriented along ~~several~~three major thoroughfares. San Pablo Dam Road, the backbone of the community, extends from Interstate 80 east and south toward San Pablo Reservoir and Orinda and is home to many of El Sobrante's ~~businesses and~~ commercial uses. Appian Way is a commercial and residential corridor that extends north/northeast from San Pablo Dam Road to Interstate 80 in Pinole, including passing through the "triangle" area around ~~at the intersection of Appian Way and with~~ Valley View Road. Valley View Road is a residential corridor that extends southeast from the "triangle" to San Pablo Dam Road, passing De Anza High School. Most of the community is accessed via these three roads. ~~Important natural features such as San Pablo Creek, open hillsides, and oak woodlands provide visual beauty, plant and animal habitat, and opportunities for recreation and green infrastructure.~~

Several plans have been developed for El Sobrante ~~in the past two decades~~over the years and remain generally applicable today, including a 2001 Transportation and Land Use Plan for the downtown business district (along San Pablo Dam Road and Appian Way) and P-1 Zoning and Design Guidelines adopted in 2013.

Major Vulnerabilities

The community is vulnerable to dam-related flooding ~~from the~~ San Pablo Dam, if the dam were to be ~~harm~~compromised by landslides or seismic hazards. ~~However,~~ San Pablo Dam has recently been ~~was~~ upgraded in 2010 to reduce the risk of dam failure, decreasing the potential for dam-related flooding.

Planned Land Use

Areas along San Pablo Dam Road and Appian Way that serve as downtown El Sobrante are designated ~~Mixed-Use~~ Low Density and Mixed-Use Community-Specific Density, recognizing the existing mix of multiple-family residential and commercial properties, as well as the desire for new projects that combine these uses, either vertically or horizontally. As noted in the following section, zoning regulations provide more prescriptive design standards for the

downtown areas. The ~~Land Use Map also~~ Public and Semi-Public designation identifies community assets ~~with a designation for public uses~~, including Juan Crespi Middle School, Harbour Way Elementary School, De Anza High School, and the El Sobrante Library, as well as utilities such as an East Bay Municipal Utility District (EBMUD) water filtration plant.

Downtown El Sobrante Planned Land Uses

The Downtown El Sobrante P-1 Zoning and Design Guidelines should be consulted for more specific direction ~~and is considered the governing document for~~ related to long-range planning decisions in this area.

Mixed-use development is strongly encouraged, although all three districts allow projects that are entirely commercial or residential. Interesting and innovative architecture is encouraged throughout each mixed-use area, but it should be harmonious in scale so that ~~the each area is perceived and~~ functions as a cohesive district.

San Pablo Dam Road Mixed-Use Area

The ~~third~~ mixed-use area in downtown El Sobrante applies to San Pablo Dam Road between El Portal and Appian Way. This is the core of the downtown area. The intent is to create a more unified and vibrant district by creating a town square, improving San Pablo Dam Road, and encouraging new multiple-family residential, offices, retail, and mixed-use projects. The town square is envisioned on the Mechanics Bank property on the south side of the block between Hillcrest Avenue and Pitt Way. Consolidation of existing small parcels is encouraged to create more viable development sites. ~~A 50-foot height limit applies to parcels within this zone, provided that t~~ The mass, height, and shape of buildings should preserve views and are be compatible with community character. ~~The vision for this area also includes improvements to San Pablo Dam Road. Potential improvements to San Pablo Dam Road include new bike lanes or a (possibly separated) bike lane, wider sidewalks, more off-street parking, new pedestrian crossings, and more attractive and coordinated signage.~~

Appian Way Mixed-Use Area

The Appian Way Mixed-Use Area is intended to facilitate ~~the~~ development of the Appian Way corridor as a unified, well-designed, walkable neighborhood, including new mixed-use development and improved services, shopping, offices, and restaurants. Neighborhood scale commercial uses are allowed on all parcels. Residential-only projects and mixed residential-commercial projects are permitted but not required, and residential uses may be integrated into existing commercial developments. ~~A 27-foot height limit applies, with an 8-foot height bonus for mixed-use projects or projects eligible for a density bonus (subject to specific findings set forth in the P-1 Zoning Plan).~~

Triangle Mixed-Use Area

The El Sobrante “~~t~~Triangle” is formed by the intersection of Valley View Road, Appian Way, and Sobrante Avenue. Like the Appian Way Mixed-Use Area, this area is ~~also~~ envisioned as a distinct neighborhood retail district ~~with opportunities for mixed-use infill projects. The a~~ Allowable uses are similar to those in the Appian Way area. Projects that incorporate housing as part of a m Mixed-use projects are preferred encouraged, provided that safe walking and recreational opportunities can be made available, though P projects that are entirely commercial are permitted on all parcels, subject to P-1 standards and use limitations. The triangle area is subject to the same density and floor area ratio standards as the Appian Way Mixed-Use Area, with a 27-foot height limit and the potential for an 8-foot height bonus for mixed-use projects. The same building design, streetscape, and parking guidelines that apply in the Appian Way area apply in the Triangle area. The triangle block itself is designated for general commercial uses and is not considered an appropriate location for housing. The Triangle differs from the Appian Way area in that it is far more compact and offers an opportunity to create a walkable activity node that anchors the northern end of the community.

Note: In the “Mixed-Use Areas” map on page 4, staff recommends that the legend order be revised, first showing the San Pablo Dam Road Mixed-Use Area, followed by the Appian Way Mixed-Use Area, and then the Triangle Mixed-Use Area.

Guiding Principles

1. El Sobrante should remain independent and eclectic, with common-sense land use regulations that respond to the community's varied development and building patterns.

7. Because the cities of Richmond and Pinole surround El Sobrante on three sides, coordination ~~with the City of Richmond and City of Pinole~~ is essential, and the County should work proactively to address the effects of decisions by Richmond's and Pinole's decisions on the quality of life in El Sobrante.

17. Local businesses should act as gathering places for residents and contribute to El Sobrante's sense of community and cultural diversity.

Policies

1. In mixed-use areas, ~~preserve adequate square footages~~support development and retention of commercial uses and local-serving businesses in mixed-use areas to meet the daily needs of the community. ~~Support the retention of active commercial uses and local-serving businesses~~ while promoting new residential development.

2. Continue ~~to improve~~ing downtown El Sobrante to create a stronger sense of this area as a town center and destination for residents, using the Downtown El Sobrante Planned Unit Development (P-1) Zoning and Design Guidelines to guide land use and development decisions ~~in this area~~.

3. Encourage ~~and prioritize~~development of small and locally ~~owned~~ businesses, including especially markets offering healthier food choices. ~~Local businesses should provide gathering places for residents and contribute to El Sobrante's sense of community and cultural diversity. (3-170)~~

5. ~~Consider the effects of new development on aging infrastructure and, where appropriate, require infrastructure improvements as a condition of approval.~~

7. Increase ~~neighborhood~~local park acreage, including ~~requiring~~pocket parks within new development, and ~~preserving~~ open space along San Pablo Creek, and encouraging the Public Works Department to acquire land using development fees and other sources. Funding for ongoing maintenance should be identified when parks are created. (3-175)

8. Encourage new commercial and mixed-use projects to incorporate safe, well-maintained open spaces and areas or gathering places in new commercial and mixed-use development projects where feasible. In addition,

New Policy 9 (split from Policy 8). Encourage multiple-family residential development should projects to provide on-site recreational facilities for occupants/residents, and contribute toward the development of parks and recreational facilities that serve the community at large. (New Policy)

9. Partner with East Bay Regional Park District to maintain, and where feasible improve, access to regional open spaces and parks on the perimeter of El Sobrante, including new trails and existing fire trails with the potential for recreational use.

10. ~~Partner with community organizations to~~ Conserve and restore portions of San Pablo Creek as a community open space, natural resource, and visual amenity. ~~In addition, and~~ conserve the natural elements of other local creeks, such as Appian Creek and Wilkie Creek.

11. Encourage the City of Richmond to preserve the visual character and natural qualities of San Pablo Ridge, the hillside area that defines the southern ~~and western~~ edge of El Sobrante, by supporting land use decisions that ~~maintain trail access to Wildcat Canyon Park and preserve~~ protect areas above the 400-foot elevation contour as open space ~~and maintain trail access to Wildcat Canyon Regional Park.~~

13. ~~Prohibit~~ Deny applications for entitlements to establish new automotive uses (body repair, oil change, etc.) in El Sobrante.

Actions

3. ~~Undertake~~ Improve drainage ~~improvements~~ infrastructure to reduce local flooding problems, especially along portions of Appian Way and San Pablo Dam Road that still have open roadside ditches. ~~To the extent feasible, incorporate "green streets" principles in the design of such projects.~~

5. Work with ~~AC Transit and other local~~ public transit agencies to improve local service, restore BART feeder lines, and better connect El Sobrante to regional transit and community services such as hospitals.

7. ~~Pursue construction of a new collector street connecting Pitt Way to Hillcrest Road.~~

12. ~~Work with AC Transit and other local public transit agencies to improve local service, restore BART feeder lines, and better connect El Sobrante to regional transit and community services such as hospitals.~~

13. Continue ~~to explore~~ assessing the feasibility of a creek-side boardwalk and park along publicly owned segments of San Pablo Creek.

KENSINGTON

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

Situated near the University of California ~~and within El Cerrito's Sphere of Influence,~~ Kensington has been a desirable neighborhood for academics, students, urban professionals, and families for decades. Kensington residents enjoy the community's panoramic views, mature trees, hillsides, walkable scale, and easy access to transit and regional parks. Although there is very limited potential for growth, ~~many of the homes date from the 1930s and 40s and there is significant construction activity to upgrade and expand~~ existing homes, those homes most of which date from the 1940s and earlier.

Kensington is ~~oriented~~ located along Arlington Avenue ("the Arlington"), a winding thoroughfare that connects to Berkeley on the south and El Cerrito on the north. There is a small commercial district ~~located~~ on the Arlington just north of the Berkeley city limit. A second commercial district is ~~located~~ on Colusa Circle in the lower part of Kensington, near the border with El Cerrito. ~~Although a~~ Almost all of the homes in Kensington are single-family, and densities for that style of development are relatively high.

Major Vulnerabilities

Sunset View Cemetery, Tilden Regional Park, Kensington Park, and general outdoor recreation are vulnerable to drought, landslides, severe weather, and wildfire.

Planned Land Use

Land use designations for Kensington are shown on Figure LU-1, General Plan Land Use Map, and are defined in the Land Use Element. Kensington is planned for continued residential use at a density consistent with existing development, with small pockets of mixed use, commercial and office uses, public/institutional uses, and abundant parks and recreational land. Kensington's two small commercial areas will continue to serve as the primary centers of local business for Kensington residents. The commercial areas along at Colusa Avenue Circle and Arlington Avenue are intended to maintain the community-serving uses already in place while accommodating mixed-use development on vacant and underutilized parcels. Kensington's proximity to Tilden and Wildcat Canyon Regional Parks provides premier outdoor recreational opportunities for residents. As such, wide swaths of land beyond the developed area continue to be designated for public/semi-public and park and recreation uses.

Guiding Principles

4. To remain a safe and complete community, enhancements to the existing public services and facilities, such as the Kensington Fire Protection District and Police Department facility facilities, Kensington Library and Community Center, the pedestrian path network, and local schools, should be supported.
6. A variety of housing types, including small multiple-family developments, duplexes, and accessory dwelling units (ADUs), should be encouraged to diversify the housing stock and better serve residents of all ages and abilities.
7. New housing should be compatible with the existing low- to medium-density community character and be designed to minimize negative impacts on roads, emergency response capacity, and infrastructure.

Policies

1. ~~Prioritize mitigation of wildfire and earthquake exposure.~~ When reviewing new development proposals, prioritize the need for mitigation of wildfire and earthquake exposure.
3. When reviewing new development proposals, ensure views of scenic natural features (e.g., San Francisco Bay, distant mountains) and the developed environment (e.g., bridges, San Francisco skyline) are substantially preserved.
5. Prioritize approval of projects that incorporate community-serving medical facilities and services.
6. ~~Improve public safety facilities and emergency medical services to meet community needs.~~
7. ~~Support the replacement or updating of police and fire facilities with new or modernized modern facilities that meet Kensington's long-term needs. (New Policy moved from Action 6 and revised as shown.)~~
7. ~~Ensure that~~ Condition new construction and home renovation activities development projects to minimize impacts on neighbors and local roads, which may be compounded by existing small lots and narrow, winding roadways.
8. ~~Accommodate new accessory dwelling units while minimizing their potential effects on street parking and emergency vehicle access.~~

Actions

1. Improve pedestrian safety and roadway infrastructure with features such as designated paths, ~~ongoing maintenance~~, illuminated crossings, stop signs, traffic calming measures, on-street parking spaces along Arlington Avenue and Colusa Circle, and ADA facilities.
3. ~~Explore financial assistance programs to help residents maintain and upgrade their homes and implement seismic safety improvements.~~
4. Review ~~the view protection~~ County Ordinance Code Chapters 84-74 – Kensington Combining District and 816-2 – Tree Obstruction of Views Combining District and amend as necessary to ensure ~~that it addresses issues such as~~ related to view blockage by trees and vegetation are addressed.
5. ~~Develop programs to maintain and improve~~ Explore options for funding maintenance and improvement of Kensington's public pedestrian path system.
6. ~~Support the replacement or updating of police and fire facilities with new or modernized facilities that meet Kensington's long-term needs. (Revise Action 6 and move to be Policy 7.)~~

KNIGHTSEN

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

~~The~~ Construction of the first buildings soon followed, with the construction of a station house, railroad station, grocery store, and post office, soon followed; the Knightsen Farm Bureau was established in 1918. The community is listed in the County's Historic Resources Inventory.

Knightsen has been proactive in addressing its service and utility needs, starting in 1920 with ~~the~~ establishment of the Knightsen Irrigation District, which was quickly absorbed by the East Contra Costa Irrigation District. From 2005-2023 the Knightsen Town Community Services District worked to enhance flood control and improve water quality, both topics of significant concern given Knightsen's position in a low elevation area that receives substantial runoff. Today, residents remain concerned about water quality and water service, and they would like increased code enforcement into support ~~of the community's~~ health and safety.

Major Vulnerabilities

Delta Road, Sellers Road, and the ~~Union Pacific~~ Burlington Northern Santa Fe ~~Railroad~~ way are vulnerable to extreme heat, flooding, and severe storms.

Planned Land Use

Most residences are constructed on agricultural parcels. Residential use is predominantly very low-density, slightly increasing as it approaches the community's commercial core of the community within the Urban Limit Line. The existing commercial core will be retained to attract community locally-- serving businesses and revitalize and beautify the central area serve as the heart of the community.

Guiding Principles

3. Development should embrace and be compatible with the community's historic, rural character.

Policies

2. Encourage re-use and rehabilitation of historic buildings ~~and provide landscaping and street lighting to beautify the commercial area.~~

~~Action 4~~ Policy 3. Provide ~~wider~~ adequate sidewalks and ~~more~~ shoulder space ~~along roads~~ to protect pedestrians and accommodate horses. *((New Policy moved from Action 4 and revised as shown.))*

4. Facilitate community events ~~downtown~~ in the commercial core.

7. Continue improving ~~services related to~~ code enforcement and public health and safety services.

Actions

1. ~~Plant~~ Install and maintain street trees and ~~install~~ street lighting ~~downtown~~ in the commercial core to support walkability ~~and beautify the area~~.

4. ~~Provide wider sidewalks and more shoulder space along roads to protect pedestrians and accommodate horses.~~
(Revise Action 4 and move to be Policy 3.)

5. Implement measures to slow ~~down~~ traffic and limit traffic impacts from local agritourism.

MONTALVIN MANOR, TARA HILLS, BAYVIEW, ROLLINGWOOD

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

Situated ~~along San Pablo Avenue~~ near the cities of San Pablo and Pinole, and within the Spheres of Influence of both ~~in the northwestern part of the county~~, these four communities are made up of single-family neighborhoods with some multiple-family homes and small commercial storefronts ~~areas~~.

The historic Union Pacific Railroad runs along this shoreline, creating challenges for safe and convenient access to ~~the San Pablo Bay~~.

Interstate 80 skirts the eastern edge of Tara Hills, and traffic congestion and related air pollution during peak commute hours ~~cause problems for~~ impact residents. Surface streets can be severely congested, and pedestrian and bicycle infrastructure is limited, impeding access to local amenities. Many of the neighborhood-serving commercial spaces in ~~these community~~ communities have become vacant over time, limiting local service options and attracting illegal dumping.

Impacted Community

This law is based on the understanding that some communities have experienced a combination of historic discrimination, ~~negligence~~ neglect, and political and economic disempowerment.

With the recent closure of a nearby medical center, residents must travel farther to Richmond on congested roads to receive care reach the nearest hospital.

Planned Land Use

The area designated Mixed-Use Community Specific Density at the intersection of San Pablo Avenue and Tara Hills Drive is intended to serve as a town center and commercial core planned for a range of neighborhood shopping, residential, and office uses that will stimulate improvements and reinvestment. ~~Ideally, this mixed-use area will also serve as a central community gathering place.~~

Montalvin Manor, Tara Hills, and Bayview ~~wrap around~~ border the shoreline of San Pablo Bay, providing residents with beautiful views and valued access to nature. As such, access to shoreline and trail connections will be preserved through ~~resource conservation and the~~ Park and Recreation land use designations.

Guiding Principles

4. Water-oriented recreation uses along the shoreline should be encouraged, and shoreline access should be improved.

6. ~~Young residents of these communities should be nurtured with high-quality youth programming.~~

13. Residents should feel safe in their communities with quality ~~police protection~~ law enforcement services and a built environment that deters crime.

Policies

1. ~~In the mixed-use area at~~ Require the intersection of San Pablo Avenue and Tara Hills Drive, ~~to be developed as a town center that includes a community gathering space and incorporates unified design elements to provide a sense of identity. attract and retain~~ Encourage high-quality neighborhood-serving commercial and office uses, businesses ~~Support the development of new commercial uses and local-serving businesses while promoting new~~ and a mix of residential development unit types.

2. Prioritize ~~the~~ preservation of scenic views and access to natural lands, open spaces, and trails.

3. Require new development to protect on-site habitat areas ~~and create additional parks~~ whenever possible.

4. ~~Encourage development of neighborhood-scale commercial uses to be at a neighborhood scale and serve the needs of~~ throughout the four communities. (Renumber to be Policy 2.)

5. ~~Encourage and attract high-quality, health-conscious, neighborhood-serving stores and restaurants, especially at the shopping center at the intersection of San Pablo Avenue and Tara Hills Drive.~~

6. Require the massing and scale of new development to be consistent with the community's character whenever possible.

7. ~~Consider the cumulative impacts on traffic congestion from development and require new development to improve sidewalk connections and provide bicycle infrastructure.~~

8. Address parking problems by implementing parking management strategies ~~and requiring sufficient off-street space when new development is approved.~~

9. ~~Incentivize the development of medical care services or a hospital nearby to improve access to healthcare.~~ Prioritize approval of projects that incorporate community-serving medical facilities and services.

10. Coordinate with the cities of Richmond, San Pablo, and Pinole on decisions that affect Montalvin Manor, Tara Hills, Bayview, and Rollingwood ~~residents~~.

11. ~~Support Beautify/beautification the four communities, and including the shoreline, through physical improvements such as urban greening, as well as increased effective code enforcement and vegetation maintenance, and efforts to address graffiti, illegal dumping, and abandoned vehicles.~~

12. ~~Allow for~~ Support urban agriculture uses ~~on vacant lots, in coordination with property owners,~~ to encourage community cohesion and health.

Actions

1. ~~Evaluate the necessity of~~ conducting a traffic study to analyze and address circulation deficiencies, opportunities, and constraints. ~~The study should evaluate the high traffic congestion along San Pablo Avenue, Richmond Parkway, Tara Hills Drive, and adjacent surface~~ nearby neighborhood streets, and identify mitigation, such as improved signal timing and effective left turn lanes, especially at the intersection of Richmond Parkway and San Pablo Avenue.

2. ~~Add resident friendly~~ Provide crosswalks, sidewalks, bike lanes, landscaping, and other essential pedestrian and bicycle infrastructure along ~~major thoroughfares, including San Pablo Avenue, Richmond Parkway, and Tara Hills Drive,~~ such as crosswalks, sidewalks, bike lanes, a sound barrier, landscaping, and other streetscape improvements.

4. Work with local transit providers to increase connections to BART stations, ~~especially the El Cerrito Del Norte station, and to construct additional transit stop shelters that improve the safety and comfort of transit users without attracting loitering.~~

5. As a high priority, coordinate with County agencies, non-profits, and other organizations to investigate the feasibility of opening an emergency shelter to house residents of all ages that are homeless.

6. As a high priority, invest in neighborhood beautification, such as through urban greening and clean-up efforts for graffiti, illegal dumping, and abandoned vehicles.

7. Work with the Association of Bay Area Governments (ABAG) to connect existing open spaces with a contiguous, well-maintained Bay Trail link along the shoreline from Point Wilson to Point Pinole for outdoor recreation and fishing.

8. Study the feasibility of constructing a bridge over the railroad at Point Wilson to facilitate connections to the water.

9. Work with ABAG/MTC and East Bay Regional Park District to ~~improve and increase connections to wildlife habitat, open spaces, and trails along the shoreline and Garrity Creek.~~

10. Assist a community-led process to ~~increase~~ improve youth programming at the Montara Bay Park Community Center and other recreation spaces throughout the four communities.

11. ~~Establish a town center and community gathering place at the intersection of San Pablo Avenue and Tara Hills Drive to serve as a gathering space for residents of the four communities. Identify funding sources and strategies to support development of the town center.~~

12. ~~Identify locations and~~ Study the feasibility of developing additional opportunities for recreation and access to nature, including a conveniently accessible ~~located~~ dog park and ~~a~~ playground.

NORTH RICHMOND

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

Due to ~~redlining practices and~~ housing and lending discrimination, Black and other minority workers found it challenging to find housing closer to the ports and railyards, forcing them to relocate to North Richmond. North Richmond became a pocket of affordable, accessible housing for minority households, but with little neighborhood infrastructure. Following ~~the war~~time, many residents stayed to work in the petroleum, railroad, and shipping industries in Richmond, and the community continued to grow.

Today, North Richmond is primarily residential south of Wildcat Creek. ~~North of the creek, heavy industrial uses dominate~~ north of the creek. Housing is relatively affordable compared to the rest of the Bay Area, but the housing stock is aging and many households ~~face~~ grapple with high housing cost burdens and poor infrastructure.

North Richmond residents are actively engaged in local planning and advocate for their community through Urban Tilth, the Verde Elementary School, the Watershed Project, and other community organizations and initiatives.

Planning is complicated by jurisdictional ~~lines~~ boundaries, with part of the neighborhood being within the Richmond city limit. Given its proximity to heavy industrial uses, including the Chevron Richmond Refinery, residents are very concerned about community health, along with other issues like crime and illegal dumping. There are regulations in place to mitigate emissions from new industrial users, and the community ~~is~~ has worked with the Bay Area Air Quality Management District (BAAQMD) ~~to develop an action framework for community air protection on the Richmond-North Richmond-San Pablo Community Emissions Reduction Plan~~. In addition, while there have been ~~recent levee, improvements and~~ streetscape, and sidewalk improvements, community members would like additional roadway infrastructure and transit improvements that ensure safe, equitable, and affordable transportation access for all modes.

Major Vulnerabilities

The West County Wastewater treatment plant and the recycling center in North Richmond ~~is~~ are vulnerable to coastal flooding.

Impacted Community

This law is based on the understanding that some communities have experienced a combination of historic discrimination, ~~negligence~~ neglect, and political and economic disempowerment.

North Richmond experiences high levels of diesel particulate matter due to ~~the oil refinery industrial uses, chemical companies, plants,~~ highways, truck traffic, rail yards, shipping ports, and marine terminals located within and near the community. Exposure to air pollution and chemicals contributes to eye, throat, and nose irritation, along with heart and lung disease. As shown in the chart, North Richmond residents visit the emergency room for asthma conditions at a rate that is among the highest rate in the state. There are frequent violations of air quality rules from facilities in and around North Richmond, and air testing has found unsafe levels of industrial pollutants inside residents' homes.

There are also many hazardous waste facilities and generators that affect North Richmond, including the Chevron Refinery, chemical companies, and Superfund sites. Beyond the acute risks to human and environmental health, these sources also raise concerns about odors, ~~vermin,~~ and increased freight traffic.

The community is also burdened by historical and perceived high rates of crime. In addition to safety concerns, outdoor recreation and active transportation are hampered by a lack of ~~trail~~ maintenance and the need for more connected walking and biking infrastructure. Limited access to active recreation and transportation, coupled with

limited access to stores that sell fresh and healthy food, ~~can lead~~ contribute to poor health outcomes for local residents.

Planned Land Use

The area south of Wildcat Creek is the heart of the community and is planned for ~~the continuation of~~ continued residential uses at ~~a range of various~~ densities, supported by local-serving commercial development. The mixed-use designations along Fred Jackson Way, Market Avenue, and Chesley Avenue are intended to create a combination of affordable, multiple-family ~~residential units~~ homes and ground-level retail, service, and office uses. The former Las Deltas campus is designated Residential Medium-High Density. The 11.38-acre site is an opportunity for innovative development that addresses a range of housing needs. The North Richmond Design Guidelines provide ~~more~~ detailed design guidance ~~for development in this area~~.

Guiding Principles

1. Affordable rental and ownership housing opportunities should be expanded and integrated into market rate developments. A range of housing types should be available to meet extremely-~~low~~, very-~~low~~, and low-~~income~~ levels, and existing community members should be prioritized for available housing.

~~4. Sensitive uses, like schools, senior housing, and child-care facilities, should be buffered from heavy industrial uses.~~
(Revise Guiding Principle 4 and move to be Policy 5.)

9. North Richmond should be a safe place for people of all abilities to walk, bike, and drive. Speeding and cut-through traffic should be eliminated as much as possible, negative impacts from truck traffic should be mitigated, and conflicts at rail crossings should be addressed, possibly through grade separations ~~ed from roadways~~.

Policies

1. Coordinate with the West Contra Costa Unified School District, ~~the~~ City of Richmond, and residents, ~~including particularly~~ youth, to enhance existing open spaces, including Shields-Reid Park, Verde Elementary School, and Lucky A's Field, to provide the fullest civic, educational, social, and recreational benefits for the community.

3. Prohibit ~~the~~ construction of large walls or gates that divide the community.

~~Guiding Principle 4~~ Policy 5. Buffer ~~Sensitive uses, like schools, senior housing, and child-care facilities, should be buffered from heavy industrial uses.~~ (Revise Guiding Principle 4 as shown and move to be Policy 5.)

5. ~~Support~~ Continued ~~to monitor~~ air quality monitoring through air quality sensors installed ~~throughout the community as part of the Community Air Protection Program (Assembly Bill 617).~~

6. Require that new development incorporate green infrastructure solutions to minimize flooding and environmental pollution, such as bioswales, detention or retention ponds, and cisterns that capture rainwater for irrigation.

7. ~~Promote the use of native plants in green infrastructure, landscaping, and parks.~~

~~Action 3~~ Policy 7. Support efforts to R ~~estore~~ creeks with native plants, including possibly planting an urban forest ~~at the eastern end of near Wildcat Creek east of Verde Elementary School, and develop new amenities, connections, and access points along Wildcat Creek, and~~ Consider partnering with local non-profit organizations to maintain vegetation along the creek. (Revise Action 3 as shown and move to be Policy 7.)

~~Action Policy 9. Support the Safe Routes to School Program by providing adequate pedestrian and bicycle infrastructure around Verde Elementary. (Move Action 9 to be Policy 9.)~~

~~10. Support workforce development and wealth-building programs for residents and locally-owned businesses, cooperatives, and other uses offering benefits to the community, such as grocery stores, community kitchens, and child-care facilities. (QOL B.4)~~

~~11. Seek community benefit agreements for new large commercial developments. Such agreements could include requirements for local hiring, apprenticeship and training programs, and funding for school and education programs.~~

The following recommended changes are in response to a comment received on January 10, 2024, via Konveio.

11. Encourage new mixed-use and commercial development that provides neighborhood-scale businesses. (New Policy)

13. Encourage residential projects that offer paths to home ownership and exceed the affordability requirements of the County's Inclusionary Housing Ordinance. (New Policy)

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Actions

~~2. Seek Opportunity Zone funding or support community advocacy for~~Study the feasibility of partnering with community organizations to establish a social impact bond, with non-profit governance, to develop~~provide funds for renovation of homes, ideally by the local labor force.~~

~~3. Restore creeks with native plants, including planting an urban forest at the eastern end of Wildcat Creek, and develop new amenities, connections, and access points along Wildcat Creek. Consider partnering with local non-profit organizations to maintain vegetation along the creek. (Revise Action 3 and move to be Policy 7.)~~

~~4. Construct trail~~Work with East Bay Regional Park District to improve connections between the Bay Trail and to residential areas~~community, including the residential areas adjacent to Wildcat Creek~~a potential Wildcat Creek Trail crossing over Richmond Parkway, and install amenities like~~such as~~ educational signs, bathrooms, water fountains, and benches.

~~5. Assist a community-led process to seek funding for a multi-use trail over Richmond Parkway to complete the Wildcat Creek Trail crossing to the marsh.~~

~~6. Evaluate the effectiveness of installing and monitor security cameras in areas where~~to deter~~illegal dumping is prevalent.~~

~~7. Work with the community to~~Prepare and implement a street corridor and gateway beautification plan that celebrates the unique historical identity of North Richmond and instills civic pride and a sense of unity among residents.

~~8. Update the North Richmond Specific Plan to encompass the entire community and integrate goals and concepts from recent planning efforts, including such as the 2019 Quality of Life Plan and the 2018 Priority Resilience Plan developed as part of the Bay Area Resilient by Design Challenge.~~

9. Support the Safe Routes to School Program by providing adequate pedestrian and bicycle infrastructure around Verde Elementary. *(Moved to be Policy 9)*

10. Develop a plan for equitable access to active transportation and to address speeding, dangerous intersections, and cut-through traffic on 1st Street and Richmond Parkway.

11. Install pedestrian and bicycle improvements to increase safety along Fred Jackson Way.

12. Designate truck routes ~~that~~ to minimize impacts on schools and homes.

13. Adopt viable methods to encourage local residents to open businesses in North Richmond, such as proactive outreach to the community, assisting with funding through various tax incentives, streamlining entitlement processes, and revising County ordinances and fees.

PACHECO

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Pacheco sits ~~just~~ immediately north of Pleasant Hill and east of Martinez and west of Buchanan Field Airport in central Contra Costa County. Portions of Pacheco are within the Spheres of Influence of both cities. It was once a prosperous shipping center for grain exports, but fires, floods, and earthquakes in the mid-19th century resulted in much of its population relocating to Concord. Today it ~~encompasses a variety of uses, including~~ includes residential, commercial, office, entertainment, and light ~~industry~~ industrial uses. Residents take pride in being part of a neighborly, self-sufficient community with easy access to nature. The community enjoys ~~access~~ its proximity to the Iron Horse Trail and Contra Costa Canal Trail, which connect Pacheco to other locations in the region. Residents seek improved connections to these trails and ~~to~~ the Benicia Bridge to increase walking and biking options for commuting and recreation.

The community would also like to reinvigorate its commercial ~~corridors~~ core by strengthening businesses along the main thoroughfares.

Impacted Community

This law is based on the understanding that some communities have experienced a combination of historic discrimination, ~~negligence~~ neglect, and political and economic disempowerment.

While there are multiple Census tracts that make up Pacheco, this chart presents only the most-impacted Census tract in ~~Pacheco~~ the community.

Pacheco is adjacent to the intersection of Highway 4 and Interstate 680, ~~with Interstate 680 bisecting residential parts of the community.~~ Due to its proximity to major ~~thoroughfares~~ freeways and the Buchanan Field Airport, residents in the eastern part of Pacheco face health risks associated with poor air quality, and have higher rates of asthma-induced emergency room visits than people in other parts of the state.

Pacheco residents have raised concerns about increasing traffic congestion along ~~major highways~~ Interstate 680 and Highway 4, as well as air quality and noise issues from the airport. They are also concerned about homeless encampments under ~~the highway~~ overpasses in the community. In addition, Pacheco residents have limited access to recreation ~~access~~. While Grayson Creek runs through the community, residents are concerned about the lack of creek maintenance; they would also like better maintenance of Pacheco Creekside Park, along with more trail connections and entrances to the park.

Planned Land Use

Pacheco's residential areas are located on both sides of Interstate 680. Residential uses west of 680 consist of single-family and multiple-family ~~dwellings~~ homes, while residences east of 680 consist of mobile homes. No changes are planned for these residential areas. Pacheco's mixed-use and industrial areas begin at the intersection of Pacheco Boulevard and 2nd Avenue South and extend north along Pacheco Boulevard ~~to past~~ Highway 4. This corridor is planned to remain the central hub of local business and industry ~~for Pacheco residents~~. Applying the Mixed-Use Community Specific Density designation along the southern portion of Pacheco Boulevard and Aspen Drive is intended to create a town center to revitalize the area and take advantage of the visual quality and access to Grayson Creek. Infill development on vacant and underutilized parcels in this area is encouraged to promote development of community-serving uses and new residential options. Pacheco is proximate to local and regional trails, such as the Pacheco Creekside Park path, Contra Costa Canal Trail, Iron Horse Trail, and Bay Trail over the Benicia Bridge. As such, stretches of land designated ~~for Resource Conservation and Parks and Recreation~~ will be retained to preserve access.

Guiding Principles

3. ~~The~~ Pacheco's convenient location should be maximized to support and enhance the diverse business community should be supported and enhanced and promote economic development.

Policies

1. Coordinate with the cities of Martinez, Pleasant Hill, and Concord to ~~ensure~~ achieve land use ~~conformity~~ harmony across jurisdictional boundaries.

3. Encourage ~~the~~ establishment and growth of locally--serving businesses that fulfill the needs of residents, as well as larger commercial and light industrial businesses to provide job opportunities to the community.

4. ~~Utilize Pacheco's convenient location to promote economic development along major thoroughfares, especially~~ Support development around the intersection of Pacheco Boulevard and Center Avenue as a town center with unified design elements.

6. Work with agencies such as East Bay Regional Park District and Contra Costa Water District to ~~improve~~ connections to local and regional trails, such as the Pacheco Creekside Park path, Contra Costa Canal Trail, Iron Horse Trail, and Bay Trail over the Benicia Bridge.

7. ~~Improve road maintenance and reduce traffic congestion on local roads.~~

8. ~~This should include encouraging transit providers to expand public transit options and promoting alternative transportation modes.~~

9. ~~Improve and maintain stormwater infrastructure to prevent flooding.~~

Actions

1. Identify ~~a~~ suitable locations for additional park facilities, including kid-friendly amenities such as play structures, and an expanded community gathering space.

3. ~~Implement~~ Install safe bike routes and infrastructure including painted bike lanes along local roads.

4. Update the Historic Resources Inventory to ~~add~~include Pacheco's historically significant buildings and sites~~structures~~ that may not have been considered historic at the time of the last inventory.

PORT COSTA

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

Situated among ~~the rolling hills of the East Bay Regional Park District (EBRPD)~~ open space along the Carquinez Strait, Port Costa is a small town of approximately ~~200~~250 people. Originally founded in 1879 as a deep-water shipping port, the community had an important role in the export of wheat and was a stop on the transcontinental railroad. Upon ~~the construction completion~~ of a railroad bridge ~~to~~between Martinez ~~and Benicia~~ in 1930, Port Costa diminished in size and regional significance.

Port Costa is fairly isolated, with only two narrow, winding access roads. Carquinez Scenic Drive connects to Crockett and Interstate 80 ~~and Crockett~~ to the west, and McEwen Road connects to Highway 4 ~~and Martinez~~ to the south. The predominant land use is single-family housing, with a small downtown area consisting of a few businesses and a post office near the water and railroad. The railroad is in active use ~~today~~, which ~~inhibits~~impedes public access to the waterfront, a major concern among residents.

Residents act as stewards of the historic assets in Port Costa. They are also passionate about protecting the surrounding open space and preserving a healthy watershed to ensure a sustainable future. ~~Residents are also interested in establishing a bike trail connection from Port Costa to Crockett.~~

Planned Land Use

The mixed-use area at the eastern end of Canyon Lake Drive serves to recognize the area's historic character of residence~~cial~~ over street-level businesses, as well as to encourage and attract additional development that will complement existing businesses and take advantage of visual access to the waterfront. The lands surrounding the community are outside the Urban Limit Line and protected from intense development through Parks and Recreation, Resource Conservation, Agricultural Lands designations.

Guiding Principles

1. Port Costa should be a resilient community that has planned for and is safe from sea-level rise, wildfire hazards, and the acute and long-term risks ~~of~~associated with nearby industrial uses.

4. Public facilities and amenities, including regional parkland, ~~community~~local parks and open spaces, and schools, should be preserved and enhanced. Open spaces should be inviting and clear of trash and debris.

Policies

2. Support ~~the establishment of a regional recreation area in the vicinity of Port Costa which is oriented towards pedestrian use and day use~~continued development of Carquinez Strait Regional Shoreline Park and regional trails, including a potential bike trail connection to Crockett.

3. ~~Limit commercial~~Encourage development ~~to~~of small-scale specialty and neighborhood retail shops; ~~and Avoid discourage establishment of~~ automobile-oriented uses.

4. Encourage ~~the~~ preservation, sensitive rehabilitation, and adaptive reuse of Port Costa's older buildings, particularly those ~~that have been identified as local historic places in the Historic Resources Inventory~~. Recognize Port Costa's authentic character and ~~inventory of~~ historic buildings as assets and amenities to attract businesses, visitors, and local investment to the community.

5. Protect and preserve the scenic quality of the shoreline while encouraging water-oriented commercial and recreational activities that enhance Port Costa's identity as a waterfront community.

Actions

1. Assist a community-led process to develop design guidelines that complement the County's Objective Design and Development Standards and are tailored to the unique setting, historic fabric, lot patterns, design character, and mix of uses in the community.

2. Update the Historic Resources Inventory to include Port Costa's historically significant buildings and sites~~and structures that may not have been considered historic at the time of the last inventory.~~

3. ~~Improve waterfront access, including access to the shoreline and lateral access along the shoreline itself. Work with the State Lands Commission and Union Pacific Railroad to improve waterfront access, including lateral access along the shoreline itself, provide new amenities along the shoreline, and mitigate the limitations on access from the railroad tracks, and encourage water-oriented business and commercial activities that enhance Port Costa's identity as a waterfront community.~~

4. ~~Establish a scenic waterway designation along the shoreline that protects and preserves its scenic quality, and encourage access for fishing, boating, hiking, cycling, and other recreational activities. (3-142)~~

RODEO

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

Congestion on Interstate 80, coupled with the lack of a BART station or ferry station terminal nearby, create circulation constraints at peak commute times.

The Phillips 66 Refinery, established in 1896, occupies over 4,000,100 acres in the northern part of Rodeo. In August 2020, Phillips 66 announced a plan to convert it. The Rodeo Refinery has been converted into a renewable fuels plant. However, many residents remain concerned about potential refinery impacts, such as air quality and safety.

Impacted Community

This law is based on the understanding that some communities have experienced a combination of historic discrimination, ~~negligence~~ neglect, and political and economic disempowerment.

While there are multiple Census tracts that make up Rodeo, this chart presents only the most-impacted Census tract in Rodeo the community.

Past activities at the refinery have impacted community and environmental health. Multiple hazardous waste facilities and incidents have resulted in clean-up sites, impaired water bodies, and air pollution. In the past ~~decade~~ 15 years,

industrial activities in and around Rodeo businesses have emitted numerous hazardous gases, ignited fires, contaminated soil, and spilled crude oil into San Pablo Bay.

Planned Land Use

The majority of Rodeo is planned for a mixture of residential ~~and commercial land uses~~ at various densities. North of the community, the ~~existing~~ Phillips 66 Refinery ~~and nearby facilities~~ continues to be designated for ~~industry~~ industrial use. ~~It is~~ They are adjacent to areas designated as Agricultural Lands and ~~Resource~~ Conservation areas that serve as a buffer and protect local open space. Rodeo includes a Mixed-Use Community-Specific Density designation along Parker Avenue from Seventh Avenue to the waterfront and along Pacific Avenue. ~~The vision here is to support residential units over street-level businesses.~~ Rodeo also includes a Mixed-Use designation in its downtown ~~and along the waterfront~~. This is intended to facilitate ~~the~~ creation of a town center, encouraging ~~the~~ revitalization of downtown Rodeo by concentrating commercial, retail, entertainment, and office service uses and developing townhomes, ~~and~~ multiple-family residential buildings, and living units above street-level businesses. The marina is designated Commercial Recreation to promote revitalization there. The Rodeo Waterfront/Downtown Specific Plan (1997) and Rodeo Redevelopment Area Planned Unit Development Zoning Code and Design Guidelines ~~(2005)~~ provide more detailed guidance for this area.

Policies

~~2. Direct all new development towards infill opportunities (i.e., vacant or underutilized parcels rather than open space beyond the developed area).~~

~~3. Require that~~ new development to adhere to the Rodeo Waterfront/ Downtown Specific Plan goals, policies, and design standards and guidelines, which support a vision for a visually cohesive, economically viable, and people-oriented downtown and waterfront area.

~~6. Require major new development to provide~~ or contribute to recreational amenities for community enhancement ~~along with adequate parking for residents, employees, visitors, and patrons.~~

~~Action 5~~ Policy 7. Support community-led efforts to develop a pool at the site of the ~~old former~~ Rodeo Swim Club ~~pool~~. *(Revise Action 5 as shown and move to be Policy 7.)*

~~7. Promote the~~ development of water-oriented commercial, recreation, mixed-use, and transportation uses ~~at~~ along the waterfront.

~~8. Maximize public access to the~~ San Pablo Bay, ~~including a waterfront trail.~~

~~Action 6~~ Policy 9. Support implementation of a Safe Routes to School Program and provide adequate pedestrian and bicycle infrastructure. *(Move Action 6 to be Policy 9.)*

~~9. Use distinct signage and streetscape design~~ elements on both sides of Interstate 80 to create a better sense of cohesiveness throughout the community.

~~11. Work with~~ Support efforts by civic organizations to ~~support and enhance~~ hold community gatherings, such as food truck events ~~while minimizing competition with local businesses.~~

~~12. Support beautification and walkability~~ by through effective code enforcement ~~ing codes related and implementation of strategies to curb~~ illegal dumping, streets, sidewalks, properties, and building facades.

13. Prioritize the safety and health of residents living adjacent to ~~heavy~~ industrial uses.
14. ~~Support agreements between the community and heavy industrial business operators.~~ Prioritize approval of projects that incorporate community-serving medical facilities and services.
15. ~~Attract and support clean, green industry.~~
16. Continue efforts to avoid and mitigate the effects of industrial traffic on downtown streets.
17. ~~Work with the Rodeo-Hercules Fire District to ensure that response time standards for industrial accidents and other emergencies can be met throughout the community.~~
18. Coordinate with the City of Hercules on decisions ~~that likely to~~ affect Rodeo residents.
19. Partner with ~~local~~ civic organizations to expand opportunities ~~to engage~~ for community members ~~to engage~~ in the planning process.

Actions

1. Complete the Implementation Tasks identified in Chapter 5 of the Rodeo Waterfront/ Downtown Specific Plan, including ~~the development of a linear park along the Rodeo Creek Trail and a waterfront promenade. (2-151, 3-155, 3-156, 3-161)~~
2. ~~Study potential redevelopment options for the marina area, such as a new public or private marina or other water recreation facility. Based on the results of the study, actively market the site to potential developers and work with partners to pursue grant funding for a public facility.~~
3. Actively seek a developer of a new community market or grocery store, ideally one that reflects the community's ethnic and cultural diversity.
4. Partner with community groups to create a plan to ~~develop~~ construct and operate civic facilities, such as a community center, youth center, new senior center, sports center, town plaza, dog park, and ~~for~~ parks and open spaces. ~~As part of this plan, identify funding sources and strategies.~~
5. ~~Support community-led efforts to develop a pool at the site of the old Rodeo Swim Club pool. (Revise Action 5 and move to be Policy 7.)~~
6. ~~Support implementation of a Safe Routes to School Program and provide adequate pedestrian and bicycle infrastructure. (Moved Action 6 to be Policy 9.)~~
7. Eliminate sidewalk gaps on San Pablo Avenue, Willow Avenue, Pacific Avenue, and Vaqueros Avenue, especially near ~~bus~~ transit stops.
8. Improve safety and comfort on the Rodeo Creek Trail by installing pedestrian-scale lighting and other amenities ~~fencing~~, and improving maintenance, especially in the area just north of Seventh Street.
9. ~~Improvements should be coordinated with~~ Partner with the community to organized creek clean-ups.

SARANAP AND PARKMEAD

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

They are split between the Spheres of Influence of both cities. Saranap traces its origins to 1911, when it became a stop on the Oakland, Antioch, and Eastern Railroad line between Oakland and Sacramento. The railroad ran along what is now Olympic Boulevard, with the station located at the current intersection with Tice Valley Boulevard. Saranap is named for Sara Naphthaly, mother of railroad vice president Samuel Naphthaly. Parkmead is located southeast of Saranap. Despite their proximity to downtown Walnut Creek, these two communities have retained unique identities valued by their residents.

~~Apartments~~ Multi-family homes and ~~commercial~~ businesses were developed along Boulevard Way and ~~on~~ Saranap Avenue near the Interstate 680/Highway 24 interchange. Today, about one-quarter of the housing units in Saranap are apartments and condominiums.

Planned Land Use

Aside from enhanced neighborhood amenities, no changes are planned for the existing lower-density residential areas. New development will be planned to occur in mixed-use areas along major roads, incorporating a range of neighborhood-serving commercial uses and multiple-family dwellings. Mixed-use projects that incorporate affordable housing are highly encouraged. The mixed-use area along Boulevard Way will create a more unified and vibrant urban center offering medium- to high- density housing choices.

Policies

1. In mixed-use areas, preserve adequate square footage of commercial uses to meet the daily needs of the community. Support retention of active commercial uses and ~~local neighborhood~~-serving businesses while promoting new multiple-family residential development, especially affordable units.

2. Maintain public views of Mount Diablo and surrounding scenic ridges to the greatest extent feasible. Protect the undeveloped hillside and ridge south of Olympic Boulevard and west of Tice Valley Boulevard.

~~4. Encourage mixed-use projects consisting of neighborhood-serving commercial uses and multiple-family dwellings, particularly those including affordable housing.~~

7. Discourage roof heights exceeding 40 feet, ~~or and~~ architectural features (such as parapets) exceeding 45 feet.

9. ~~Encourage construction~~ Require installation of street and sidewalk amenities of a consistent character that foster a cohesive "district" appearance along Boulevard Way.

Actions

1. Evaluate and improve pedestrian and bicycle infrastructure where feasible possible, particularly along the full length of Boulevard Way.

2. Identify a location for a ~~neighborhood~~local park or other community facility/space within Saranap that may include a playground, lawn area, dog run/park, picnic area, exercise equipment, and community garden. Require future development projects to contribute their fair share towards its establishment.

3. Reconfigure and enhance the Boulevard Way right-of-way, from its intersection with Saranap Avenue east to the City of Walnut Creek border, as follows:

- a. Reduce width to two lanes.
- b. Install diagonal parking and Class II or Class III bicycle facilities along both sides.
- c. Install traffic-calming devices and crosswalks where ~~appropriate~~necessary.
- d. Install parklets.
- e. Widen sidewalks.
- f. Install street trees, landscaping, decorative streetlights, street furniture, water features, public artwork, and other ~~appropriate~~desired amenities.

VINE HILL AND MOUNTAIN VIEW

The following changes are recommended by staff based on new information, to clarify content, or to remove redundancies with countywide goals, policies, and actions.

Context

Vine Hill and Mountain View are small unincorporated communities located on the northern border of Martinez and within its Sphere of Influence. The communities consist primarily consist of single-family homes with a few and pockets of commercial uses along Pacheco Boulevard, Howe Road, and Arthur Road. ~~Interstate 680 runs through Vine Hill and Highway 4 runs just south of the two communities, providing regional access to other parts of the Bay Area. These two communities and are situated adjacent to the Martinez Refining Company and other industrial uses. Interstate 680 runs through Vine Hill and Highway 4 runs just south of the two communities, providing regional access to other parts of the Bay Area. Many residents travel to Martinez or beyond for education, work, services, and amenities. The Burlington Northern Santa Fe Railroad runs east-west through Vine Hill, transporting cargo to and from Bay Area ports. Many residents travel to Martinez or beyond for education, work, services, and other amenities.~~

Residents also cite parking as an ~~in prevalent~~ issue in their neighborhoods and would like to increase parking availability near their homes.

Impacted Community

This law is based on the understanding that some communities have experienced a combination of historic discrimination, ~~negligence~~ neglect, and political and economic disempowerment.

Given the communities' close proximity to a refinery ~~ies~~ and other heavy industrial and manufacturing operations, residents may be at higher risk of exposure to harmful substances in the air, water, and land. Hazardous waste disposal facilities and domestic landfills, officially termed the Vine Hill Complex, are also located just east of these ~~residential~~ communities.

Planned Land Use

Most of the land in these communities ~~is planned~~ designated for continued residential, industrial, and ~~open~~ space conservation uses, with the commercial pockets also remaining. No major developments or changes are

planned, except ~~in the mixed-use corridor along a portion of Pacheco Boulevard where the Mixed-Use Community-Specific Density designation is applied.~~ This area is envisioned as a community core planned for development that would that provides an wide array of uses for to support residents while stimulating reinvestment in the community at large.

Policies

1. ~~Prioritize the preservation and restoration of wetlands, wildlife habitat, open spaces, and connections to nature. Maximize opportunities to protect and enhance Vine Hill Creek.~~

2. ~~Prioritize roadway improvements to reduce traffic congestion on Pacheco Boulevard. Incorporate pedestrian, bicycle, and stormwater infrastructure improvements when feasible to improve safety and facilitate mobility throughout the communities.~~

3. ~~Improve public transit options and accessibility and promote alternative transportation modes.~~

4. ~~Proactively enforce County codes to s~~Support community beautification and safety. Encourage improved community appearance through graffiti removal, litter reduction, street and sidewalk maintenance, abatement of illegal dumping, and code enforcement.

5. Encourage economic investment ~~along major thoroughfares, including especially~~ commercial and mixed-use development, along Pacheco Boulevard.

6. ~~Incorporate safe, well-maintained open spaces and gathering places in new commercial and mixed-use development projects. In addition, multiple-family residential development should contribute toward the development of parks and recreational facilities that serve the community at large.~~

Actions

1. ~~Install traffic calming to reduce speeding and increase safety for cyclists on Pacheco Boulevard. Install improvements along Pacheco Boulevard to enhance pedestrian and bicycle safety, community appearance, and traffic flow.~~

2. ~~Undertake drainage improvements to reduce~~Address local flooding problems. ~~To the extent feasible, incorporate "green streets" principles in the design of such projects.~~

3. Close sidewalk gaps and improve pedestrian infrastructure, especially in the vicinity of Las Juntas Elementary School.

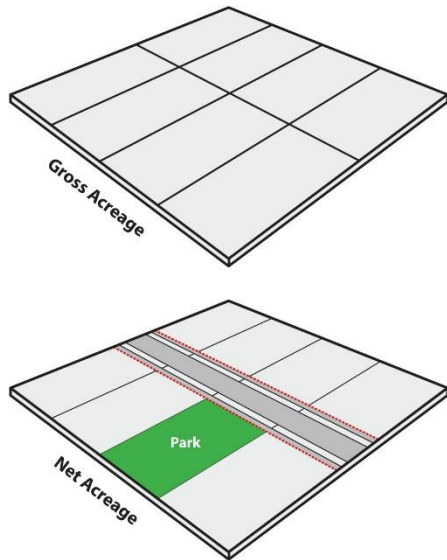
4. Study the feasibility of creating secondary roadway access to and from the portion of Vine Hill east of Interstate 680.

5. ~~Provide more frequent curbside waste services, including recycling and organics collection.~~

LAND USE ELEMENT

The following changes are recommended by staff based on new information or to clarify content.

Page 4-2/Land Use Designations and Map (new illustration and text edits)



This illustration shows the difference between gross and net acreage.

Standards for allowed residential density and intensity of nonresidential uses are described below. These standards reference **gross acreage**, which is the acreage of the entire parcel designated for the use, and **net acreage**, which is the area remaining after land is dedicated for rights-of-way, easements, and other public or common uses.

- **Residential densities** are expressed in terms of dwelling units per net acre, ~~which is the area remaining after land is dedicated for rights-of-way, easements, and other public or common uses.~~ As a rule of thumb, the County assumes net acreage to be 75 percent of the gross for single-family residential projects and 80 percent of the gross for multiple-family residential and mixed-use projects. A project's actual density is calculated during the development review process and must fall within the density range for the applicable land use designation unless State laws, policies within this General Plan, or zoning regulations allow for higher or lower densities.

Page 4-3/65/35 Land Preservation Standard

As of 2023, approximately 28 percent of the land countywide has been designated for urban uses.

Page 4-7/Table LU-1

PARKS and RECREATION | PR: Applied to publicly- and privately-owned parks and similar outdoor spaces. Includes ~~neighborhood and community~~ local parks in urban areas as well as federal, State, and regional parks and historic sites that are managed primarily for conservation purposes and provide active or passive recreational activities. Ancillary amenities such as visitor centers, event spaces, amusements/rides, and eateries that support or enhance the primary recreational use are consistent with this designation.

RESOURCE CONSERVATION | RC: Applied to the watersheds of reservoirs owned by public utilities, mitigation banks, habitat restoration sites, ecologically significant or environmentally sensitive areas that are not within publicly-owned parkland, and hazardous or otherwise constrained areas that are unsuitable for development. Resource management, low-intensity agriculture, low-intensity recreation, and similar activities are consistent with this designation when conducted in a way that is not damaging to the resources being protected. Construction of public and semi-public infrastructure, and one single-family residence on an existing legal lot under private ownership, is consistent with this designation. All types of urban development and subdivisions that increase density are prohibited.

The following changes are recommended by staff in response to a comment letter received on March 26, 2024, from the Alamo Improvement Association.

Page 4-7/Table LU-1

Notes on Mixed-Use Designations

1. Single-use residential and single-use nonresidential projects are allowed in areas with mixed-use designations; however, policies elsewhere in this General Plan may encourage or require mixed-use projects at specific locations.
2. The densities stated in each mixed-use designation apply only when a project includes a residential component; they do not compel residential development in otherwise nonresidential projects.
3. The FAR for each mixed-use designation is inclusive of residential and nonresidential development; density and FAR are not additive.
34. Mixed-use projects may be horizontal, meaning residential and nonresidential uses exist on the same site, or vertical, meaning residential and non-residential uses exist in the same building.

Page 4-11/Urban Limit Line

Because the 65/35 Standard limits urban land use designations to no more than 35 percent of the county's total land area, the County and cities must work cooperatively to ~~maintain~~ ensure that over 60,000 acres within the ULLs/UGBs remain under non-urban land use designations. Fortunately, a significant portion of this acreage already is permanently protected as local parks, regional parks and open spaces, reservoirs, and other public facilities. Examples of protected lands within the ULLs/UGBs include several regional parks within Richmond's city limits (4,000 acres), Lafayette Reservoir and its surrounding recreation area (900 acres), Thurgood Marshall Regional Park (2,500 acres), Lime Ridge Open Space (1,200 acres), and Big Break Regional Shoreline (1,600 acres).

The following change is recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club.

Page 4-15/Action LU-A1.2

~~Periodically update~~ Review County Ordinance Code Titles 7 – Building Regulations, 8 – Zoning, 9 – Subdivisions, and 10 – Public Works and Flood Control at least once every five years and update as necessary to maintain consistency with State law and newly adopted or revised planning documents (General Plan, Specific Plans, etc.); address emerging issues; and respond to economic, technological, and social trends.

The following new action is recommended by staff in response to a comment letter received on March 26, 2024, from the Alamo Improvement Association.

Page 4-15/Goal LU-1

New Action LU-A1.4 Quantify the acreage designated for urban land uses at least once every five years to ensure continued compliance with the 65/35 Land Preservation Standard.

The following changes are recommended by staff based on new information or to clarify content.

Page 4-16/Policy LU-P2.4

~~Prohibit~~ Deny applications for major subdivisions outside the ULL ~~as well as~~ and successive minor subdivisions of lots outside the ULL that were created through previous subdivisions.

Page 4-16/Goal LU-2

Move Policy HS-P4.1 to instead be Policy LU-P2.10 and edit as follows: When considering development proposals and land use changes, treat susceptibility to hazards and threats to health and safety ~~human life~~ as primary considerations.

Page 4-17/Goal LU-2

See the Land Use, Infrastructure, and Transportation Coordination section of this Element and the Public Facilities and Services Element for additional policies and actions on urban services and infrastructure. See the Conservation, Open Space, ~~Conservation~~, and Working Lands Element for additional policies and actions on agricultural areas, resource-based uses, and open space management.

Page 4-21/Intergovernmental Coordination

Important regional partners in land use planning include the Association of Bay Area Governments (ABAG)/Metropolitan Transportation Commission (MTC); Delta Protection Commission and Delta Stewardship Council, which ~~has regulatory~~ have authority over land uses within the Primary Zone of the Delta and Legal Delta, respectively (see Figure LU-3); and ~~the~~ US military, which must be consulted on projects proposed near its facilities (see Figure LU-4) to ensure new development does not conflict with operations or pose safety risks.

An important component of long-range regional planning in the Bay Area is designation of Priority Development Areas (PDAs). PDAs are proximate to public transit and planned for concentrated development of new homes, jobs, services, and community amenities. PDAs are envisioned as walkable areas that provide the necessities of daily living, thereby allowing residents to be less automobile dependent. ABAG/MTC offers grants and other assistance to develop and implement PDA plans. While PDAs are a regional planning tool, they are under the jurisdiction of the cities and counties where they are located. Over 30 PDAs have been designated in Contra Costa County, six of which are entirely or partially within the unincorporated area, as shown on Figure LU-5 and described in Table LU-3.

Another regional planning tool supported by ABAG/MTC is Transit-Oriented Communities (TOCs). TOCs are similar to PDAs in that their purpose is to create walkable communities near public transit. However, TOCs specifically aim to provide high residential densities within one-half mile of high-quality transit facilities like BART stations and ferry terminals, whereas PDAs may have lower average densities and extend farther out. A TOC therefore may exist within a larger PDA. In Contra Costa County there are 14 locations (12 BART stations, one Amtrak station, and one ferry terminal) that could qualify for designation as a TOC. As shown on Figure LU-5, these include unincorporated areas near the Pleasant Hill/Contra Costa Centre and Pittsburg/Bay Point BART Stations.

Table LU-3: Priority Development Areas in Unincorporated Contra Costa County (New table)

| Priority Development Area | Households | | | | Jobs | | | |
|---|------------|-------|----------------------------|----------|-------|-------|----------------------------|----------|
| | 2010 | 2040 | Projected 2010-2040 Growth | % Growth | 2010 | 2040 | Projected 2010-2040 Growth | % Growth |
| San Pablo Avenue Corridor - Unincorporated County | 1,586 | 4,784 | 3,198 | 202% | 847 | 1,087 | 240 | 28% |
| North Richmond | 1,080 | 4,304 | 3,224 | 299% | 1,797 | 2,400 | 603 | 34% |
| Downtown El Sobrante | 559 | 784 | 225 | 40% | 1,030 | 1,127 | 97 | 9% |
| Contra Costa Centre | 354 | 623 | 269 | 76% | 4,441 | 5,888 | 1,447 | 33% |
| Pittsburg/Bay Point BART Station | 847 | 1,460 | 613 | 72% | 838 | 1,959 | 1,121 | 134% |
| Brentwood Boulevard | tbd | | | | tbd | | | |

Source: 2017 Contra Costa PDA Investment and Growth Strategy. Contra Costa Transportation Authority.

The following change is recommended by staff in response to a comment letter received on March 26, 2024, from the Alamo Improvement Association.

Page 4-21/Action LU-A5.1

In 2025 and at least once every five years thereafter, evaluate the County's off-street parking standards to ensure their continued applicability in light of changing conditions, trends, and technologies. Each evaluation

should assess the appropriateness of reducing or eliminating parking minimums, taking off-site impacts and the variations in parking needs between communities into account, and recommend strategies for reducing parking demand.

The following changes are recommended by staff based on new information or to clarify content.

Page 4-21/Goal LU-5

Move existing Policy LU-P6.4 to instead be Policy LU-P5.2 and edit as follows: Coordinate with LAFCO to ensure that city annexations and related land use decisions do not:

- (a) Interfere with attainment of the County's land use goals as expressed in this General Plan.
- (b) Include Housing Element inventory sites unless provisions have been made to transfer the site's assigned units to the receiving city's Regional Housing Needs Allocation (RHNA).
- (c) Create new unincorporated "islands" (i.e., ~~isolated~~ developed areas substantially surrounded by incorporated cities. *Renumber the subsequent policies accordingly.*

Move Policy LU-P6.5 to instead be Policy LU-P5.3 and edit as follows: Encourage cities to annex unincorporated "islands" such as the Rollingwood (San Pablo), Ayers Ranch (Concord) and San Miguel (Walnut Creek) neighborhoods. *Renumber the subsequent policies accordingly.*

The following changes are recommended by staff in response to a comment letter received on April 8, 2024, from the Delta Protection Commission and to clarify content.

Page 4-24/Policy LU-P6.1

Ensure that County projects and decisions on private development and land use activities within the Legal Delta are consistent with the following plans:

- (a) ~~The~~ Land Use and Resource Management Plan for the Primary Zone of the Delta adopted by the Delta Protection Commission.
- (b) ~~The~~ Delta Plan adopted by the Delta Stewardship Council.

In addition, screen proposed General Plan amendments affecting the Primary Zone for consistency with Public Resources Code Section 29763.5, including a specific analysis of consistency with each subsection thereof.

Page 4-24/Goal LU-6

New Policy LU-P6.2: Maintain Priority Development Area and Transit-Oriented Community designations in support of Plan Bay Area and other regional planning initiatives sponsored by ABAG/MTC. *Renumber the subsequent policies accordingly.*

The following changes are recommended by staff based on new information or to clarify content.

Page 4-26/Policy LU-P7.3

Protect residential neighborhoods from incompatible uses and activities that ~~will~~ adversely affect public health and safety.

Page 4-26/Policy LU-P7.5

Require new residential projects to provide convenient access/connections to public transit, local destinations, and multi-use trails—~~whenever possible~~.

Page 4-26/Goal LU-7

New Action LU-A7.1: Evaluate the appropriateness of amending County Ordinance Code Title 8 – Zoning to allow sale of an ADU as a condominium separate from the primary residence, pursuant to AB 1033 and Government Code Section 66342. Renumber the subsequent actions accordingly.

Page 4-26/Goal LU-7

Move existing Action LU-A7.1 to instead be Policy LU-P7.3: Maintain objective design standards for residential and mixed-use development to provide a streamlined approval process and ensure architectural compatibility for future infill development. Renumber the subsequent policies accordingly.

Move Policy HS-P4.6 to instead be Policy LU-P7.6: In hazard-prone areas, such as slopes exceeding 15 percent, mapped floodplains, High and Very High Fire Hazard Severity Zones, and Alquist-Priolo Earthquake Fault Zones, allow for decreased residential density, including below the minimum density requirement for the applicable land use designation, as the severity of risk increases. Renumber the subsequent policies accordingly.

The following change is recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club.

Page 4-27/Policy LU-P8.5

Emphasize the importance of commercial centers as civic gathering places. Whenever feasible, require plans for commercial and mixed-use areas to include safe, well-maintained open spaces, gathering places, and public spaces ~~and amenities~~ that create a strong sense of place.

Page 4-28/Policy LU-P9.1

~~Welcome~~ Actively seek out industries that create living-wage jobs and career advancement opportunities for county residents while minimizing environmental degradation, pollution exposure, hazardous conditions, and adverse public health impacts.

The following change is recommended by staff in response to a comment letter received on April 8, 2024, from the Delta Protection Commission.

Page 4-30/Policy LU-P10.3

Preserve the rural character of the following areas, which are displayed in Figure LU-5:

- (a) Alhambra Valley/Briones
- (b) Tassajara Valley

(c) Delta Primary Zone

(ed) Agricultural Core between Brentwood and Discovery Bay

(de) Crockett Hills between Crockett and State Route 4

(ef) Franklin Canyon/State Route 4 corridor between Hercules and Martinez

(fg) Bollinger Canyon Road corridor between Las Trampas Regional Wilderness and Crow Canyon Road

(gh) Norris Canyon Road corridor between San Ramon and the Alameda County line

(hi) Marsh Creek Road corridor between Clayton and Byron Highway

(ij) Kirker Pass Road corridor

(jk) Morgan Territory Road corridor

(kl) Deer Valley Road corridor

Pay special attention to potential aesthetic impacts in these areas and ensure such impacts are adequately mitigated.

TRANSPORTATION ELEMENT

The following changes are recommended by staff based on new information or to clarify content.

Element Organization

Reorganize the Element so that the Coordinated Planning section is presented first. This will require edits to the introductory language for the Element, as well as renumbering all goals, policies, and actions.

Page 5-5/Policy TR-P1.2

Prioritize expansion of bicycle, micromobility, and pedestrian infrastructure (e.g., Class IV separated bikeways) to address the significant latent demand for these active transportation modes.

The following change is recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club, and to clarify content.

Page 5-5/Policy TR-P1.4

Reduce single-occupant vehicle usage and VMT by significantly enhancing the availability and safety of other travel modes through infrastructure investment, policy support (Vision Zero, at a minimum using strategies defined in the TDM Ordinance, and other best practices), and support for public transit.

The following changes are recommended in response to a comment letter received on April 22, 2024, from the Center for Biological Diversity and by staff to clarify content.

Page 5-6/Policy TR-P1.9

Support public transit and ~~E~~ncourage transit use by advocating for increased funding with enhanced governance, high-frequency service, and ~~supporting~~ expansion of first-mile/last-mile programs, ~~including micromobility.~~

The following changes are recommended by staff based on new information or to clarify content.

Page 5-6/Policy TR-P1.10

Enhance multimodal access to all transit stops, ~~including local routes as well as passenger and commuter rail stations and ferry terminals,~~ prioritizing stops which serve vulnerable and mobility-impaired populations.

Page 5-6/Policy TR-P1.11

Support transitioning all on-road vehicles, including personal vehicles and business, government, and public transit fleets, to electric power from renewable sources or other ~~zero~~-emission free fuels.

The following changes are recommended by staff based on new information or to clarify content.

Page 5-6/Policy TR-P1.12

Continue to improve ZEV (~~including electric bicycle~~) charging/fueling infrastructure within new development and public rights-of-way, incorporating new technologies whenever possible.

The following changes are recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club, and to clarify content.

Page 5-6/Action TR-A1.1

Develop and promote mobility alternatives to single-occupancy vehicles, including but not limited to public transit, micromobility, ~~zero-carbon~~ carbon-free rideshare strategies, and ~~public transit~~ nonmotorized modes.

Page 5-6/Action TR-A1.2

Review and update County Ordinance Code Chapter 82-32 – Transportation Demand Management and the County's Transportation Demand Management Guidelines at least once every five years to incorporate current best practices.

Page 5-6/Action TR-A1.5

Conduct a survey of ~~County offices and facilities~~ to identify gaps in public transit and the alternative active transportation network within one mile of County offices and facilities, and pursue funding for projects and

programs that will fill those gaps and improve the availability of alternative transportation options for County employees.

Page 5-7/Action TR-A1.7

Partner with transit providers, cities, and CCTA to develop a countywide transit stop program that takes a holistic approach to transit stop planning and construction. ~~Push for~~ Encourage the program to address right-of-way adequacy (i.e., sufficient space for bus pullouts and amenities), amenities (e.g., shelters, seating, bicycle racks and lockers), and improvements around stops to increase accessibility (e.g., curb ramps, sidewalk widening).

Page 5-7/Action TR-A1.12

Update the County Ordinance Code as necessary to support advances in ZEV charging/fueling infrastructure, ~~including for medium and heavy duty vehicles.~~

Page 5-7/Action TR-A1.13

Advocate for legislation requiring micromobility and other transportation technology providers to accept responsibility for and mitigate the unique physical, operational, and financial impacts of their services, such as abandoned mobility devices, upon local jurisdictions.

Page 5-8/Policy TR-P2.3

~~Provide or~~ Require new projects to installation of, or provide, energy-efficient street lighting to improve public safety and comfort in urbanized areas. Prioritize installation in Impacted Communities, particularly at parks, transit stops, alleyways, bike and pedestrian paths, trails, and other ~~appropriate~~ high-need areas, consistent with community preferences.

The following changes are recommended by staff based on new information or to clarify content.

Page 5-11/Policy TR-P3.3

Partner with cities, CCTA, and the San Francisco Bay Area Water Emergency Transportation Authority (WETA), ~~and other involved agencies~~ to plan and implement ferry service that benefits unincorporated county residents.

Page 5-11/Policy TR-P3.5

Pursue ~~federal~~ regional, State, and ~~federal~~ regional funding to augment locally generated funds to construct and maintain transportation infrastructure.

The following change is recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club.

Page 5-11/Action TR-A3.1

Coordinate with Caltrans, neighboring jurisdictions, CCTA, and the Regional Transportation Planning Committees to plan, design, and implement Complete Streets concepts on Routes of Regional Significance.

The following change is recommended by staff based on new information or to clarify content.

Page 5-14/Policy TR-P4.3

Create connections between unincorporated communities and neighborhoods in unincorporated areas and adjacent jurisdictions to improve multimodal access to local destinations, such as schools, parks, shopping, health services, and workplaces.

The following changes are recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club.

Page 5-15/Policy TR-P4.6

Enhance streetscapes in nonresidential areas, making them more pedestrian-friendly and inviting by reducing setback and off-street parking and setback requirements and augmenting traffic-calming measures.

Page 5-15/Action TR-A4.1

Update Review the County Standard Plans at least once every five years for relevance and applicability and update on an as-needed basis as necessary to reflect best practices in context sensitivity, eComplete sStreets, travel safety, and environmental sustainability.

Page 5-15/Action TR-A4.3

Develop guidance for managing curb space in ways that are sensitive to the land use context, with considerations for freight deliveries, parking, active transportation use, users with limited mobility, transportation network companies, outdoor dining, freight deliveries, parking, and other curb uses that may emerge.

The following change is recommended by staff based on new information or to clarify content.

Page 5-19/Active Transportation

Local bikeways are classified based on traditional categories recognized by regional ~~federal~~, State, and ~~federal~~ regional transportation agencies. Each bikeway class is intended to provide bicyclists with safe and convenient riding conditions. Different bikeway designs offer various levels of separation from traffic based on traffic volume, speed, and other factors. There are four ~~bikeway~~ types:

- **Class I bikeways (bike paths)** provide completely separate facilities from automobiles and are designated for the exclusive use of bicyclists and pedestrians with minimal cross-flow automobile traffic. In Contra Costa County, these types of paths are often along creeks, canals, utility corridors, and former rail lines. Class I bikeways are often used for recreational and commute trips.

The following changes are recommended in response to a comment received at an open house event and a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club.

Page 5-20/Policy TR-P5.4

Ensure that fee programs include active transportation facilities, and require new development to contribute funds, right-of-way, and/or provide active transportation facilities themselves, ~~where feasible~~.

Page 5-20/Policy TR-P5.10

Require generous parking for bicycles and other mobility devices at key destinations, such as shopping centers, parks, schools, ~~workplaces~~ employment centers, transit stations, and multiple-family housing. This parking should be conveniently located near entrances, include charging infrastructure, and accommodate cargo bikes when appropriate for the land use.

The following change is recommended by staff based on new information or to clarify content.

Page 5-21/Action TR-A5.3

~~Periodically~~ Review the scoring formula for active transportation projects at least once every five years to ensure continued prioritization of projects in Impacted Communities.

The following changes and new action are recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club, and to clarify content.

Page 5-21/Goal TR-5

*Move Action TR-A5.5 to instead be Policy TR-P5.9 and edit as follows: Consider allowing proposals for temporary and permanent reorientation of public space towards increased outdoor activity, including such as walking, bicycling, rolling, dining, and other social uses. *Renumber the subsequent policies accordingly.**

Page 5-21/Goal TR-5

New Action TR-A5.5: Evaluate the feasibility and appropriateness of the following when updating the ATP and CRIPP:

- (a) Installing bikeways along all segments of Routes of Regional Significance within the County's jurisdiction.
- (b) Restriping arterials and collectors to include bikeways whenever major maintenance occurs.
- (c) Installing bikeways and sidewalks along arterials and collectors to the limits of adjacent jurisdictions.
- (d) Installing bicycle detection systems, bicycle signals, bicycle boxes, and pavement markings at new and retrofitted traffic signals.
- (e) Installing crosswalks at all legs of signalized intersections.

The following change is recommended by staff based on new information or to clarify content.

Page 5-21/Goal TR-5

See the Public Facilities and Services Element for additional policies and actions related to the countywide trail network.

The following new action is recommended in response to a comment letter received on December 4, 2023, from Dick Offerman, Konveio comments received on January 31, 2024, from Dick Offerman, and a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club.

Page 5-27/Goal TR-7

New Action TR-A7.2: Switch to sale of unleaded aviation gasoline at County-owned airports as soon as there is a commercially viable and safe drop-in replacement for leaded fuel.

CONSERVATION, OPEN SPACE, AND WORKING LANDS ELEMENT

The following changes are recommended by staff based on new information or to clarify content.

Page 7-1/Introductory text

- The **Energy Resources** section includes policy guidance to conserve energy and support a transition to ~~zero~~-carbon-free energy sources, such as wind and solar.

Page 7-2/Open Space Framework

Major open space landowners operating at the local level in Contra Costa County include:

The following change is recommended in response to online comments received on April 8, 2024, from Jim Hanson of the California Native Plant Society.

Page 7-3/Policy COS-P1.3

Discourage conversion of land designated Resource Conservation or Parks and Recreation to urban uses. If such conversion is to occurs, require mitigation through permanent protection of other open space or park lands for habitat, scenic, or recreation benefits at a ratio to be determined based on the biological, scenic, or recreational value of the land, but not less than 3:1.

The following changes are recommended in response to a comment letter received on April 8, 2024, from Friends of Pleasant Hill Creeks.

Page 7-3/Action COS-A1.1

Convene an annual staff-level meeting with ~~involved~~ conservation agencies, ~~such as (e.g., the East Contra Costa County Habitat Conservancy, and EBRPD),, land trusts,~~ and conservation ~~groups~~ organizations (land trusts,

watershed stewardship groups, etc.) to review current and planned efforts to protect and maintain open space and habitat.

The following change is recommended by staff based on new information or to clarify content.

Page 7-7/Policy COS-P2.1

Preserve large, contiguous areas of the county for agricultural production. ~~Prohibit~~ Deny applications for projects that would lead to fragmentation of agricultural areas.

The following changes are recommended in response to a comment letter received on April 8, 2024, from the Delta Protection Commission.

Page 7-8/Goal COS-2

New Policy COS-P2.4: Consult with the Delta Protection Commission to identify mitigation strategies, as relevant, if a change in land use that converts agriculture would significantly affect the sustainability of the Delta agricultural economy. *Renummer the subsequent policies accordingly.*

Page 7-8/Policy COS-P2.4

Require new projects adjacent to agriculture to establish buffers on their properties as necessary to minimize conflicts and protect agriculture. Determine appropriate buffers in consultation with the County Agricultural Commissioner.

The following changes are recommended by staff based on new information or to clarify content.

Page 7-8/Policy COS-P2.11

Support efforts to protect, maintain, and improve soil health as a carbon sequestration tool.

Page 7-12/Ecological Resource Areas

The East Contra Costa County Habitat Conservancy oversees implementation of the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP), which provides regional conservation and development guidelines to protect natural resources while improving and streamlining the permit process for projects that will impact endangered species and sensitive habitat.

During the first 15 years of HCP/NCCP implementation, ~~42~~ 43 properties were acquired for the Preserve System, totaling over 14,400 acres. All but one of the acquisitions were completed in partnership with EBRPD.

The following change is recommended in response to online comments received on April 8, 2024, from Jim Hanson of the California Native Plant Society.

Page 7-13/Policy COS-P4.3

Require a biological resources assessment prepared according to State and federal protocols for projects with the potential to impact rare, threatened, endangered, or special-status species or their habitat, and implement appropriate mitigation for identified impacts, preferably near the impact and within the county.

The following change is recommended in response to a comment letter received on April 8, 2024, from Friends of Pleasant Hill Creeks.

Page 7-13/Policy COS-P4.4

Protect ~~habitat and~~ wildlife migration corridors, including natural and channelized creeks providing habitat in urban settings, and support projects that enhance these areas.

The following change is recommended by staff based on new information or to clarify content.

Page 7-13/Policy COS-P4.5

Discourage ~~the~~ use of fencing that poses risks to wildlife.

The following new policy is recommended in response to a comment letter received on April 8, 2024, from the Delta Protection Commission.

Page 7-16/Goal COS-4

New Policy COS-P4.6: Require projects impacting Pacific Flyway habitat in the Delta Primary Zone to incorporate mitigation that ensures no net loss of habitat function, including temporal loss. Impacts to Pacific Flyway habitat will be determined based on best available information at the time of environmental review. *Renumber the subsequent policies accordingly.*

The following new policy is recommended in response to a comment letter received on April 8, 2024, from Friends of Pleasant Hill Creeks.

Page 7-16/Goal COS-4

New Policy COS-P4.7: Require projects near sensitive habitat areas to minimize lighting in general and mitigate light pollution by incorporating best practices for wildlife-friendly lighting. *Renumber the subsequent policies accordingly.*

The following changes are recommended in response to online comments received on April 8, 2024, from Jim Hanson of the California Native Plant Society.

Page 7-16/Policy COS-P4.6

Require appropriately-timed, comprehensive floristic and vegetation surveys prepared according to State and federal protocols when development is proposed on land with potentially suitable habitat for special-status plant species, sensitive natural plant communities, or locally rare plants, including areas mapped by the California Native Plant Society as Botanical Priority Protection Areas.

Page 7-16/Policy COS-P4.7

Require avoidance and protection of sensitive ecological resources not approved for disturbance or removal during project entitlement, and require restitution in exceedance of standard mitigation ratios for deliberate or inadvertent damage to these resources.

The following changes are recommended in response to a comment letter received on April 8, 2024, from Friends of Pleasant Hill Creeks.

Page 7-16/Policy COS-P4.8

Require majority use of California native plant species in ~~landscaping for large landscaped areas in~~ new developments, and require construction practices that avoid spread of invasive plant species by minimizing surface disturbance; seeding and mulching disturbed areas with certified weed-free native mixes; disinfecting/decontaminating equipment; and using native, noninvasive, drought-resistant species in erosion-control plantings.

Page 7-16/Policy COS-P4.9

Support preservation, enhancement, and reestablishment of native and sport fisheries ~~and reestablishment of fisheries in streams wherever possible~~. Assist conservation agencies and organizations with identifying and addressing barriers to fish passage and other challenges to fish survival in natural watercourses.

The following new action is recommended in response to a comment letter received on April 22, 2024, from the Center for Biological Diversity and a comment letter received on April 7, 2024, from the Walnut Creek Watershed Council.

Page 7-16/Goal COS-4

New Action COS-A4.3: Work with conservation agencies to identify appropriate locations and methods for incorporating wildlife crossings into future road projects.

The following changes are recommended in response to a comment letter received on April 7, 2024, from the Walnut Creek Watershed Council and to clarify content.

Page 7-17/Header edit and text edits

~~Creeks,~~ Wetlands, Natural Watercourses, and Riparian Areas

Contra Costa County hosts abundant aquatic habitat ~~through its~~ in the form of coastal salt and freshwater and coastal salt marshes, mud flats, inland wetlands, creeks and streams, and riparian vegetation.

As illustrated ~~in~~ in Figures COS-5 and COS 6, many creeks, streams, and other drainages extend throughout the county and ultimately drain into San Francisco Bay, San Pablo Bay, Suisun Bay, and the Delta. Outside the urbanized parts of the county, creeks and streams tend to be in a natural or mostly undisturbed state, supporting diverse plant and animal life. The riparian ecosystems along creek banks provide permanent homes and migratory pathways for many species, while also offering recreational opportunities for people to connect with nature. ~~Natural~~ Creeks and other freshwater bodies also store water and help to recharge groundwater basins, which increases resiliency to drought conditions.

The following change is recommended in response to a comment letter received on April 8, 2024, from Friends of Pleasant Hill Creeks.

Page 7-17/Policy COS-P5.1

Support protection, restoration, and enhancement of ~~creeks~~, wetlands, marshes, sloughs, ~~and~~ tidelands, natural watercourses, and riparian corridors, and emphasize the role of these features in climate change resilience, air and water quality, and wildlife habitat.

The following change is recommended in response to a comment letter received on April 8, 2024, from Friends of Pleasant Hill Creeks.

Page 7-19/Policy COS-P5.2

Require ~~new~~ public infrastructure and private development projects to preserve, and whenever possible restore and enhance, natural watercourses, floodplains, and riparian habitat.

The following new policy is recommended in response to a comment letter received on April 8, 2024, from the Contra Costa Water District.

Page 7-19/Goal COS-5

New Policy COS-P5.6: Identify and pursue funding opportunities to acquire, protect, and maintain open space around existing flood control channels to facilitate implementation of the County's 50-Year Plan "From Channels to Creeks." *Renumber the subsequent policies accordingly.*

The following new policy is recommended in response to a comment letter received on April 7, 2024, from the Walnut Creek Watershed Council and a comment letter received on April 8, 2024, from Friends of Pleasant Hill Creeks.

Page 7-19/Goal COS-5

New Policy COS-P5.7: Work with conservation agencies and organizations to:

- (a) Increase public awareness about threats to water quality and prepare and implement watershed restoration plans throughout the county.
 - (b) Acquire, protect, restore, and maintain areas adjacent to natural watercourses and riparian corridors.
- Renumber the subsequent policies accordingly.*

The following new policy and changes are recommended in response to a comment letter received on April 8, 2024, from Friends of Pleasant Hill Creeks.

Page 7-19/Goal COS-5

New Policy COS-P5.8: Discourage ornamental landscaping within setback areas along natural watercourses and require use of California native plant species when revegetating those areas. *Renumber the subsequent policies accordingly.*

Page 7-19/Policy COS-P5.6

Require increased setbacks for animal-handling uses whenever necessary to protect natural watercourses, wetlands, riparian habitat, or erosion-prone soils. Setback increases can be applied to all aspects components of the use, such as manure storage or parking areas, and are not limited to buildings and structures.

Page 7-19/Policy COS-P5.7

Allow encroachments into required setback areas along natural watercourses and wetlands for the purpose of constructing low-impact public improvements or public-serving amenities, such as footbridges, trails, and nature viewing areas, provided a qualified biologist confirms that the improvements/amenities are compatible with protection of ecological values.

Page 7-19/Action COS-A5.1

Inventory wetlands, floodplains, marshlands, natural watercourses, riparian corridors, and adjacent lands that could potentially support climate adaptation (e.g., through flood management, filtration, or other beneficial ecosystem services) and mitigation (e.g., carbon sequestration).

The following change is recommended by staff based on new information or to clarify content.

Page 7-20/Action COS-A5.3

Amend ~~the~~ County Ordinance Code Chapter 914-14 – Rights-of-Way and Setbacks to ~~apply~~ make the creek setback requirements for unimproved earth channels applicable in Title 9 – Subdivisions to all projects, including those that are not part of a not just subdivisions.

The following new actions are recommended in response to a comment letter received on April 8, 2024, from Friends of Pleasant Hill Creeks.

Page 7-20/Goal COS-5

New Action COS-A5.4: With input from watershed stewardship groups, evaluate the setback requirements in County Ordinance Code Chapter 914-14 – Rights-of-Way and Setbacks to determine appropriate setbacks for maximizing the natural function of natural watercourses and allowing for future restoration.

New Action COS-A5.5: Review the Contra Costa County Watershed Atlas to determine whether an update is necessary.

The following change is recommended in response to online comments received on April 8, 2024, from Jim Hanson of the California Native Plant Society.

Page 7-20/Policy COS-P6.1

Preserve natural woodlands and significant trees, particularly mature native species, intact coastal scrub and chaparral, and grasslands, especially those with native grass and wildflower populations.

The following change is recommended in response to a comment letter received on April 7, 2024, from the Walnut Creek Watershed Council and online comments received on April 8, 2024, from Jim Hanson of the California Native Plant Society.

Page 7-20/Policy COS-P6.2

Encourage planting and propagation of California native trees and habitat-supporting native shrubs, forbs, and grasses throughout the county to enhance the natural landscape, provide shade (especially in riparian areas), sustain wildlife, absorb stormwater, and sequester carbon.

The following change is recommended in response to a comment letter received on April 7, 2024, from the Walnut Creek Watershed Council.

Page 7-20/Policy COS-P6.4

~~Encourage~~ Support removal of invasive, non-native trees, shrubs, and grassland weeds species, especially those that are ecologically harmful or known to pose threats to public safety.

The following change is recommended in response to online comments received on April 8, 2024, from Jim Hanson of the California Native Plant Society.

Page 7-21/Policy COS-P6.5

Encourage revegetation with local or regional ecotypes of native species in areas that were previously converted for agriculture but are no longer in production.

The following change is recommended in response to online comments received on March 26, 2024, from the Alamo Improvement Association.

Page 7-25/Policy COS-A6.1

Update County Ordinance Code Chapter 816-6 – Tree Protection and Preservation, to enhance tree protections and strengthen mitigation requirements/restitution for ~~tree~~ removal commensurate with the benefits the tree provides.

The following changes are recommended in response to a comment letter received on April 4, 2024, from the Alameda County Water District and to clarify content.

Page 7-25/Goal COS-7

*Move Policy COS-P7.1 to instead be Policy COS-P7.6 and make the following text edits: Require new development to reduce ~~potable~~ water consumption through use of water-efficient devices and technology, drought-tolerant landscaping strategies, and treated recycled water, where available. *Renumber the remaining policies accordingly.**

The following change is recommended by staff based on new information or to clarify content.

Page 7-25/Policy COS-P7.7

Require landscaping for new development to ~~be drought tolerant~~, filter and retain runoff, and support flood management and groundwater recharge.

The following change is recommended in response to a comment letter received on April 4, 2024, from the Alameda County Water District.

Page 7-27/Policy COS-P7.9

Support wastewater reclamation and reuse programs that maximize use of treated recycled water.

Staff recommends deleting the following policy because the concept is included in the recommended new Policy COS-P5.7.

Page 7-27/Policy COS-P7.10

~~Support programs and activities conducted by community watershed groups and volunteers that increase public awareness and encourage stewardship of water resources.~~

The following change is recommended in response to a comment letter received on March 11, 2024, from the Building Trades Council.

Page 7-27/Action COS-A7.3

Evaluate the feasibility and necessity of amending the County Ordinance Code to promote rainwater harvesting, installation of dual plumbing (purple pipe), and water reuse.

The following changes are recommended by staff based on new information or to clarify content.

Page 7-29/Policy COS-P9.3

Oppose all efforts to construct an isolated conveyance, ~~(e.g., such as a peripheral canal, or tunnel)~~, or any other water diversion system that reduces Delta water flows unless and until it can be conclusively demonstrated that such a system would protect, preserve, and enhance water quality and fisheries of the San Francisco Bay/Delta estuary system.

The following new policy is recommended by staff in response to a comment letter received on April 8, 2024, from the Delta Protection Commission.

Page 7-29/Goal COS-9

New Policy COS-P9.4: Work with the Delta Protection Commission to advise agencies undertaking habitat restoration projects within the Delta Primary Zone of their obligation to comply with California Constitution Article XIII D, Section 4, which requires public projects to continue paying benefit assessments unless the project demonstrates that it would not receive relevant services. Renumber the subsequent policies accordingly.

The following changes are recommended by staff based on new information or to clarify content.

Page 7-32/Policy COS-P10.7

Require significant historic, archaeological, and paleontological resources to be either preserved onsite or adequately documented as a condition of removal. Any documentation of historic resources shall be conducted in accordance with Historic American Building Survey (HABS) Level III standards, as defined by the US Secretary of the Interior.

Page 7-33/Tribal Communities

Contra Costa County is in an area where traditional territories of three Native American tribal communities – the Bay Miwok, ~~Northern Valley~~ Delta Yokuts, and Ohlone – converged, as shown in Figure COS-11.

Page 7-34/Policy COS-P11.3

Consult with culturally affiliated tribes on General Plan and Specific Plan amendments with potential to impact tribal cultural resources. If an amendment redesignates a tribal cultural resource site on private land for open space purposes, evaluate the appropriateness of developing a treatment and management plan for tribal cultural resources in the affected area.

Page 7-35/Policy COS-P11.6

Encourage voluntary landowner efforts to protect tribal cultural resources, including voluntary relinquishment of tribal cultural resources to affiliated tribes.

Page 7-38/Policy COS-P12.9

Enable flexibility in the design of projects along scenic routes ~~in scenic corridors~~ and support innovative solutions to protect views and visual quality.

The following changes are recommended in response to a comment letter received on February 12, 2024, from the Western States Petroleum Association and to clarify content.

Page 7-41/Energy Resources

Contra Costa County has long been an energy producer. Coal mining began in the 1850s, as indicated previously. The first petroleum refinery in the Bay Area opened in Rodeo in 1896 and the county has historically been home to a small oil and natural gas production industry. However, energy production in Contra Costa County is evolving as reliance on fossil fuels decreases and the State enacts more aggressive policies to combat climate change. ~~In recent years, the State has,~~ including increased support for a transitioning to cleaner-burning biofuels through investments in technology, infrastructure, and production. Biofuels, including biomethane, biodiesel, and gasoline and diesel fuels derived from renewable sources instead of petroleum, can reduce reliance on traditional fuel sources, improve air quality, and reduce greenhouse gas (GHG) emissions. Embracing the future, ~~Two former petroleum refineries in the county have already begun~~ converting their operations from refining crude oil to processing cleaner biofuels.

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| The following changes are recommended by staff based on new information or to clarify content. |
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Page 7-43/Energy Resources

The State and Contra Costa County are moving towards reducing or eliminating natural gas use in existing and new buildings and transitioning to a clean energy economy. The County adopted an all-electric building ordinance in 2022, but enforcement was suspended following a federal court ruling in January 2024, requiring that all new residential, retail, office, and hotel buildings use electricity as the sole source of energy for space heating, water heating, cooking appliances, and clothes-drying appliances; natural gas and propane plumbing is prohibited. Later in 2024 the County will consider adopting a replacement ordinance that supports high levels of energy efficiency and low levels of GHG emissions for new construction.

The County, ~~and~~ regional utilities, and community choice energy providers also provide rebates and programs to help make homes and businesses more resource efficient through energy audits, building retrofits, and opportunities to transition to a renewable electricity provider. The County continues to pursue opportunities for reducing overall energy use and increasing reliance on renewable sources, such as converting municipal and other wastes to energy resources (e.g., methane).

In ~~December 2015~~ October 2024 the County will consider adopting ~~adopted a~~ its Climate Action and Adaptation Plan (CAAP), which is the successor to the 2015 Climate Action Plan. The CAAP is the County's strategic approach to reducing GHG emissions from sources throughout the unincorporated area. The CAAP identifies County programs and actions to decrease energy use, improve energy efficiency, develop renewable energy, reduce vehicle miles traveled, increase multi-modal travel options, expand green infrastructure, reduce waste, and improve the efficiency of government operations. The CAAP also forecasts the County's GHG emissions and sets reduction targets and strategies. As a document that is integral to implementation of the General Plan, the CAAP was updated in parallel with this and General Plan must remain consistent and compatible.

Page 7-43/Goal COS-14

Increased generation of and reliance on renewable, sustainable, and ~~zero-carbon-free~~ energy and reduced energy use.

Page 7-43/Policy COS-P14.1

Implement Climate Action and Adaptation Plan strategies to improve energy efficiency and conservation, promote carbon-free energy sources, and reduce energy-related GHG emissions.

Page 7-43/Policy COS-P14.2

Partner with State and regional ~~and State~~ agencies (e.g., California Public Utilities Commission, California Energy Commission, and ABAG/MTC) to support energy efficiency and renewable energy planning efforts.

Page 7-44/Policy COS-P14.8

Design and construct new County facilities to be ~~zero-net~~ zero-net energy to the extent feasible.

Page 7-44/Policy COS-P14.10

Delete Policy COS-P14.10, replacing it with Action COS-A14.10 (covered below). Require replacement and new water heaters and space heating and cooling systems to be electric if the building electric panel has sufficient

~~capacity in accordance with Bay Area Air Quality Management District Regulation 9, Rule 4, and Regulation 9, Rule 6.~~

The following change is recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club.

Pages 7-44 to 7-45/Action COS-A14.1

Amend County Ordinance Code Chapter 88-14 – Oil and Gas Drilling and Production to:

- (a) Prohibit new and expanded oil and gas production wells in the following:
 - i. Sensitive ecological areas, such as wetlands and habitat for rare, threatened, endangered, or special-status species.
 - ii. Areas subject to 100-year flood hazards or sea level rise, as shown in Figures HS-2 and HS-6 through HS-9.
 - iii. Areas within 3,200 feet of sensitive receptors or urban land use designations unless project-specific exceptions are granted by the California Department of Conservation, Geologic Energy Management Division.
- (b) Restrict oil and gas drilling operations to agricultural zoning districts only.
- (c) Require a land use permit for all new and expanded oil and gas wells.
- (d) Require a reclamation plan for oil and gas well sites that includes bonding for site clean-up.
- (e) Include performance standards related to surface water and groundwater quality and quantity, air quality, odors, noise, and aesthetics.

In parallel, study the feasibility of amending the County Ordinance Code to prohibit development of new oil and gas wells and phase out existing oil and gas well operations.

The following change is recommended in response to a comment letter received on March 11, 2024, from the Building Trades Council.

Page 7-45/Action COS-A14.2

Amend County Ordinance Code Division 88 – Special Land Uses to consolidate Chapters 88-3 and 88-30 governing wind energy conversion systems and solar energy facilities, respectively, into a new renewable energy chapter, with added provisions related to microgrids, community solar projects, and battery energy storage systems. Simultaneously review the boundaries of the Solar Energy Generation Combining District to determine whether opportunities exist for increasing solar energy generation without encroaching upon HCP/NCCP priority acquisition areas, aesthetically sensitive areas, or other lands that are inappropriate for solar energy development.

The following changes and new action are recommended by staff based on new information or to clarify content.

Page 7-45/Action COS-A14.4

~~Consider adopting~~ Adopt new or modified reach codes that exceed the California Building Standards Code, as the State updates the Building Code every three years, to require ~~the~~ use of ~~lower~~-carbon intensive energy

sources, to achieve higher ~~feasible~~ levels of energy ~~conservation and efficiency performance~~, and to achieve lower ~~feasible~~ levels of GHG emissions.

Page 7-45/Action COS-A14.5

Maintain, update, and publicize County ordinances and programs and ~~enforce the County Ordinance Code Title 7 – Building Regulations amendment~~ requiring new residential buildings, hotels, offices, and retail to be ~~all-electric~~, more energy efficient, with low levels of GHG emissions. Evaluate the feasibility of including other building types as appropriate.

Page 7-46/Action COS-A14.7

Create a detailed County roadmap to convert existing homes and businesses to use low-~~carbon~~ or ~~zero-carbon-free~~ appliances. The roadmap should include steps to support converting buildings to rely on low-~~carbon~~ or ~~zero-carbon-free~~ energy using an equitable framework that minimizes the risk of displacement or significant disruptions to existing tenants.

Page 7-46/Goal COS-14

New Action COS-A14.10: Provide educational and technical resources to advance the adoption of heat pump water heater and heat pump space heating in buildings in support of BAAQMD Regulation 9, Rule 4, and Regulation 9, Rule 6, which will mandate that replacement and new water heaters (2027 and 2031) and space heaters (2029) are zero NOx. Renummer the subsequent action accordingly.

New performance measure recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club.

Page 7-46/Conservation, Open Space, and Working Lands Element Performance Measures

- Increased renewable energy generation and storage.

PUBLIC FACILITIES AND SERVICES ELEMENT

The following change is recommended by staff based on new information or to clarify content.

Page 8-6/Action PFS-A2.6

Pursue public-private partnerships that ~~will~~ improve access to reliable, fast, and affordable internet ~~and make digital resources available in Impacted Communities at affordable prices.~~

The following changes are recommended in response to a comment letter received on April 8, 2024, from the Contra Costa Water District and to clarify content.

Page 8-8/Water and Wastewater

- **EBMUD** provides treated water to approximately 1.4 million ~~customers~~, people in western Contra Costa County and portions of Central County. EBMUD brings water from the Mokelumne River watershed in

the Sierra Nevada through three 81-mile aqueducts to the East Bay. Water is stored in a network of reservoirs, including Briones, Lafayette, San Pablo, and San Leandro in Contra Costa and Alameda Counties prior to treatment.

- **CCWD** provides treated and untreated water to approximately 500,000 ~~customers~~ people in the urbanized parts of central and northeastern Contra Costa County that are not serviced by EBMUD, as well as some eastern parts of the county. Customers include municipalities, industrial facilities, businesses, and residences. CCWD's water is sourced from the Sacramento-San Joaquin Delta via the 48-mile Contra Costa Canal. CCWD also stores water at Los Vaqueros Reservoir in East County, southwest of Byron, before it is delivered via the Contra Costa Canal.

Properties outside of a water service district rely on individual groundwater wells or private water systems. East Contra Costa Irrigation District and Byron-Bethany Irrigation District also make additional raw water available to properties in East County.

The following new policy is recommended in response to a comment letter received on April 8, 2024, from the Contra Costa Water District.

Page 8-11/Goal PFS-4

New Policy PFS-P4.8: Partner with water service providers to protect water conveyance infrastructure, such as aqueducts and canals, from encroachment and pollution.

The following new policy is recommended in response to a comment letter received on April 8, 2024, from the Delta Protection Commission.

Page 8-11/Goal PFS-4

New Policy PFS-P4.9: Deny applications to establish private wastewater treatment facilities within the Delta Primary Zone that would serve areas outside the Primary Zone.

The following two new actions and other changes are recommended by staff based on new information or to clarify content.

Page 8-11/Goal PFS-4

New Action PFS-A4.1: Establish a standing drought and water shortage task force to facilitate drought and water shortage preparedness for State small water systems and domestic wells within the County's jurisdiction.

Page 8-11/Goal PFS-4

New Action PFS-A4.2: Develop a plan to address potential drought and water shortage risk, including interim and long-term solutions for State small water systems and domestic wells.

Page 8-12/Drainage and Flood Risk

Levees are especially important components of the county's flood control infrastructure. Figure PFS-4 depicts Contra Costa's levee system, most of which is owned and operated by public agencies such as reclamation districts. Similar to dams, levees hold back water and protect lower-lying areas from inundation. In Contra Costa County, many of these areas are at or below sea level. Levees protect critical infrastructure, including ~~EBMUD's~~

~~water aqueducts intake and conveyance facilities, highways, railroads, natural gas pipelines and storage facilities fields, and electrical transmission lines, and more as well as thousands of acres of private property. Many levees in the Delta region are unstable; they were constructed over 100 years ago on land that is settling due to subsidence and were not built to provide long term protection. Since 1980, 27 Delta islands have been partially or completely flooded due to levee failure.~~

Strengthening Delta levees is vitally important to safeguarding the lives and livelihoods of county residents and are equally important components of the county's flood control infrastructure. In addition to protecting property from flooding, Delta levees form the backbone of the regional road system, ensure the continued existence of Delta towns and communities, and protect habitat for wildlife, including threatened and endangered species. They form a network of channels that entice boaters to explore the Delta and support a longstanding tradition of hunting and fishing. They also carry fresh water to the pumps that supply water to the farmers of the San Joaquin Valley and residents of the Bay Area and Southern California. Local levee-maintaining agencies have managed the financing and ongoing maintenance, rehabilitation, and repair of Delta levees, and have improved levee integrity, reducing overall Delta flood risk. Much remains to be accomplished, however, as sea level rise, increased storm frequency and intensity, and higher flows from greater rainfall and less snowfall as a result of climate change will continue to threaten levee stability and effectiveness.

The following new policy is recommended in response to a comment letter received on April 8, 2024, from the Delta Protection Commission.

Page 8-14/Policy PFS-P5.4

Support material stockpiling and equipment staging for emergency levee repair, ~~especially in the western of Delta levees by:-~~

- (a) Consulting with reclamation districts to identify storage sites within the Delta Primary Zone.
- (b) Denying entitlements to convert identified storage sites to uses that would preclude storage unless the affected reclamation district(s) identify suitable alternative sites or determine sites to be converted are no longer needed.
- (c) Denying entitlements for mining/extraction uses that would remove from the Primary Zone those materials deemed essential for levee repair.

Page 8-14/Goal PFS-5

New Policy PFS-P5.5: Evaluate projects involving water impoundment or conveyance to ensure they will not create a risk of seepage onto adjacent properties. Such projects must conclusively demonstrate that unacceptable seepage will not occur. Renumber the subsequent policies accordingly.

The following change is recommended in response to a comment letter received on April 8, 2024, from Friends of Pleasant Hill Creeks.

Page 8-14/Policy PFS-P5.5

~~Encourage new development~~ Require projects with potential to significantly impact natural watercourses to establish or participate in programs that ensure ongoing maintenance of natural the watercourses to maintain their flood carrying capacity and habitat values.

The following change is recommended by staff based on new information or to clarify content.

Page 8-14/Policy PFS-P5.8

~~Encourage~~ Work with developers of properties along transit corridors ~~and or~~ in commercial or mixed-use areas to combine ~~their private~~ required C.3/stormwater treatment facilities with green infrastructure on the adjoining ~~street frontage~~ public right-of-way to enhance the value and sizing of these facilities.

The following changes are recommended in response to a comment letter received on January 4, 2024, from CALFIRE and follow-up CAL FIRE comments received on July 22, 2024.

Page 8-16/Sheriff, Fire, and Emergency Medical Service

Fire protection services in ~~unincorporated~~ Contra Costa County are provided by six fire protection districts and three city fire departments that adequately cover the entire county except for Jersey Island, Bradford Island, Quimby Island, Webb Tract, and the Marathon Refinery near Martinez, as shown in Figure PFS-5. All fire protection agencies within the county have signed mutual-aid agreements to provide assistance to neighboring agencies. The firefighting capabilities of these agencies are further augmented by personnel and equipment from the California Department of Forestry and Fire Protection.

Page 8-19/Goal PFS-6

New Policy PFS-P6.4: Encourage multi-jurisdictional and mutual-aid disaster response training between all agencies providing emergency services within the county.

The following changes are recommended by staff based on new information or to clarify content.

Page 8-21/Parks and Recreation

Whether it is a peaceful nature walk through Carquinez Strait Regional Shoreline, an exciting hike around historic Black Diamond Mines Regional Preserve, fishing at a ~~local~~ nearby reservoir, or a fun day out with family and friends at a ~~neighborhood~~ local park, the county offers something for residents of all ages and abilities.

Page 8-24/Parks and Recreation

- **Local parks** are indispensable elements of our neighborhoods and communities. They serve as focal points where people can exercise and enjoy leisure time together, and include a variety of amenities such as sports courts, community centers, swimming pools and splash pads, playgrounds, play ballfields, picnic areas, community gardens, and gathering spaces ~~or other amenities~~. Local parks in unincorporated areas are typically owned and maintained by the County or a special district, such as a recreation and park district or community services district. The local park system is often augmented by similar facilities on school campuses. In some areas, private organizations such as homeowners' associations maintain parks for their communities, sometimes allowing public access.
- **Trails** are essentially linear parks. ~~They that~~ provide safe connections between residential neighborhoods, parks, schools, and other destinations.

Page 8-30/Policy PFS-P8.3

~~Increase~~ Expand access to diverse, high-quality parks, green spaces, recreational facilities, trails, and natural environments for residents of Impacted Communities, including by facilitating through multiple transportation

modes. Partner with other agencies and non-governmental organizations to obtain funding, and design and maintain these facilities to offer a safe and comfortable environment for ~~residents~~ users of all ages and abilities.

Page 8-30/Policy PFS-P8.5

~~Whenever possible, require~~ Require projects subject to the Park Dedication or Park Impact Fee Ordinances to develop parks and recreation amenities ~~listed~~ identified in, or ~~added~~ proposed for addition to, the County's Park Capital Improvement Plan. Park Impact fees or in-lieu fees should be assessed only when the County determines developer improvements are not feasible.

Page 8-30/Policy PFS-P8.6

Support expanded access to recreation opportunities by working with other agencies to co-locate parks and trails with public facilities, such as schools and utility easements, ~~with~~ prioritizing Impacted Communities ~~prioritized~~.

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| The following changes are recommended by staff based on new information or to clarify content. |
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Page 8-33/Schools

Post-secondary public education in Contra Costa County is offered at California State University, East Bay – Concord Campus and three community colleges operated by the Contra Costa Community College District: Contra Costa College in San Pablo; Diablo Valley College in Pleasant Hill, with a satellite campus in San Ramon; and Los Medanos College in Pittsburg.

HEALTH AND SAFETY ELEMENT

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| The following changes are recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club. |
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Page 9-4/Policy HS-P1.2

~~Participate~~ Prioritize participation in emission and exposure reduction, public education, engagement, outreach, and other programs that promote improved air quality, focusing on Impacted Communities.

Page 9-4/Policy HS-P1.4

Require new industrial development to locate significant pollution sources ~~as far away as possible~~ at the maximum distance possible from sensitive receptors ~~as possible~~.

Page 9-4/Policy HS-P1.6

Require that any mitigation of air quality impacts occur on-site to the extent feasible to provide the greatest benefit to ~~local~~ residents in neighboring communities most impacted. For mitigation that relies on offsets, require that the offsets be obtained from sources as near to the project site as possible or from sources that would improve air quality in an Impacted Community. If the project site is within or adjacent to an Impacted Community, require offsets/mitigation within that community unless determined infeasible by the County.

The following change is recommended by staff based on new information or to clarify content.

Pages 9-4 to 9-5/Policy HS-P1.8

Require new or expanded commercial and industrial projects ~~exceeding~~ resulting in 25,000 square feet or more of gross habitable floor area, such as warehouses and other large enclosed buildings, to be near zero-emissions (~~NZE~~) operations, including the facilities themselves and the associated fleets. Require all necessary measures, such as the following, to achieve ~~NZE~~ near zero emissions:

- (a) Reduce on-site energy consumption and increase on-site energy generation and energy storage.
- (b) Provide adequate on-site zero-emission ZE ~~vehicle-capable~~ parking for all anticipated truck traffic to prevent idling and off-site queuing.
- (c) Provide electrified loading docks with receptacles allowing plug-in of refrigerated trailers.
- (d) Use heavy-duty trucks that are model year 2014 or later and expedite a transition to ~~ZE~~ zero-emission trucks by establishing a clear timeline for electrification of trucks as they become commercially available. Ensure contracts with motor carriers include air quality incentives or requirements, such as providing incentives to fleets that meet United States Environmental Protection Agency (EPA) SmartWay standards or requiring use of ~~ZE~~ zero-emission or near-zero-emission ~~NZE~~ trucks.
- (e) Use a “clean fleet” of delivery vehicles as they become commercially available, but no later than 2025.
- (f) Use ~~ZE~~ zero-emission yard equipment, such as forklifts, pallet trucks and jacks, and stackers.
- (g) Implement practices to control and remove fugitive dust and other contaminants from paved areas.

Uses with fewer than five vehicles domiciled on-site are exempt from this policy.

The following new policy is recommended in response to a comment letter received on April 22, 2024, from Holland and Knight on behalf of the Committee for Industrial Safety.

Page 9-5/Goal HS-1

New Policy HS-P1.7: Encourage modernization projects at existing industrial facilities that support State energy and climate goals and achieve all of the following:

- (a) Improved community and worker health and safety.
- (b) Enhanced environmental protection.
- (c) Significant reductions in emissions of criteria pollutants, TACs, and GHGs.
- (d) Timely remediation of preexisting and future on- and off-site contamination as a component of the project or through a fully funded work program that restores the site to a condition suitable for commercial or industrial use. Relocate existing policy HS-P1.7 to HS-P1.9 and renumber the subsequent policies accordingly.

The following new policy is recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club.

Page 9-5/Goal HS-1

New Policy HS-P1.11: Encourage installation of upgraded HVAC systems at schools, childcare centers, and similar uses located proximate to industrial facilities.

The following change is recommended in response to a comment letter received on February 28, 2024, from the Contra Costa County Hazardous Materials Commission, as well as a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club.

Page 9-8/Action HS-A2.1

Partner with community members and regulatory agencies such as BAAQMD to conduct data collection and monitoring of pollution exposure, prepare a community-scale plan for reducing and mitigating air pollutant emissions and industrial hazards, such as pipeline risks, accidents, potential water or soil contamination, and impacts to sensitive ecological resources for each Impacted Community, or group of Impacted Communities, as appropriate. Require future projects to demonstrate consistency with those plans.

The following changes are recommended by staff based on new information or to clarify content.

Pages 9-9 to 9-10/Greenhouse Gases

Scientific consensus is that human activity involving the use of fossil fuels has resulted in an ever-accelerating increase in the concentration of heat-trapping gases, known as GHGs, in Earth's atmosphere (termed the "greenhouse effect"). In California, communities are now adapting to the resulting climate change stressors: warmer annual average temperatures, changes in precipitation patterns, sea level rise, and a reduction in snowpack. Recognizing the numerous threats posed by climate change, the State has set ambitious GHG emission reduction targets:

- Reduce statewide GHG emissions by 40 percent from 1990 levels by 2030.
- Reduce statewide GHG emissions by at least 85 percent from 1990 levels by 2045 and be on a path to support statewide carbon neutrality by 2045.

To support State efforts related to climate change and its own GHG emissions reduction goals, the County strives for ~~net~~-carbon neutrality through a ~~gradual~~ conscientious transition to renewable and carbon-free fuels, resource conservation, sustainable practices, and other approaches.

The goals, policies, and actions in this section focus on reducing GHG emissions throughout the county. The County's Climate Action and Adaptation Plan, one of the tools for implementing this General Plan, provides more specific strategies and actions to achieve Contra Costa County's GHG emission reduction goals.

Page 9-10/Policy HS-P3.1

Prioritize implementation of the Contra Costa County Climate Action and Adaptation Plan to reduce GHG emissions from community-wide sources and adapt to changing climate conditions.

Page 9-10/Policy HS-P3.2

Facilitate carbon-neutral development projects and communities that support a circular economy, ~~net~~-zero-emission modes of transportation, reliable and renewable energy resources, energy-efficient buildings, zero waste, water efficiency and conservation, green infrastructure, soil conservation, and a system of natural and working lands that support natural carbon sequestration and climate resilience.

Page 9-10/Policy HS-P3.3

Require new development projects using the Contra Costa County Climate Action and Adaptation Plan to streamline their environmental review of GHG emissions, as permitted by CEQA Guidelines Section 15183.5, to demonstrate consistency with the Climate Action and Adaptation Plan and incorporate applicable GHG reduction and climate change adaptation measures.

Pages 9-10 to 9-11/Action HS-A3.1

Update the Contra Costa County Climate Action and Adaptation Plan as needed to maintain consistency with CEQA Guidelines Section 15183.5(b), other State and regional guidance, and best practices. Future updates must include:

- (a) Inventories of GHG emissions in the unincorporated county.
- (b) GHG reduction targets for 2030 and 2045 at a minimum.
- (c) Forecasts of GHG emissions for the unincorporated county consistent with growth assumptions of this General Plan.
- (d) GHG reduction ~~measures and~~ strategies with quantifiable outcomes.
- (e) Climate adaptation and resilience strategies to ensure the county's communities can respond to changing climate conditions.
- (f) An implementation and monitoring program to track the County's progress toward achievement of the GHG reduction targets.
- (g) A community and stakeholder engagement program for Climate Action and Adaptation Plan preparation and implementation.

Page 9-11/Policy HS-P4.1

Move Policy HS-P4.1 to instead be Policy LU-P2.10 and edit as follows: When considering development proposals and land use changes, treat susceptibility to hazards and threats to health and ~~human life~~ safety as primary considerations. *Renumber the subsequent policies accordingly.*

Page 9-13/Policy HS-P4.6

Move Policy HS-P4.6 to instead be Policy LU-P5.6: In hazard-prone areas, such as slopes exceeding 15 percent, mapped floodplains, High and Very High Fire Hazard Severity Zones, and Alquist-Priolo Earthquake Fault Zones, allow for decreased residential density, including below the minimum density requirement for the applicable land use designation, as the severity of risk increases.

Page 9-13/Goal HS-4

See the Land Use Element for additional policies and actions related to development in hazard areas.

Page 9-21/Goal HS-5

See the Public Facilities and Services Element for policies and actions related to flood hazards and sea level rise; the Conservation, Open Space, and Working Lands Element for policies and actions related to floodplain management; the Land Use Element for additional policies and actions related to development in hazard areas; and the Sea Level Rise section of this Element for policies and actions related to adaptive management of rising tides.

Page 9-26/Policy HS-P6.3

Delete Policy HS-P6.3, merging it with Policy HS-P9.5 (covered below). ~~Require new industrial development in areas subject to sea level rise, emergent groundwater flooding, or tsunami inundation to provide plans for prevention and remediation of any contaminant releases induced by these hazards, along with bonds that guarantee remediation plans are implemented. Remediation should meet standards that protect people and the environment in the event of future permanent inundation. Renummer the subsequent policies.~~

Page 9-27/Action HS-A6.3

Coordinate with BCDC, Delta Stewardship Council, Caltrans, cities, and other affected agencies, organizations, and stakeholders to prepare and adopt a community-driven countywide sea level rise adaptation and resilience plan addressing increased flooding and sea level rise that provides unique adaptation options for the entire county shoreline and identifies funding mechanisms for implementation. Use Figures HS-6 through HS-9 or the best-available climate science data to identify where sea level rise hazards are likely to occur and lead efforts to:

- (a) Maximize awareness and disclosure to property owners and the public.
- (b) Assess and address impacts to future development, including promoting the Adaptation Pathways model to respond to uncertainty and evolving conditions.
- (c) Plan for resiliency projects and adaptation measures to protect existing development and infrastructure, emphasizing nature-based solutions.
- (d) Partner with the Adapting to Rising Tides Program, ~~Delta Stewardship Council~~, property owners, and community-based organizations to conduct a study of opportunities and costs for shifting development away from areas at risk from inundation.
- (e) Inform governance, funding, and financing decisions about short-term and long-term resiliency and adaptation projects.
- (f) Ensure that the disproportionate impacts on vulnerable populations and Impacted Communities are addressed.

Page 9-27/Action HS-A6.4

Delete Action HS-A6.4, merging it with Action HS-A6.3 (covered above). ~~Coordinate with the BCDC, Delta Stewardship Council, cities, and other involved agencies and stakeholders to create a joint powers authority or public private partnership to develop, fund, and implement relevant, regionally coordinated sea level rise adaptation measures that leverage the results of Adapting to Rising Tides, Bay Adapt, Delta Adapts, and other studies and programs. Renummer the subsequent actions accordingly.~~

Page 9-28/Wildfire Hazards

The California Department of Forestry and Fire Protection (CAL FIRE) designates lands into responsibility areas based on who is financially responsible for fire protection services. Local Responsibility Areas (LRAs) include areas where local fire protection districts and fire departments are charged with fire protection. State Responsibility Areas (SRAs) include unincorporated areas and State lands where the State/CAL FIRE has financial responsibility for fire protection. CAL FIRE can also provide fire protection services by contract to cities and counties. Contra Costa County has a mutual aid agreement with CAL FIRE and several ~~Six~~ fire protection districts and three city fire departments provide fire prevention and protection services in the unincorporated that adequately cover the entire county, except for Jersey Island, Bradford Island, Quimby Island, Webb Tract, and the Marathon Refinery near Martinez. with tThe Contra Costa County Fire Protection District covering covers 553 square miles and is by far the largest area local fire protection agency serving the county (see Figure PFS-5 in the Public Facilities and Services Element for a map of fire district service areas). All fire protection agencies within the county have signed mutual-aid agreements to provide assistance to neighboring agencies.

Within the responsibility areas, CAL FIRE designates ~~lands within~~ Fire Hazard Severity Zones. CAL FIRE designates lands within SRAs as Moderate, High, and Very High Fire Hazard Severity Zones; in LRAs, at the time the General Plan was adopted, CAL FIRE only designates land within Very High Fire Hazard Severity Zones (with city and county approvals). CAL FIRE is expected to designate Moderate and High Fire Hazard Severity Zones in the LRAs in future updates to the Fire Hazard Severity Zone Maps. As shown in Figure HS-10, Very High Fire Hazard Severity Zones are mainly in the interior of Contra Costa County, in areas with dense forest, brush, or grassland vegetation and steep terrain that is difficult to access. Wildfires may start in natural areas but can easily spread to developed areas bordering wildlands; this area is called the Wildland-Urban Interface (WUI) and is mapped in Figure HS-11.

Page 9-31/Policy HS-P7.1

Deny applications for new residential subdivisions entitlements for projects creating additional residential units (i.e., units not allowed by-right) in Very High Fire Hazard Severity Zones in the LRA or SRA. and dDiscourage residential subdivisions such projects in High Fire Hazard Severity Zones in the SRA and discourage them in the LRA unless adequate fire protection services are provided.

Page 9-31/Policy HS-P7.2

Require any construction of buildings or infrastructure within a High or Very High Fire Hazard Severity Zone in the LRA or SRA ~~or in the WUI~~, as shown on Figures HS-10 ~~and HS-11~~, or in areas that may be designated as the WUI to incorporate fire-safe design features that meet the State Fire Safe Regulations and Fire Hazard Reduction Around Buildings and Structures Regulation for road ingress and egress, fire equipment access, and adequate water supply.

Page 9-33/Policy HS-P7.3

Require new development within a Very High Fire Hazard Severity Zone in the LRA or SRA (as shown on Figure HS-10) or in areas that may be designated as the WUI ~~(as shown on Figure HS-11)~~, or and on a residential parcel with evacuation constraints (as shown on Figure HS-21), to prepare a traffic control plan to ensure that construction equipment or activities do not block roadways or interfere with evacuation plans during the construction period. Work with the appropriate fire protection district to review and approve the traffic control plan prior to issuance of building permits.

The following changes and new policy are recommended in response to a comment letter received on January 4, 2024, from CALFIRE and to clarify content.

Page 9-33/Policy HS-P7.5

Work with property owners ~~within mapped in~~ in High or Very High Fire Hazard Severity Zones in the LRA or SRA, ~~or in areas that may be designated as the WUI areas~~ to establish and maintain fire breaks and defensible space, vegetation clearance, emergency access roads, water supply and fire flow, signage, and firefighting infrastructure that meets ~~current~~ adopted State, County, or community fire safety standards.

Page 9-33/Goal HS-7

New Policy HS-P7.6: Coordinate with Caltrans and other agencies, local fire safe councils, and community organizations to ensure long-term maintenance of fire hazard reduction projects, including community fire breaks and public and private road clearance. Renumber the subsequent policies accordingly.

The following changes, new action, and new policy are recommended by staff based on new information or to clarify content.

Page 9-34/Action HS-A7.1

~~Collaborate~~ Work with local fire safe councils, CAL FIRE Santa Clara Unit, and other fire protection agencies to update and implement the *Community Wildfire Protection Plan* for Contra Costa County.

Page 9-34/Goal HS-7

New Action HS-A7.4: Upon future updates to LRA mapping, as promulgated by CAL FIRE, identify and as necessary adopt a WUI zone. Renumber the subsequent actions accordingly.

Page 9-34/Goal HS-7

See the Public Facilities and Services Element for policies and actions related to fire and emergency services and the Land Use Element for additional policies and actions related to development in hazard areas.

Page 9-37/Goal HS-8

New Policy HS-P8.5: Provide shade trees or shade structures at parks, plazas, and other outdoor spaces.

The following change is recommended in response to a comment letter received on February 28, 2024, from the Contra Costa County Hazardous Materials Commission.

Page 9-42/Policy HS-P9.2

Ensure CCHMP staff have an opportunity to review and comment on all development entitlement applications for projects involving use of hazardous materials or hazardous waste regardless of whether a land use permit is required pursuant to County Ordinance Code Chapter 84-63 – Land Use Permits for Development Projects Involving Hazardous Waste or Hazardous Material.

The following change is recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club.

Page 9-42/Policy HS-P9.5

~~Require facilities that manage hazardous materials or hazardous waste in stationary or fixed storage tanks and that are in areas at risk of inundation from sea level rise and flooding to conduct sea level rise studies to address the risk of hazardous materials release from rising water levels, including rising groundwater. Require these facilities to incorporate best management practices to reduce the risk of release. Require industrial projects involving use, management, or generation of hazardous materials or waste, particularly those utilizing stationary or fixed storage tanks, in areas at risk from sea level rise, surface or emergent groundwater flooding, or tsunami to incorporate best management practices to reduce risk and prepare plans for prevention and remediation of hazardous materials/waste releases resulting from inundation. Remediation plans must meet regulatory standards for protection of people and the environment in the event of permanent inundation and include financial assurances to guarantee implementation.~~

The following changes are recommended in response to a comment letter received on February 28, 2024, from the Contra Costa County Hazardous Materials Commission.

Page 9-42/Policy HS-P9.7

~~Prioritize implementation of safety projects that reduce the risk of hazardous materials transportation accidents along hazardous material transportation corridors in Impacted Communities to address high-risk scenarios.~~

Page 9-43/Policy HS-P9.8

~~Require applicants for projects in Impacted Communities that involve hazardous materials or hazardous waste to provide clear information in plain language about potential hazards their projects pose to nearby residents communities at the beginning of the review process. Review and verify this information, make it available to residents, and encourage project applicants to host at least one community meeting to discuss potential hazards.~~

The following change is recommended in response to a joint comment letter received on March 25, 2024, from 350 Contra Costa Action, Sunflower Alliance, Grid Alternatives, Bike East Bay, Contra Costa County Climate Leaders, Greenbelt Alliance, Citizens Climate Lobby, 1000 Grandmothers for Future Generations, Interfaith Climate Action Network, Center for Human Development and East County Community Leaders Network, Climate Reality Bay Area, and Sierra Club.

Page 9-43/Policy HS-P9.9

~~Discourage~~ Deny entitlements for construction of new large-scale facilities that treat, store, or dispose of hazardous waste from off-site sources and negatively impact Impacted Communities.

The following changes are recommended by staff based on new information or to clarify content.

Page 9-45/Policy HS-P10.3

Require new, modified, or expanded industrial uses involving hazardous materials or wastes to provide sufficient funds, in the form of a ~~cash deposit, surety bond, or other~~ financial instrument acceptable to the County, to guarantee site remediation, including removal of facilities, equipment, and structures, and ensure community safety and site reusability.

The following changes are recommended by staff based on new information or to clarify content.

Page 9-50/Policy HS-P11.1

For projects in ~~areas of known or suspected seismic or other geologic hazards, such as Alquist-Priolo Earthquake Fault Zones or Seismic Hazard Zones~~ (areas considered to be at risk of earthquake triggered liquefiable soils, liquefaction or landslides displacement); delineated by the California Geological Survey, and as well as any other areas of steep slopes, or areas of suspected ground failure known to the County, require submittal of a appropriately detailed engineering geologic or geotechnical report investigations, and ensure effective mitigation measures are incorporated into the project design. ~~The reports must be compliant with State Guidelines and include:~~

- (a) A map showing the outline of any geologic or potentially hazardous soil condition and areas subject to inundation.
- (b) Recommended means of mitigation of any adverse condition representing a hazard to improvements.
- (c) Recommendations to assure proper implementation of mitigation measures during construction.

Page 9-50/Policy HS-P11.3

Discourage construction of critical facilities and buildings intended for human occupancy in Alquist-Priolo Fault Zones, ~~and encourage earthquake retrofitting. Where such development already exists, encourage earthquake retrofitting.~~ If there is no feasible alternative to developing inside the Fault Zone siting critical facilities and buildings intended for human occupancy in the Fault Zones, buildings must be sited, designed, and constructed to withstand the anticipated seismic stresses.

Page 9-50/Policy HS-P11.4

Refer geotechnical and ~~soils engineering geologic~~ reports to the County Peer Review Geologist for review and approval whenever necessary evaluation of their adequacy, as required by State Law for projects in State-designated hazard zones. Reports deemed inadequate will require further engineering analysis and revision until the findings/opinions of the Peer Review Geologist have been addressed to the County's satisfaction.

The following change is recommended in response to a comment letter received on January 30, 2024, from Fennemore Wendel law firm and to clarify content.

Page 9-50/Policy HS-P11.5

Discourage development on slopes exceeding 15 percent, and prohibit development on slopes ~~exceeding of 265~~ percent or greater, to avoid slope instability, ~~extensive unnecessary~~ grading, and ~~unnecessary extensive~~ land

disturbance and facilitate long-term control of erosion and sedimentation. Exceptions may be considered for infrastructure projects and development on existing legal lots where no other feasible building sites exist.

Page 9-50/Policy HS-P11.6

New Policy: Require projects to form a Geologic Hazard Abatement District (GHAD) or join an existing GHAD whenever necessary to adequately mitigate anticipated or residual geologic hazards. Renummer the subsequent actions accordingly

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|--|
| The following changes are recommended by staff based on new information or to clarify content. |
|--|

Page 9-50/Policy HS-P11.6

Do not accept public road dedications or allow construction of private roads on unstable hillsides or in landslide hazard areas unless potential hazards have been mitigated to the County's satisfaction. All private roads constructed in such areas must be fully compliant with private road standards adopted by the County and fire protection district with jurisdiction.

Page 9-50/Goal HS-11

See the Land Use Element for additional policies and actions related to development in hazard areas.

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| The following changes are recommended in response to a comment letter received on January 4, 2024, from CALFIRE and follow-up CAL FIRE comments received on July 22, 2024. |
|--|

Page 9-50/Preparedness, Response, and Recovery

Contra Costa County is committed to preservation of life, property, and the environment during emergencies. ~~The County implements its Local Hazard Mitigation Plan, which assesses risks from natural and human-caused hazards, including risks to people and facilities, and identifies mitigation actions to reduce or eliminate hazard risks. The current Local Hazard Mitigation Plan, certified by FEMA, is incorporated into this Health and Safety Element by reference, as permitted by California Government Code Section 65302.6. The County prepared the most recent Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP) in accordance with the federal Disaster Mitigation Act of 2000 and the Federal Emergency Management Agency's (FEMA) LHMP policy guidance. The County collaborated with local agencies, including 16 incorporated cities and towns and 25 special districts in the Contra Costa County planning area, to prepare the LHMP. Contra Costa County's LHMP process is one where hazards are identified and profiled, the people and facilities at risk are analyzed, and mitigation actions are developed to reduce or eliminate hazard risk. Implementation of these mitigation actions, which include short- and long-term strategies, involves planning, policy changes, programs, projects, and other activities. Local governments are required to develop a hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance.~~

The LHMP and Health and Safety Element address similar issues, but the Health and Safety Element provides a higher-level framework and set of policies that pertain to the long-term safety of the county, while the LHMP focuses on more specific mitigation actions to enable jurisdictions to better protect lives, property, and natural systems. The LHMP, certified by FEMA, is incorporated into the Health and Safety Element by reference, as permitted by California Government Code Section 65302.6, and can be accessed at www.contracosta.ca.gov/4732/General-Plan.

The following changes are recommended by staff based on new information or to clarify content.

Page 9-51/Policy HS-P12.1

Continue implementing the *Contra Costa County Local Hazard Mitigation Plan*, which was adopted by the Board of Supervisors and certified by FEMA and is incorporated by reference into this Health and Safety Element.

Page 9-58/Table HS-3

Replace Table HS-3 with the following table, and change the name to “Maximum Allowable Noise Exposure by ~~Land~~ Use”

| Land Use Type | NOISE LEVEL, DNL (DB) | | | | | | |
|--|--|-------|-------|-------|-------|-------|-----|
| | 0-55 | 56-60 | 61-65 | 66-70 | 71-75 | 75-80 | >81 |
| Residential ^{a, b} | | | | | | | |
| Urban Residential Infill | | | | | | | |
| Schools, Libraries, Hospitals, Religious Institutions, Extended Care Facilities | | | | | | | |
| Hotels, Motels | | | | | | | |
| Auditoriums, Concert Halls, Amphitheaters | | | | | | | |
| Playgrounds, Local Parks | | | | | | | |
| Sports Arenas, Outdoor Spectator Sports | | | | | | | |
| Golf Courses, Riding Stables, Water Recreation (e.g., water parks), Cemeteries | | | | | | | |
| Office, Commercial, and Professional Buildings (i.e., uses that are generally indoors and not noise sensitive) | | | | | | | |
| Industrial, Manufacturing, Mining, Utilities, Agriculture | | | | | | | |
| | Normally Acceptable. Specified land use is satisfactory based on the assumption that any buildings involved are of normal, conventional construction, without any special noise insulation requirements. | | | | | | |
| | Conditionally Acceptable. New construction or development should be undertaken only after a detailed analysis of the noise-reduction requirements is made and needed <u>noise</u> insulation features have been included in the design. | | | | | | |
| | Unacceptable. New construction or development should not be undertaken. | | | | | | |

^a A DNL of 60 dB or less may not be achievable in all residential areas due to environmental, economic, or aesthetic constraints. One example is small balconies associated with multiple-family housing. In this case, second- and third-story balconies may be difficult to control to the standard. A common outdoor use area that meets the goal can be provided as an alternative.

^b If the primary noise source is passing trains, the standard for outdoor noise levels in residential areas is a DNL of 70 dB.

Condition entitlements to limit noise-generating construction activities to the following:

- (a) Weekdays and non-holidays unless site-specific conditions warrant exceptions.
- (b) Within 1,000 feet of noise-sensitive uses: ~~7:30~~~~8:00~~ a.m. to 5:00 p.m.
- (c) Over 1,000 feet from noise-sensitive uses: 7:00 a.m. to 6:00 p.m.

GLOSSARY

Red-lined staff-recommended changes to the glossary are presented in Attachment 1. The majority of these recommended changes are based on new information or to clarify content. The addition of “natural watercourse” to the glossary is based on a comment letter received on April 7, 2024, from the Walnut Creek Watershed Council and a comment letter received on April 8, 2024, from Friends of Pleasant Hill Creeks.

APPENDIX A: SUMMARY OF POLICIES AND ACTIONS BY THEME

Appendix A presents a summary of policies and actions by theme. The changes to policies and actions throughout the General Plan will also be updated in Appendix A once those changes are approved.

APPENDIX B: HEALTH AND SAFETY ELEMENT TECHNICAL APPENDIX

The following changes are recommended in response to a comment letter received on January 4, 2024, from CALFIRE.

Page B-2/Contra Costa County Local Hazard Mitigation Plan

~~In collaboration with local agencies and special districts, Contra Costa County prepared the most recent LHMP in accordance with the federal Disaster Mitigation Act of 2000 and the Federal Emergency Management Agency’s (FEMA) LHMP guidance. Contra Costa County’s LHMP is a plan that assesses hazard vulnerabilities from natural and human caused hazards, including risk to people and facilities, and identifies mitigation actions to reduce or eliminate hazard risks in the county, including in incorporated cities. Local governments are required to develop a hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance.~~

~~The LHMP and Health and Safety Element address similar issues, but the Health and Safety Element provides a higher level framework and set of policies that pertain to the safety of the county, while the LHMP focuses on more specific mitigation actions, which are often short term, to enable jurisdictions to better protect lives, property, and natural systems. The current LHMP, certified by FEMA, is incorporated into the Health and Safety Element by reference, as permitted by California Government Code Section 65302.6.~~

The County prepared the most recent Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP) in accordance with the federal Disaster Mitigation Act of 2000 and the Federal Emergency Management Agency’s (FEMA) LHMP policy guidance. The County collaborated with local agencies, including 16 incorporated cities and towns and 25 special districts in the Contra Costa County planning area, to prepare the LHMP. Contra Costa County’s LHMP process is one where hazards are identified and profiled, the people and facilities at risk are analyzed, and mitigation actions are developed to reduce or eliminate hazard risk. Implementation of these mitigation actions, which include short- and long-term strategies, involves planning, policy changes, programs, projects, and other activities. Local governments are required to develop a hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance.

The LHMP and Health and Safety Element address similar issues, but the Health and Safety Element provides a higher-level framework and set of policies that pertain to the long-term safety of the county, while the LHMP focuses on more specific mitigation actions to enable jurisdictions to better protect lives, property, and natural systems. The LHMP, certified by FEMA, is incorporated into the Health and Safety Element by reference, as permitted by California Government Code Section 65302.6, and can be accessed at www.contracosta.ca.gov/4732/General-Plan.

Page B-13/Fire Protection

Fire protection service is addressed in the Public Facilities and Services Element. ~~Fire protection in unincorporated Contra Costa County is provided by six individual fire protection districts: the Contra Costa Fire Protection District, San Ramon Valley Fire Protection District, Moraga-Orinda Fire Protection District, Rodeo-Hercules Fire Protection District, Crockett-Carquinez Fire Protection District, and Kensington Fire Protection District. The incorporated cities of El Cerrito, Pinole, and Richmond provide fire protection services within their boundaries. Six fire protection districts (the Contra Costa Fire Protection District, San Ramon Valley Fire Protection District, Moraga-Orinda Fire Protection District, Rodeo-Hercules Fire Protection District, Crockett-Carquinez Fire Protection District, and Kensington Fire Protection District) and three city fire departments provide fire prevention and protection services that adequately cover the entire county except for Jersey Island, Bradford Island, Quimby Island, Webb Tract, and the Marathon Refinery near Martinez.~~ Other service providers include CAL FIRE and the Federal Fire Department Concord-US Army.

MAP FIGURES

Staff recommends that the map figures shown in Appendix 2 replace the map figures presented in the October 17, 2023, draft. The majority of these recommended figure edits are based on new information or to clarify content. The recommended update to Figure COS-6 (formerly Figure COS-5), showing watersheds, waterbodies, creeks, and rivers, is based on a comment letter received on April 7, 2024, from the Walnut Creek Watershed Council and a comment letter received on April 8, 2024, from Friends of Pleasant Hill Creeks.

Staff-Recommended Changes to the Climate Action and Adaptation Plan

In response to comments submitted by community members and other stakeholders and regulatory changes since the release of the Public Review Draft Climate Action Plan 2024 Update, County staff have revised the Climate Action Plan (now called the Climate Action and Adaptation Plan, or CAAP [a suggestion of a public commenter]) to address this input and information. The red-lined CAAP (Public Review Draft #2) is included as Attachment 3 for reference. Staff revised text, figures, and tables throughout the CAAP, including its appendices.

The most significant change is that staff have revised Built Environment Strategies BE-1 and BE-2. These strategies previously reflected continued implementation of the County's all-electric reach code, which was suspended in February 2024. With this revision, these strategies now anticipate a reach code that would allow new buildings to be either all-electric or mixed fuel as long as they achieve a high level of energy performance, consistent with the Board of Supervisors' direction to County staff on June 4, 2024. Staff have changed the language of these strategies and their action items to reflect this new approach, and have revised the GHG reduction projections from these strategies to anticipate this new reach code coming into effect in January 2025. Staff have inserted language explaining the changes to the reach code and added a new action to reflect the benefits from the all-electric reach code while it was in effect.

Furthermore, staff have revised the GHG reduction projections for zero-emission vehicles and equipment to better reflect State projections, consistent with modeling in the 2022 Scoping Plan. These changes are reflected in the assumptions disclosed in Appendix B of the CAAP. Staff have also added or revised actions to ensure that CAAP implementation better supports these projections, and made other revisions to the implementing actions to reflect community comments. Such actions include additional education and resources to support implementation of the Bay Area Air Quality Management District's requirement that water heaters and space heaters be zero-NOx, improving coordinating with local and regional agencies to implement Complete Streets, prioritizing micromobility strategies for low-income residents, supporting reduced transit fares for some residents, continuing the County's requirements for increased electric vehicle charging infrastructure in new developments, and clarifying the County's role in commenting to permitting agencies on ways to reduce the impact of large industrial facilities on nearby communities. As appropriate, staff have also recommended revisions to the policy and action language in the Draft General Plan to reflect these changes to the CAAP strategies, as shown in the previous section.

Beyond the strategy quantification and language, staff edited existing text and added additional language to provide additional information, clarify or correct information, and correct minor grammar error. Staff added text to explain why large stationary sources have been excluded from the CAAP. As part of this work, staff have made revisions to how direct access electricity use from large stationary sources is reflected in the CAAP, ensuring that this usage is identified as an informational item separate from other nonresidential electricity use. Staff have added several definitions to the glossary and revised others to provide greater clarification. Similarly, staff have added clarifying language to the CAAP text and tables explaining particular terms and the methods used in some of the calculations, including clarifying language about carbon sequestration and why emissions from strategies that only decrease electricity use or increase renewable energy generation appear to have no GHG reduction benefit in 2045. Staff have revised descriptions of how the CAAP overlaps with and is distinct from the General Plan. Staff have also added a new appendix to the CAAP, Appendix D, which discusses the progress that the County has made in implementing the strategies in the 2015 Climate Action Plan.

These changes to the CAAP help to ensure that it remains feasible, technically accurate, and consistent with community goals and priorities. The CAAP continues to put the County on a path to achieving its 2030 and 2045 GHG reduction goals, maintaining the County's role as a leader on climate action issues and effectively integrating climate action planning with other long-term planning efforts.

ATTACHMENT 1:

REVISED GENERAL PLAN GLOSSARY

This glossary defines acronyms and abbreviations used in the General Plan and explains the technical terms used. Definitions come from several sources, including the California Office of Planning and Research; the California Institute for Local Government; and the American Planning Association Glossary of Zoning, Development, and Planning Terms.

ACRONYMS AND ABBREVIATIONS


| | |
|------------------|---|
| AAA: | Area Agency on Aging (Contra Costa County) |
| AARP: | American Association of Retired Persons |
| AB: | Assembly Bill |
| ABAG: | Association of Bay Area Governments |
| ADA: | Americans with Disabilities Act |
| ALUC: | Airport Land Use Commission (Contra Costa County) |
| ALUCP: | Airport Land Use Compatibility Plan (Contra Costa County) |
| AQI: | Air Quality Index |
| ARPD: | Ambrose Recreation and Park District |
| BAAQMD: | Bay Area Air Quality Management District |
| BART: | Bay Area Rapid Transit |
| BBID: | Byron-Bethany Irrigation District |
| BIPOC: | Black, Indigenous, and People of Color |
| BOS: | Board of Supervisors |

| | |
|----------------------|---|
| BSD: | Byron Sanitary District |
| BUSD: | Byron Union School District |
| CAL FIRE: | California Department of Forestry and Fire Protection |
| CAL OES: | California Governor's Office of Emergency Services |
| CAO: | County Administrator's Office |
| CAAP: | Climate Action <u>and Adaptation</u> Plan |
| CARB: | California Air Resources Board |
| CARE: | Community Air Risk Evaluation |
| CCCCD: | Contra Costa Community College District |
| CCCOE: | Contra Costa County Office of Education |
| CCCSD: | Central Contra Costa Sanitary District |
| CCCSO: | Contra Costa County Sheriff's Office |
| CCCWA: | Contra Costa County Water Agency |
| CCCFCWCD: | Contra Costa County Flood Control and Water Conservation District |
| CCCFPD: | Contra Costa County Fire Protection District |
| CCFPD: | Crockett-Carquinez Fire Protection District |
| CCHS: | Contra Costa Health Services Department |
| CCHS HMP: | Contra Costa Health Services Hazardous Materials Programs |



~~CCRCDD: Contra Costa Resource Conservation District~~
 CCWD: Contra Costa Water District
 C DPR: California Department of Parks and Recreation
 CEQA: California Environmental Quality Act
 CERT: Community Emergency Response Team
~~CHP: California Highway Patrol~~
 CIP: Capital Improvement Program
 CNEL: Community Noise Equivalent Level
~~CoC: Continuum of Care~~
~~CRCWD: Castle Rock County Water District~~
 CSA: County Service Area ~~or Community-Supported Agriculture~~
 CSD: Community Services District or Canyon School District
 CUPA: Certified Unified Program Agency
 dB: Decibel
 dBA: A-Weighted Sound Level
 DCD: Department of Conservation and Development (Contra Costa County)
 DNL: Day/Night Average Sound Level
 DOC: Department of Conservation (State)
 DPC: Delta Protection Commission
 DTSC: Department of Toxic Substances Control (State)
 du: Dwelling Unit
 du/acre: Dwelling Units Per Acre
 DWD: Diablo Water District

DWR: Department of Water Resources (State)
 EBMUD: East Bay Municipal Utility District
 EBRPD: East Bay Regional Park District
 ECCID: East Contra Costa Irrigation District
 EIR: Environmental Impact Report
 EMS: Emergency Medical Service
 EOC: Emergency Operations Center (Contra Costa County)
 EOP: Emergency Operations Plan (Contra Costa County)
 EPA: Environmental Protection Agency (US)
 EV: Electric Vehicle
 FAR: Floor Area Ratio
 FEMA: Federal Emergency Management Agency
 FHSZ: Fire Hazard Severity Zone
~~FIRM: Flood Insurance Rate Map~~
 FMMP: Farmland Mapping and Monitoring Program
 GHG: Greenhouse Gas
 GPA: General Plan Amendment
 GSA: Groundwater Sustainability Agency
 GSP: Groundwater Sustainability Plan
 HCP/NCCP: East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan
 HHW: Household Hazardous Waste
 HOV: High-Occupancy Vehicle
 HUB Zone: Historically Underutilized Business Zone



| | | | |
|------------------|---|------------------|---|
| I-: | Interstate | NPDES: | National Pollutant Discharge Elimination System |
| IPM: | Integrated Pest Management | NZE: | Near Zero Emissions |
| ISD: | Ironhouse Sanitary District | OES: | Office of Emergency Services (Contra Costa County) |
| JSUSD: | John Swett Unified School District | OSHA: | Occupational Safety and Health Administration (US) |
| KESD: | Knightsen Elementary School District | | |
| KFPD: | Kensington Fire Protection District | | |
| LAFCO: | Local Agency Formation Commission | | |
| LEED: | Leadership in Energy and Environmental Design | | |
| Leq: | Equivalent Sound Level | | |
| LHMP | Local Hazard Mitigation Plan | | |
| LOS: | Level of Service | | |
| LUHSD: | Liberty Union High School District | | |
| MAC: | Municipal Advisory Council | | |
| MDUSD: | Mt. Diablo Unified School District | | |
| MOA: | Military Operations Area | | |
| MOFD: | Moraga-Orinda Fire District | | |
| MOTCO: | Military Ocean Terminal Concord | | |
| MOU: | Memorandum of Understanding | | |
| MRA: | Mineral Resource Area | | |
| MTC: | Metropolitan Transportation Commission | | |
| MVSD: | Mt. View Sanitary District | | |
| NAHC: | Native American Heritage Commission | | |
| NFIP: | National Flood Insurance Program | | |
| NHA: | National Heritage Area | | |



| | |
|-------------------|--|
| PCA: | Priority Conservation Area |
| PDA: | Priority Development Area |
| PPA: | Priority Production Area |
| PG&E: | Pacific Gas and Electric Company |
| CCRCD: | Contra Costa Resource Conservation District (Contra Costa County) |
| RHNA: | Regional Housing Needs Allocation |
| RHFPD: | Rodeo-Hercules Fire Protection District |
| RSD: | Rodeo Sanitary District |
| RTP: | Regional Transportation Plan |
| RWQCB: | Regional Water Quality Control Board |
| SB: | Senate Bill |
| SMARA: | Surface Mining and Reclamation Act (State) |
| SMGB: | State Mining and Geology Board |
| SOL: | Sphere of Influence |
| SR-: | State Route |
| SRVFPD: | San Ramon Valley Fire Protection District |
| SSD: | Stege Sanitary District |
| SWRCB: | State Water Resources Control Board |
| TAC: | Toxic Air Contaminant |
| TDM: | Transportation Demand Management |
| ULL: | Urban Limit Line |
| USDA: | United States Department of Agriculture |
| USFWS: | United States Fish and Wildlife Service |

| | |
|---------|---|
| USGS: | United States Geological Survey |
| VMT: | Vehicle Miles Traveled |
| WCCUSD: | West Contra Costa Unified School District |
| WCWD: | West County Wastewater District |
| ZEV: | Zero-Emissions Vehicle |

TERMINOLOGY

~~**Acceptable Risk.** A hazard that is deemed a tolerable exposure to danger given the expected benefits. The level of loss, injury, or destruction below which no specific action by local government is deemed necessary other than making the risk known. Different levels of acceptable risk may be assigned according to the potential danger and the critical nature of the threatened structure. The levels may range from “near zero” for nuclear plants and natural gas transmission lines to “moderate” for farm structures and low intensity warehouse uses.~~

Accessory Dwelling Unit (ADU). A dwelling unit that provides complete independent living facilities and is located on the same lot as, and is subordinate to, a primary residence. ADUs include permanent provisions for living, sleeping, cooking and sanitation.

Acreage, Gross. The land area of a development site that exists prior to any dedications for public use, health, and safety purposes.

Acreage, Net. The portion of a development site that ~~can actually be built upon, which is the land area remaining~~ after dedication of ultimate land for public facilities, parks and open space, rights-of-way, and utility easements. ~~for:~~

Exterior boundary streets



Floodways

Public parks and other open space developed to meet minimum standards required by County ordinance

Action. A measure, procedure, or ~~technique~~activity that helps the County achieve a specific goal. An action is something concrete that can and will be completed. (see “Goal”)

Active Transportation Plan. A plan to enhance safety and mode share for active transportation, which comprises any self-propelled, human-powered travel, such as walking and bicycling.

Adaptation. Making changes in response to current or anticipated future conditions (such as the increased frequency and intensity of climate-related hazards), usually to reduce harm and take advantage of new opportunities.

Adapting to Rising Tides. A program of the San Francisco Bay Conservation and Development Commission to “provide staff support, guidance, tools, and information to help agencies and organizations understand, communicate, and begin to resolve complex climate change issues.”¹

Adaptive Capacity. The “combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts, moderate harm, or exploit beneficial opportunities.”²

Adverse Impact. A negative consequence for the physical, social, or economic environment resulting from an action or project.

Agricultural Tourism. ~~A form of Tourism, also known as agritourism, that involves guests visiting working farms and ranches to observe, and learn about, sometimes participate in,~~ farming practices and purchase locally grown products.

Air Quality Index. An index used by the US Environmental Protection Agency to report daily air quality for five major air pollutants regulated by the Clean Air Act: ground-level ozone, particulate matter, carbon monoxide, ~~sulfur~~sulfur dioxide, and nitrogen dioxide.

Archaeological Resource. Material evidence of past human activity found below the surface of ground or water, portions of which may be visible above the surface.

Asset. A valued feature of a community ~~that may be harmed by climate change.~~ Assets may include buildings and institutions, infrastructure, community services, ecosystems, and economic drivers.

Benefit Assessment District. A financing mechanism established to provide public infrastructure to a defined area. Property owners within the district (i.e., the area that receives the benefit) pay an assessment to cover the cost of constructing and/or maintaining the public facility.

Bike Lane (Class II facility). A corridor ~~expressly reserved for exclusive use by bicycles and micromobility devices,~~ existing on a street or roadway in addition to vehicular lanes for used by motorized vehiclesautomobiles. Bicycle lanes are identified by signage and pavement markings.

¹ Adapting to Rising Tides, “About Us,” <https://www.adaptingtorisingtides.org/about/>, accessed June 15, 2023.

² Intergovernmental Panel on Climate Change, “Annex II: Glossary,” ed. K. J. Mach, S. Planton, and C. von Stechow, in Climate Change 2014: Synthesis Report, ed. Core

Writing Team, R. K. Pachauri, and L. A. Meyer (Geneva, Switzerland: IPCC, 2014), p. 117–130, <https://www.ipcc.ch/report/ar5/syr/>.



Bike Path (Class I facility). A paved route, not on a street or roadway, expressly reserved for bicycles and micromobility devices traversing an otherwise unpaved area. Bicycle paths may be parallel to roads but are typically separated from them by landscaping typically provide travel routes not provided by the road system.

Bike Route (Class III facility). A roadway facility shared with motorists, automobiles and identified only by signage. A bicycle routes has no pavement markings or lane stripes.

Bikeway (Separated) (Class IV facility). A term that encompasses "bike lanes," "bike paths," "bike routes," and "separated bikeways." A facility for exclusive use by bicycles and micromobility devices that is physically separated from vehicular lanes by islands, curbs, flexible or inflexible posts, on-street parking spaces, or other delineators.

Buffer. An area established between potentially conflicting land uses, which, depending on the potential impact, may use setbacks, landscaping, or structural barriers such as setbacks or roads buildings to minimize the conflict.

Building. A type of structure with a roof supported by walls or columns that is permanently or semi-permanently attached to the ground and intended for shelter of people, animals, or property. A habitable structure. (see "Structure")

Building Code. Standards adopted by the State of California governing the construction, alteration, demolition, occupancy, or other use of buildings and structures used for human habitation. The State regulations are substantially the same as those contained in the most recent editions of the Uniform Building Code, Uniform Housing Code, Uniform Plumbing Code, Uniform Mechanical Code, and the National Electric Code. Local governments may have adopted stricter standards under certain circumstances.

Buildout. Development of land to its full potential, or theoretical capacity, as permitted under current or proposed planning or zoning designations.


California Environmental Quality Act. Legislation and corresponding procedural components established in 1970 by the State of California to require environmental review for projects anticipated to result in adverse impacts to the environment. (see "Environmental Impact Report")

Capital Improvement Program. A program that schedules permanent infrastructure improvements, usually for over a minimum period of five years into the future, that fits the needs, priorities, and projected fiscal capability of the local jurisdiction. The program generally typically is reviewed on an annual basis for conformance to and consistency with the General Plan.

Carbon Neutral. Reducing greenhouse gas (GHG) emissions to zero, either by entirely eliminating all GHG emissions or by balancing out all remaining GHG emissions through carbon removal practices so that the "net" emissions are zero.

Carbon Sequestration. The process of storing carbon dioxide in locations other than the atmosphere, where it cannot contribute to climate change or ocean acidification. For the purposes of this plan, carbon sequestration refers to the storage of atmospheric carbon in vegetation, soils, woody products, and aquatic environments.

Carrying Capacity. Used in determining the potential of an area to absorb development: (1) The level of land use, human activity, or development for a specific area that can be permanently accommodated without an irreversible change in the quality of air, water, land, or plant and animal habitats. (2) The upper limits of development beyond which the quality of human life, health, welfare, safety, or community character within an area will be impaired. (3) The maximum level of development allowable under current zoning. (see "Buildout")



Class 1 Soil: Soil with slight limitations that restrict its use for agriculture, as defined by the U.S. Department of Agriculture Natural Resources Conservation Service Land Use Capability Classification. This ranking represents both irrigated and ~~nonirrigated~~non-irrigated land, unless otherwise specified as such in the ranking.

Class 2 Soil: Soil with moderate limitations that reduce the choice of plants or require moderate conservation practices for agriculture, as defined by the U.S. Department of Agriculture Natural Resources Conservation Service Land Use Capability Classification. This ranking represents both irrigated and non-irrigated land, unless otherwise specified as such in the ranking.

Clean Air Refuge. A building with efficient air filtration and improved air quality that is opened to community members during poor air quality days.

Climate Change. A change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. In the context of this plan, this term refers to changes brought on by human activities.

Climate Justice. The concept that no group of people should disproportionately bear the burden of climate change impacts or the costs of mitigation and adaptation.

Climate Sensitivity. The level to which a species, natural system, community, or government would be affected by changing climate conditions.

Community Facilities District. A special district established by a local agency to finance tax-exempt bonds for public services or the planning, design, acquisition, construction, and/or operation of public facilities. Special taxes levied within the district are used to repay the bonds.

Community Noise Equivalent Level. A 24-hour energy equivalent level derived from a variety of single-noise events, with weighting factors of 5 and

10 A-weighted decibels (dBA) applied to the evening (7 p.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.) periods, respectively, to allow for the greater sensitivity to noise during these hours.

Community Resource Centers. Pacific Gas and Electric Company (PG&E) facilities that are open to the public during Public Safety Power Shutoff events, offering air-conditioning or heating, ice, restrooms and hand-washing stations, medical equipment charging, device charging, Wi-Fi, bottled water, and snacks.

Community-Supported Agriculture. A community of individuals who pledge support to a farm operation so that the farmland becomes, either legally or cooperatively, the community's farm, with the growers and consumers providing mutual support and sharing the risks and benefits of food production. Typically, members or "share-holders" of the farm ~~or garden~~ pledge in advance to cover the anticipated costs of the farm operation and farmer's salary.

Compatible. Capable of existing together without significant conflict or ill effects.

Complete Street. A transportation facility that is planned, designed, constructed, operated, and maintained to provide comfortable and convenient mobility, and improve accessibility and connectivity to essential community destinations for all users and abilities, regardless of whether they are traveling as pedestrians, bicyclists, public transportation riders, or drivers. Complete streets are especially attuned to the needs of people walking, using assistive mobility devices, rolling, biking, and riding transit.

Conservation. The management and use of natural resources in a sustainable manner. Conservation results in land and water areas that are durably protected and managed to sustain functional ecosystems, ~~both whether~~ intact and restored, and the diversity of life they support.



Conserve. To manage natural resources sustainably.

County Service Area. A special district in an unincorporated area formed to fund a public service that the County would not otherwise be able to fund through traditional sources, like property or sales tax. County Service Areas are governed by the County Board of Supervisors and funded by a direct assessment paid by property owners who benefit from the services provided.

Critical Facility. A facility whose continued functioning is necessary to maintain public health and safety following a disaster, and where damage or failure could pose hazards to life and property well beyond their immediate vicinity. Examples include hospitals, fire stations, and water treatment plants.

Cultural Resource. A historic, archaeological, tribal, or paleontological resource or human remains. Cultural resources include tribal cultural resources, as defined in California Public Resources Code Section 21074, regardless of whether a tribe is federally recognized.

Cumulative Impact. As used in CEQA, the total environmental impact resulting from the accumulated impacts of individual projects or programs over time.

Decibel. A unit used to express the relative intensity of a sound as it is heard by the human ear. The lowest volume a normal ear can detect under laboratory conditions is 0 decibel (dB), the threshold of human hearing. Since the decibel scale is logarithmic, 10 decibels are 10 times more intense, and 20 decibels are 100 times more intense, than 1 db.

dBA. The “A-weighted” scale for measuring sound in decibels, which weighs or reduces the effects of low and high frequencies to simulate human hearing. Every increase of 10 dBA doubles the perceived loudness, even though the noise is actually 10 times more intense.


Dedication. ~~The turning over by an owner or developer~~Transfer of private land for public use, ~~and the acceptance of land for such use by the governmental agency having jurisdiction over the public function for which it will be used.~~ Dedications for roads, parks, school sites, or other public uses are often required by ~~a city or and counties~~as conditions for approval of ~~a development.~~ (see “In-Lieu Fee”)

Density. The number of permanent residential dwelling units per acre of land (du/acre). Densities specified in this General Plan are expressed in dwelling units per net acreage, which excludes any land dedications, and not per gross acre. (see “Acreage, Gross,” ~~and “Acreage, Net,”~~ and “Dedication”)

Development Review; Design Review. The comprehensive evaluation of a development and its impact on neighboring properties and the community as a whole, from the standpoint of site and landscape design, architecture, materials, colors, lighting, and signs, in accordance with a set of adopted criteria and standards.

Development. The physical extension and/or construction of non-farm-land uses. Development activities include subdivision of land; construction or alteration of buildings, structures, roads, utilities, and other facilities; installation of septic systems; grading; deposit of refuse, debris, or fill materials; and clearing of natural vegetative cover (with the exception of agricultural activities). ~~The construction of a single family home on an existing lot, and R~~Routine repair and maintenance activities, are not considered development.

Disabled Person. ~~A person determined to have a physical impairment or mental disorder, which is expected to be of a long, continued, or indefinite duration and is of such a nature that the person's ability to live independently could be improved by more suitable housing conditions.~~



Duplex. A free-standing ~~housebuilding~~ divided into two separate living units or residences, usually having separate entrances. Duplexes are not synonymoussynonomous with ADUs.

Dwelling Unit. The place of customary ~~abode~~residence of a person or household, which is either considered to be real property under State law or cannot be easily moved.

Ecologically Significant Resource Area. Land containing unique, representative, and/or sensitive habitats, communities, or ecological processes.

Ecosystem. An interacting system formed by a biotic community and its physical environment.

Emergency Shelter. A facility that provides immediate short-term housing and supplemental services for homeless people. Supplemental services may include food, counseling, and access to other programs.

Enhanced Infrastructure Financing Districts. An economic development district that uses local property taxes to fund public and private projects that provide a benefit to the district. The district obtains funding for community projects through incremental tax. Tax increment financing works by “freezing tax revenues from a tax rate area in the interim base year and diverting forecasted tax revenue in future years (known as increment) to pay for improvements and/or pay back bonds.”³

Environmental Impact Report (EIR). A comprehensive study required pursuant to the California Environmental Quality Act that assesses all the environmental characteristics of an area, determines what effects or impacts will result if the area is altered or disturbed by a proposed action, and

identifies alternatives or other measures to avoid or reduce those impacts. (see “California Environmental Quality Act”)

Environmental, Social, and Governance (ESG). The ~~implementation of a governance structure and reporting system that evaluates a company’s performance related to environmental and social factors that go beyond the company’s duty to maximize profits.~~ Environmental metrics may include how well a company performs related to conserving energy, water, and other natural resources; protecting ecosystems and biodiversity; reducing carbon emissions; mitigating climate change; and promoting resilience. Social metrics include factors such as whether a company is union friendly, provides fair pay and leave, prioritizes worker health and safety, and proactively seeks a diverse workforce. Governance refers to how the ~~company manages both the environmental and social aspects of its policies, programs, and reporting.~~

Equity. The state in which each individual or group is allocated the resources needed to reach an equal outcome.

Evacuation Route. A roadway designated in the General Plan or a disaster/emergency planning document as a potential recommended route to travel when evacuating from a hazardous condition.

Explosive. Any substance or combination of substances, the primary purpose of which is detonation or rapid combustion. (California Health and Safety Code)

Exposure. The presence of people, infrastructure, natural systems, and economic, cultural, and social resources in areas that are subject to harm.

³ State of California, “Enhanced Infrastructure Financing Districts (EIFDs),” <https://opzones.ca.gov/enhanced-infrastructure-financing-districts-eifds/>, accessed June 15, 2023.



Extreme Event. When a weather or climate variable exceeds the upper or lower thresholds of its observed range.

Extreme Heat. Temperatures that are hotter than 98 percent of the historical high temperatures for the area, as measured between the months of April and October during the period between 1961 and 1990. Across For Contra Costa County, the extreme heat threshold is 96.6 degrees Fahrenheit (°F), although it varies from 87.1°F in Kensington to 102.4°F in Byron.

Farmers Market. A mobile or non-mobile market: (1) operated by a local government agency, one or more certified producers, or a nonprofit organization; (2) certified by and operating in a location approved by the County Agricultural Commissioner; and (3) where farmers sell directly to consumers agricultural products or processed products made from agricultural products (also known as “value-added products”) that the farmers grow themselves.

Fault. A fracture or zone of fractures in the Earth’s crust that forms a boundary between rock masses that have shifted.

Fee, Impact. A fee charged to a developer by a jurisdiction according to the proposed development project, typically by number of units, square footage, or acreage. The fee is often used to offset costs incurred by the agency for services and infrastructure such as schools, roads, police and fire protection, and parks.

Fee, In-Lieu. Payments that may be required of a property owner or developer as a substitute for a dedication of land for public use or construction of a public facility, usually calculated in dollars per lot, unit, or square foot. Also referred to as in-lieu contributions. (see “Dedication”)

Fire Hazard Severity Zone. An area of significant fire hazard based on fuels, terrain, weather, and other relevant hazards. There are three levels of severity for these zones: Moderate, High, and Very High. CAL FIRE designates

these zones, and local fire protection agencies may expand these zones or increase their severity within areas where they have responsibility for fire protection services (i.e., Local Responsibility Areas).

Flood, 100-Year. In any given year, a flood that has a 1 percent likelihood (a 1 in 100 chance) of occurring, and is recognized as a standard for acceptable risk. Also known as the “base flood.”

Flood, 200-Year. In any given year, a flood that has a 0.5 percent likelihood (a 1 in 200 chance) of occurring. Senate Bill 5 requires a 200-year level of flood protection for urban communities in the Central Valley.

Flood, 500-Year. In any given year, a flood that has a 0.2 percent likelihood (a 1 in 500 chance) of occurring.


Floodplain. The relatively level land area on either side of the banks of a stream adjacent to a natural watercourse that is regularly subject to flooding.

Floodway. The part of the floodplain capable of conveying the 100-year flood with no more than a 1-foot rise in water. The floodway includes the river channel natural watercourse itself and adjacent land areas.

Floor Area Ratio (FAR). The gross floor area of a building in square feet divided by gross land area, expressed as a decimal number. For example, a 60,000-square-foot building on a 120,000-square-foot parcel would have a floor area ratio of 0.50. The FAR is used in calculating the building intensity of nonresidential development.

Garden, Demonstration or Educational. Gardens operated by community organizations or educational institutions to serve an educational function, such as teaching school children about vegetables or agriculture, or assisting property owners with drought-tolerant or fire-resistant landscaping choices.

Gateway. A unique transition point in topography or land use that serves as an entrance to a region of the county or an individual community.



General Plan. A compendium of County policies regarding its long-term development, in the form of maps and accompanying text. The General Plan is a legal document required of each local agency by the State of California Government Code Section 65301 and adopted by the Board of Supervisors.

Greenhouse Gas (GHG) Emissions Inventory. A quantified list of a community's GHG emissions and sources.

Gleaning. Food recovery through collecting or harvesting of otherwise unused food for distribution to those in need.

Goal. A description of the general desired result sought by the County. Each goal has one or more policies and/or actions associated with the goal. (see "Policy" and "Action")

Graywater. Untreated wastewater that has not been affected by infectious, contaminated, or unhealthy bodily wastes and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes.

Green Benefit District. A special district that provides additional maintenance and capital improvements for a variety of neighborhood enhancements, such as parks and open space, beautification, and sidewalks, beyond what is already provided by the local agency. Green Benefit Districts are funded by a direct assessment paid by property owners who benefit from the services provided.

Green Infrastructure. Stormwater management systems that filter and absorb stormwater where it falls. These systems use plants, soil, and stormwater capture and reuse to store, infiltrate, or evapotranspire stormwater and reduce flows to wastewater systems or surface waters.

Greenhouse Gas (GHG). A gas that allows sunlight to pass through but reflects heat radiated from the earth's surface, trapping heat in the lower

atmosphere. Common GHGs include water vapor, carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). They may be emitted by natural or human processes.

Groundwater. Water that exists beneath the earth's surface, typically found between saturated soils and rock, and is used to supply wells and springs.

Growth Management. Ensuring that future residential, ~~business, and commercial, and industrial~~ growth pays for the facilities required to meet the demands resulting from that growth.

Habitat. The physical location or type of environment in which an organism or biological population lives or occurs.

Hazard. An event or physical condition that has the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural losses, damage to the environment, interruption of business, or other types of harm or loss.

Hazard Mitigation. Sustained action taken to reduce or eliminate the long-term risk to human life and property, ~~by means of efforts through actions that reduce hazards,~~ exposure, and vulnerability.

Hazardous Material, Hazardous Waste: A substance or waste that, because of its physical, chemical, or other characteristics, may pose a risk of endangering human health or safety or ~~of~~ degrading the environment. This does not include household hazardous waste, universal waste, or electronic waste, as they do not contain the quantity, concentration, and/or types of ~~products, compounds~~ significant enough to pose a substantial risk to human health and safety or ~~to~~ the environment.

Hazardous Waste Facility. All contiguous land and structures, or other appurtenances, and improvements on land used for the treatment, transfer, storage, resource recovery, disposal, or recycling of hazardous waste that



require a Department of Toxic Substances Control (DTSC) permit for treatment, storage, and disposal facilities (i.e., treatment, storage, and disposal facility [TSDF] permit).

Health Equity. The state in which everyone has a fair and just opportunity to attain their highest level of health.⁴

Heat Wave. A weather event with five extreme heat days in a row.

Household. All persons occupying one dwelling unit. Persons comprising a household need not be related.

HUB Zone. A program that helps small businesses gain preferential access to federal supportive services and opportunities.

Impact, Climate. The effects (especially the negative effects) of a hazard or other condition associated with climate change.

Impact Fee. ~~A fee charged to a developer by a jurisdiction according to the proposed development project, typically by number of units, square footage, or acreage. The fee is often used to offset costs incurred by the municipality for services and infrastructure such as schools, roads, police and fire services, and parks.~~

Impacted Community. An area, typically low-income, that is disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation. This is the term Contra Costa County uses in place of “disadvantaged communities,” as named in Senate Bill (SB) 1000. SB 1000 defines disadvantaged communities per Health and Safety Code Section 39711, specifying CalEnviroScreen as the primary screening method for identifying these communities. In this General Plan, Census tracts with a

cumulative CalEnviroScreen score of 72 or higher are ~~considered to be identified as~~ Impacted Communities.

Impervious Surface. Surface through which water cannot penetrate, such as a roof, road, sidewalk, or paved parking lot. The amount of impervious surface increases with development and establishes the need for drainage facilities to carry the increased runoff.

Implementation. Actions, procedures, programs, or techniques that carry out a plan.

Infill Development. Development that occurs on vacant or underutilized land within areas that are already largely developed.

In-Lieu Fee. ~~Cash payments that may be required of an owner or developer as a substitute for a dedication of land for public use, usually calculated in dollars per lot, and referred to as in-lieu fees or in-lieu contributions. (see “Dedication”)~~


Land Use. The occupation or use of an area of land for any human activity or purpose.

Land Use Designation. ~~One particular category in a~~ A land classification series of appropriate use of properties established by the General Plan Land Use Element that broadly determines the types and intensities of land uses that may exist on a given property.

Land Use Permit. ~~The~~ A discretionary, and usually conditional, review of an permit issued to allow specific buildings or activities, or function or operation on a site or in a building or facility at a specific location. Review of a

⁴ Centers for Disease Control and Prevention, “Health Equity,” <https://www.cdc.gov/healthequity/whatis/index.html#:~:text=Health%20equity%2>

<https://www.cdph.ca/Programs/CID/DCDC/Pages/Immunization/Immunization%20and%20Health%20Care%3B%20and.aspx>, accessed June 15, 2023.



land use permit application typically focuses on assessing the environmental impacts of a proposed land use and its compatibility with its surroundings.

Landslide. Movement of soil and/or rock down a slope, which typically occurs during an earthquake or following heavy rainfall.

Leadership in Energy and Environmental Design (LEED). A voluntary, consensus-based national standard for developing and rating high-performance, sustainable “green” buildings. LEED provides a complete framework for assessing building performance and meeting sustainability goals, such as water savings, energy-efficiency, materials selection, and indoor environmental quality. LEED standards are currently available or under development for new commercial construction and major renovation projects, existing building operations, commercial interiors projects, core and shell projects, and homes.

Leq, Equivalent Sound Level. The average of sound energy occurring over a specified period. The Leq is equivalent to the same average acoustical energy as the time-varying sound that actually occurs during a specified period.

Level of Service (Traffic). A scale that measures the amount of traffic that a roadway or intersection can accommodate, based on such factors as maneuverability, driver dissatisfaction, and delay.

Liquefaction. The transformation of loose, wet soil from a solid to a liquid state, often as a result of ground shaking during an earthquake.

Local Agency Formation Commission (LAFCO). A five- or seven-member commission within each county that reviews and evaluates all proposals for formation of special districts, incorporation of cities, annexation to special districts or cities, consolidation of districts, and merger of districts with cities. Each county’s LAFCO is empowered to approve, disapprove, or conditionally approve such proposals.

Local Responsibility Area (LRA). Areas where a local government, such as a city, county, or district, has the primary financial responsibility of preventing and suppressing fires. (California Fire Code Section 4902.1)

Major Project. A General Plan amendment, or rezoning to increase intensity of use, major subdivision, residential development exceeding 30 units, or nonresidential development of 25,000 square feet or more, or a project requiring a land use permit pursuant to the Industrial Safety Ordinance. (see “Subdivision, Major”)

Micromobility/Microtransit. Transportation via small, lightweight vehicles operated by the driver, such as electric scooters and bicycles. Vehicles typically do not exceed 15 miles per hour and are often available for rent for short-range travel within a defined area.

Military Operations Areas. A three-dimensional airspace designated for military training and transport activities that have a defined floor (minimum altitude) and ceiling (maximum altitude).

Mitigation. Modification to avoid, reduce, minimize, or eliminate a negative impact. There are various types of mitigation, including environmental impact mitigation, hazard mitigation, GHG emissions mitigation, and more.

Mixed Use. ~~Any mixture of land uses, including mixtures of residences with commercial, offices with retail, or visitor accommodation with offices and retail. As distinguished from a single use land use designation or zone, mixed use refers to an authorized variety of uses for buildings and structures in a particular area.~~ A type of development that combines different land uses, such as residential and commercial uses, within the same building (vertical mixed use) or site (horizontal mixed use).

Mobile Home. A structure, transportable in one or more sections, built on a permanent chassis and designed for use as a single-family dwelling unit and which: (1) has a minimum of 400 square feet of living space; (2) has a



minimum width ~~in excess~~ of 102 inches; (3) is connected to all available permanent utilities; and (4) is tied down (a) to a permanent foundation on a lot either owned or leased by the homeowner or (b) is set on piers, with wheels removed and skirted, in a mobile home park.

Mobile Home Park. Any area of land or property that has at least two mobile homes and/or lots that are held out for rent or lease for non-transient use. A parcel of land under one owner that has been planned and improved for the placement of two or more mobile homes for rental purposes for nontransient use.

Mode Share. The percentage of travelers using a certain type of transportation, such as walking, biking, taking transit, or driving a vehicle.

Municipality. An incorporated city or town.

Mutual-Aid Agreement. An agreement between two or more agencies to provide resources, facilities, and services in the event of a disaster or other emergency in the event that if the affected agency does not have the capability to adequately respond to the emergency with its own means.

Natural Watercourse. A naturally occurring body of water, such as a river, creek, or stream, flowing in a natural or artificial channel. Does not include canals, irrigation ditches, or similar structures built to convey water to or from a natural watercourse or other water body.

Natural and Working Lands. Lands not covered by buildings or structures, including forests, grasslands, shrublands, woodlands, rangelands, farmlands, wetlands, coastal areas, and the green spaces in urban and built environments. These lands provide food and fiber, clean air, water, and other resources and benefits.

Near Zero-Emissions Vehicle. A building, vehicle, or other type of operation that uses zero-emission technologies, enables technologies that provide a

pathway to zero-emissions operations, or incorporates other technologies that significantly reduce criteria pollutants, toxic air contaminants, and GHG emissions. (California Health and Safety Code Section 44258(c))

Neighborhood. ~~Relatively large~~ A residential area that has some defined by common shared characteristics, such as a common history, common physical characteristics appearance (e.g., development pattern, architectural style, etc.), a common meeting place facilities such as schools and parks, or more intangible characteristics (e.g., a psychological sense of place or cohesion), or clear physical boundaries (e.g., like waterways or major roads).


Neighborhood Kitchen. A shared, commercial-scale kitchen space that is organized by a neighborhood or community group to facilitate safe food production by community members, such as for soup kitchens, community events, or small-scale cottage food industry operations.

Neighborhood-Serving Retail Use. A small-scale business providing goods and services necessary for the day-to-day maintenance of a household (e.g., ~~butchers or bakers~~ corner markets, dry cleaners, coffee shops).

Noise Contours. ~~A~~ Lines superimposed on a map connecting points of equal that indicate various levels of average noise level exposure as measured on the same scale.

Noise-Sensitive Use. A location where people reside or where the presence of unwanted sound could adversely affect the use of land, such as residences, schools, and hospitals.

Non-Conforming Use, Legal. A use that was ~~valid when brought into existence~~ established legally, but no longer permitted by later does not conform to subsequently adopted regulations. "Non-conforming use" is a generic term and includes: (1) non-conforming structures (because their size, type of construction, location on land, or proximity to other structures is no longer permitted); (2) non-conforming use of a conforming building; (3) non-



~~conforming use of a non-conforming building; and (4) non-conforming use of land. Any use lawfully existing on any piece of property that is inconsistent with a new or amended General Plan, and that in turn is a violation of a Zoning Ordinance amendment subsequently adopted in conformance with the General Plan, will be a non-conforming use. Typically, non-conforming uses are permitted to continue, subject to certain restrictions.~~

Non-Essential Idling. Operation of a vehicle while it is stationary when none of the following circumstances are met: the vehicle is stuck in traffic; idling is necessary to inspect or service the vehicle; the vehicle is transferring power via a power-takeoff device; the vehicle can't move due to adverse weather conditions or mechanical failure; the vehicle is a bus with passengers on board. See California Code of Regulations, Title 13, Section 2485 for a full definition.

Offsets (emissions). Banked air emission reduction credits that compensate for cumulative increases in air emissions, as defined by BAAQMD Regulation 2 Rule 4.

On-Site Wastewater Treatment System. A multi-stage system that collects, treats, and disperses wastewater generated on an individual site. On-site wastewater treatment systems typically include a septic tank and disposal (leach) field.

~~Protected Open Space.~~ Natural habitat and other ~~open space undeveloped~~ areas that are usually protected from development by ownership, deed restrictions, conservation easements, land dedications, ~~and/or~~ other techniques.

Opportunity Zone. Economically distressed communities that have experienced a lack of investment for decades, defined by the federal government by Census tract. These areas may qualify for preferential tax treatment on new investments to incentivize investment in the community.

Overlay. A land use or zoning designation that modifies the basic underlying designation or designations in some specific manner, usually by applying supplemental regulations.

Parcel. A unit of real property, commonly referred to as a "lot," or contiguous group of lots, in single ownership or under single control, usually considered a unit for purposes of development. Differs from an Assessor's parcel in that the latter is delineated by the County Assessor's Office solely for the purpose of assessing property taxes on a given area of land.

Planned Unit Development (PUD). A description of a proposed unified development, consisting at a minimum of a map and adopted ordinance setting forth the governing regulations, and the location and phasing of all proposed uses and improvements to be included in the development. A development approach that uses flexible zoning regulations to create projects that would otherwise be impermissible under standard zoning. PUDs often incorporate nontraditional development patterns and different types of residential buildings, and may include commercial, recreational, or public use components.

Pocket Park. A small park, typically less than a quarter acre in size.

Policy. A specific statement that guides decision making as the County works to achieve a goal. Policies represent statements of County regulation and set the standards used by decision makers when considering proposed development and actions. A policy is ongoing and requires no further action (see "Goal").

~~Protected Open Space.~~ ~~Natural habitat and other open space areas that are protected from development by ownership, deed restrictions, conservation easements, land dedications, and/or or other techniques.~~

Reach Code. A local ~~municipal building~~ code that exceeds the State Building Code requirements. A reach code must be at least as stringent as the State



Code, cost-effective, approved by the California Energy Commission, and updated and re-~~adopted~~approved with each State Energy Code update.

Remediation. Restoration of contaminated areas to protect human health and the environment.

Resilience. The capacity of any entity—an individual, community, organization, or natural system—to prepare for disruptions, recover from shocks and stresses, and adapt and grow from a disruptive experience. Community resilience is the ability of communities to withstand, recover, and learn from past disasters to strengthen future response and recovery efforts.

Resilience Center. A ~~well-used~~ community-serving facility with year-round programming that also provides local communities with ~~shelter~~, water, and electricity during hazardous events or disasters.

Riparian. A habitat and vegetation zone that is associated with the banks and floodplains of a river, stream, or lake. Riparian trees and shrubs are typically phreatophytes, plants whose root systems are in constant contact with groundwater.

Risk. The potential for damage or loss created by the interaction of hazards with assets such as buildings, infrastructure, or natural and cultural resources.

Safe Routes to Schools (SRTS). ~~Pedestrian and bicycling routes that provide safe access to and from schools.~~ Federal, State, and local programs that promote walking and bicycling to school through infrastructure improvements, safety education, enforcement, and incentives.

Scenic Corridor. Land that is visible from, adjacent to, and outside a roadway right of way, and is made up primarily of scenic and natural features.

~~Topography, vegetation, viewing distance, and/or jurisdictional lines determine the corridor boundaries.~~

Sea-Level Rise. The worldwide average rise in mean sea level, which may be due to a number of different causes, such as the thermal expansion of sea water and the addition of water to the oceans from the melting of glaciers, ice caps, and ice sheets.

Seniors. People 65 years of age or older.

Sensitive Receptor. A use that is highly sensitive to impacts from other uses, including homes, schools, playgrounds, sports fields, childcare centers, senior centers, hospitals, and long-term health care facilities.


Sensitivity. ~~The level to which a species, natural system, community, or government would be affected by changing climate conditions.~~

Separated Bikeway (Class IV facility). ~~A bikeway for the exclusive use of bicycles that are physically separated from vehicle traffic. (Also called cycle tracks and protected bikeways.) (see also “Bikeway”)~~

Severe Ground Shaking. Intense ground movement resulting from ~~the~~ transmission of seismic waves during an earthquake.

Social Vulnerability. ~~The susceptibility of a given population to harm from exposure to a hazard, directly affecting its ability to prepare for, respond to, and recover.~~

Specific Plan. ~~Under Article 8 of the Government Code (Section 65450 et seq.), a legal tool for detailed design and implementation of a defined portion of the area covered by a General Plan. A specific plan may include all detailed regulations, conditions, programs, and/or proposed legislation that may be necessary or convenient for the systematic implementation of any General Plan element(s).~~



Sphere of Influence (SOI). The ~~probable~~potential ultimate physical boundaries and service area of a municipality or special district, as determined by the Local Agency Formation Commission of the county. The SOIs for cities and towns include unincorporated land that could be annexed.

State Responsibility Area (SRA). The area where the State of California has primary financial responsibility for ~~the~~ prevention and response to wildland fires as delineated on maps prepared by the State Fire Marshall.

Stationary Source. A fixed, non-mobile source of air pollution or noise.

Strip commercial. A linear pattern of retail businesses along a major roadway, usually characterized by single-story buildings with prominent parking lots visible from the roadway, multiple driveways, large signs, and a dependency on automobiles for access and circulation.

Structure. ~~Anything constructed or erected on and permanently or semi-permanently attached to land and with a roof supported by columns or walls, except buildings intended for human occupancy.~~ (see “Building”)

Subdivision. The division of any unit or units of real property, improved or unimproved, ~~land~~ for the purpose of sale, lease, or financing. Major subdivisions yield five or more lots, while minor subdivisions yield four lots or fewer.

Substandard Housing. A ~~housing~~ residential building or living unit whose physical condition ~~that~~ endangers the life, limb, property, safety, property, or welfare of the occupants or general public.

Sustainability. Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainable Streets. “Multimodal rights-of-way designed and operated to create benefits relating to movement, ecology, and community that together support a broad sustainability agenda embracing the three Es: environment, equity, and economy.”⁵

Townhouse/Townhome. A series of residences on individual parcels, ~~often typically~~ two ~~to~~ or three stories in height, that are connected side-by-side in a row, each having a separate street-level entrance.

Toxic Air Contaminant (TAC). An air pollutant that may cause or contribute to an increase in serious illness, or that may pose a present or potential hazard to human health, according to California Health and Safety Code Section 39655.

Traffic Calming. Measures designed to reduce motor vehicle speeds, increase safety, and ~~to~~ encourage pedestrian use, including narrow streets, tight turning radii, sidewalk bulbouts, parking bays, and textured paving at intersections, ~~and parkways between sidewalks and streets.~~

Triplex. A free-standing house divided into three separate living units or residences, usually having separate entrances.

Unincorporated Area. ~~Encompasses properties that are~~ All land and water within a county that is outside the boundaries of incorporated municipalities cities and towns. Development in the unincorporated area is subject to County jurisdiction and use regulations.

Universal Waste. Common Hazardous substances wastes that are widely produced generated by households and many different types of businesses,

⁵ Greenberg, Ellen J., “Sustainable Streets: Foundations for an Emerging Practice,” 2009, Washington, DC: Transportation Research Board 88th Annual Meeting.



including batteries, pesticides, ~~mercury-containing equipment, paints,~~ lamps, and aerosol cans.

Unstable Slope. A ~~very steep hillside~~slope that ~~does not have a substantial root system and/or soil type to prevent landslides or other~~is susceptible to failure due to geologic hazards, steepness, lack of vegetation, or other adverse conditions.

Urban Agriculture/Farming. The practice of ~~growing and processing fresh food~~farming within an urban area~~environment.~~ Includes cultivation and small-scale processing of agricultural products.

Urban Heat Island. The phenomenon in which large urban areas experience higher temperatures, greater pollution, and more negative health impacts during hot months due to a combination of heat-absorptive surfaces, heat-generating activities, and the absence of vegetation.

Urban Limit Line (ULL). A political boundary approved by Contra Costa County voters to limit urban development to defined areas of the county while preserving farmland, watersheds, and open space outside those areas.

Use. The purpose for which a lot, building, or structure is or may be leased, occupied, maintained, arranged, designed, intended, constructed, erected, moved, altered, and/or enlarged in accordance with the County General Plan land use designations and corresponding Zoning districts~~Ordinance and General Plan land use designations.~~

Utility Corridor. Rights-of-way or easements for utility lines on either publicly or privately owned property.

Vertiport. A ~~facility~~facility or area designated for use by electric, hydrogen, or hybrid vertical take-off and landing (VTOL) aircraft.

Vulnerability. The degree to which natural, built, and human systems are susceptible “...to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt.”⁶


Vulnerability Assessment. An analysis of how a changing climate may harm a community and which elements—people, buildings and structures, resources, ecosystems, and other assets—are most vulnerable to its effects based on an assessment of exposure, sensitivity, the potential impact(s), and the community's adaptive capacity.

Wastewater. Water that has been used in homes, businesses, industrial processes, or other applications. ~~May~~ contains ~~other elements, such as excess water from drainage or piping systems, small~~ pathogens, organic matter, and ~~inorganic~~ contaminants. ~~This term is also used to refer to water generated in industrial plants and commercial activity.~~

Wetland. An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.

Wildland-Urban Interface (WUI). An area that includes houses and wildland vegetation, creating a significant threat to human life or property from wildfires. The WUI is comprised of three distinct zones:

⁶ Neil Adger, “Vulnerability,” *Global Environmental Change* 16 (2006): 268–281, https://www.geos.ed.ac.uk/~nabo/meetings/glthec/materials/simpson/GEC_sdarticl e2.pdf

- 
1. The **intermix zone** contains housing development or improved parcels interspersed in an area dominated by wildland vegetation subject to wildfire.
 2. The **interface zone** contains dense housing next to vegetation that can burn in a wildfire, but is not dominated by wildland vegetation.
 3. The **influence zone** contains wildfire-susceptible vegetation within 1.5 miles from the intermix and interface zones.

Xeriscape. Landscaping with an emphasis on water conservation and efficiency.

Zero Emission Vehicle/Transportation Device. A vehicle or transportation device (e.g., bicycle or scooter) that does not produce emissions when in operation, including battery-electric vehicles/devices and hydrogen fuel-cell electric vehicles.

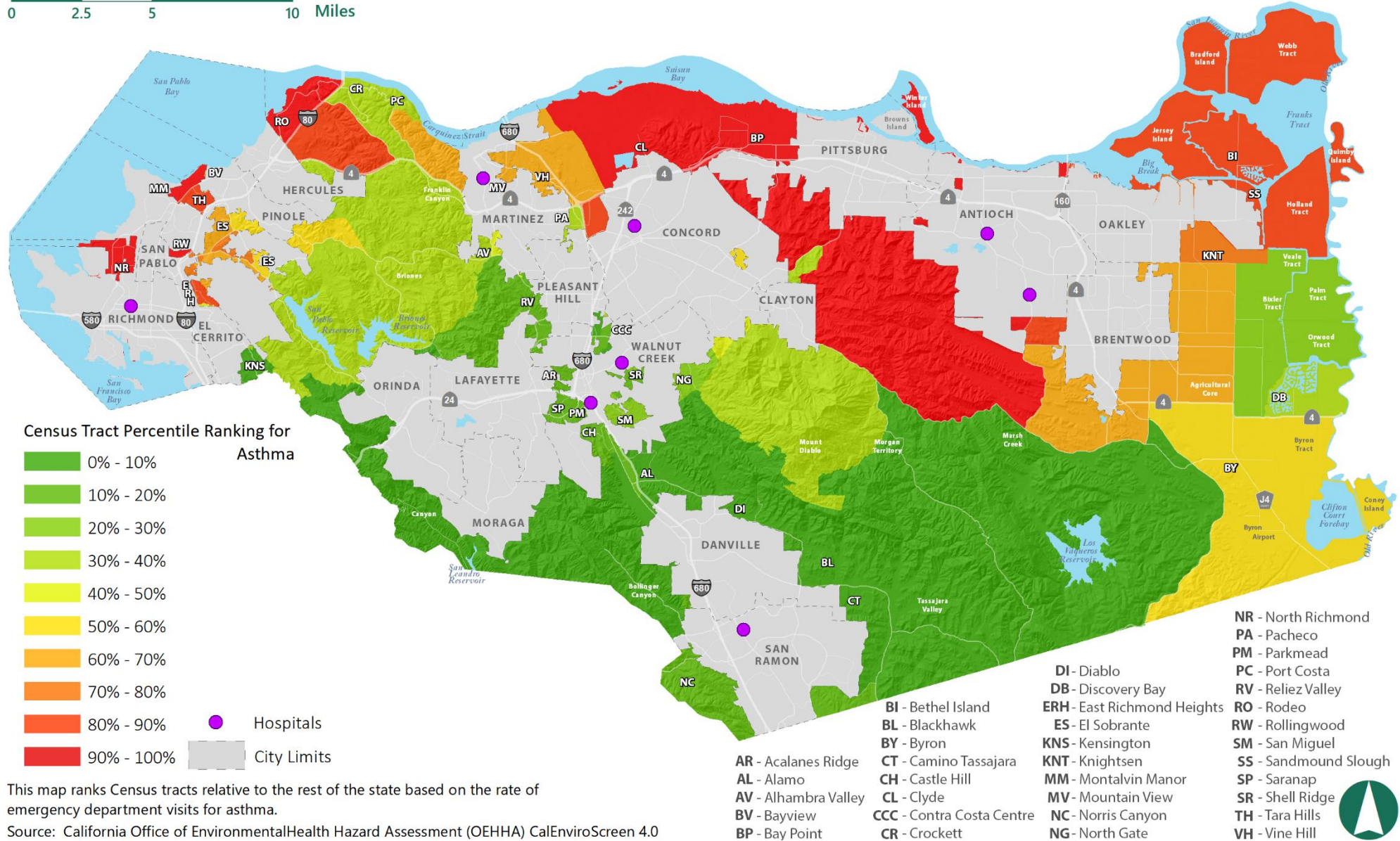
Zoning. ~~The division of a county by e~~Ordinances or other legislative regulations adopted by the legislative body of a city or county that divide the jurisdiction into districts or zones that specify allowable uses for real property, impose standards for development (building setbacks, height limitations, landscaping requirements, etc.), and size restrictions for buildings constructed in these areasestablish procedures for review and approval of development proposals. Zoning implements the land use policies of the General Plan.

ATTACHMENT 2:

REVISED GENERAL PLAN MAPS

FIGURE SC-2 ASTHMA RANKINGS RELATIVE TO THE STATE

0 2.5 5 10 Miles

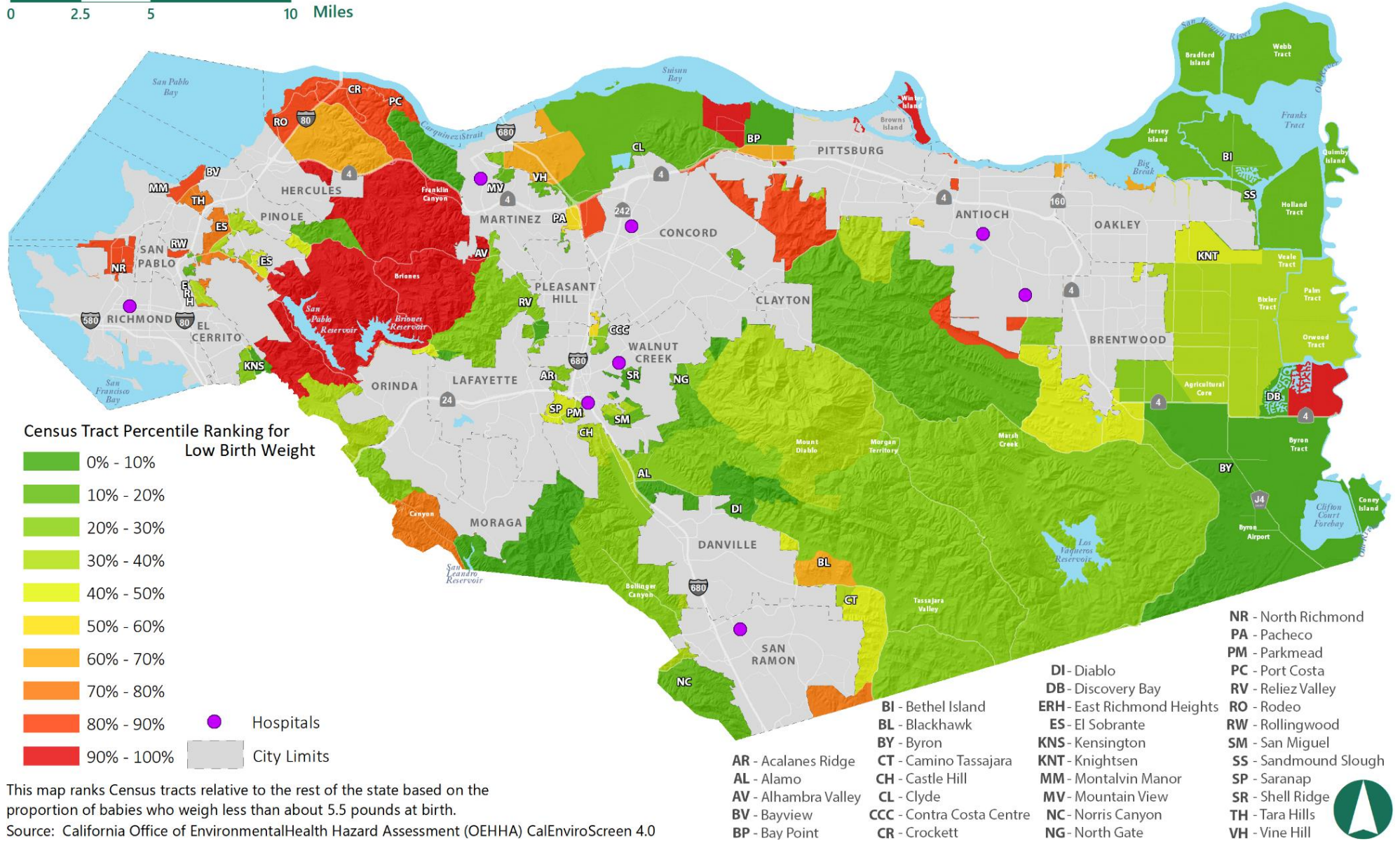


This map ranks Census tracts relative to the rest of the state based on the rate of emergency department visits for asthma.

Source: California Office of Environmental Health Hazard Assessment (OEHHA) CalEnviroScreen 4.0

FIGURE SC-4 LOW BIRTH WEIGHT RANKINGS RELATIVE TO THE STATE

0 2.5 5 10 Miles



This map ranks Census tracts relative to the rest of the state based on the proportion of babies who weigh less than about 5.5 pounds at birth.

Source: California Office of Environmental Health Hazard Assessment (OEHHA) CalEnviroScreen 4.0



FIGURE SC-5 CHILDREN'S LEAD RISK FROM HOUSING RANKINGS RELATIVE TO THE STATE

0 2.5 5 10 Miles

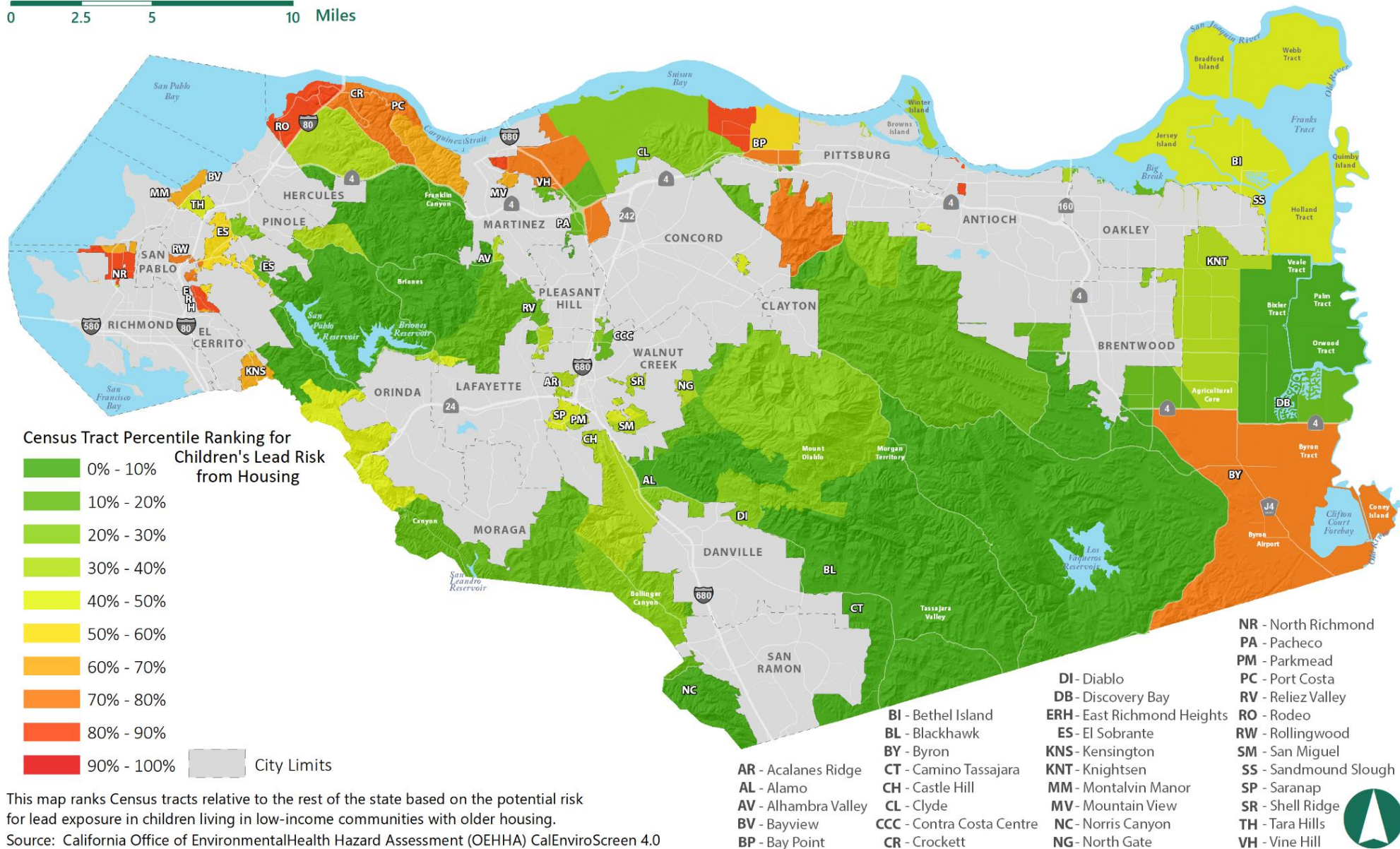
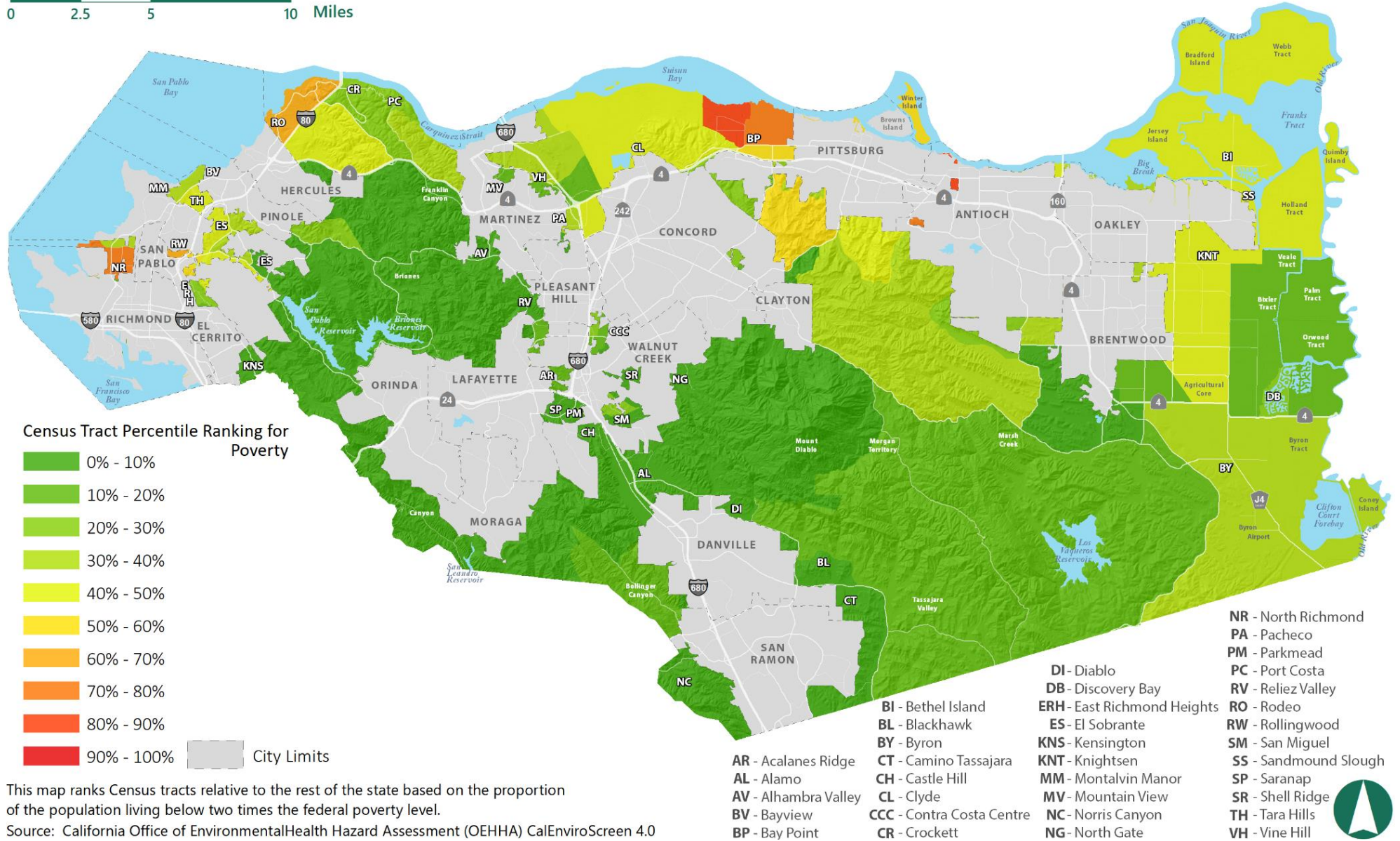


FIGURE SC-6 POVERTY RANKINGS RELATIVE TO THE STATE

0 2.5 5 10 Miles



This map ranks Census tracts relative to the rest of the state based on the proportion of the population living below two times the federal poverty level.
Source: California Office of Environmental Health Hazard Assessment (OEHHA) CalEnviroScreen 4.0



FIGURE SC-7 ADULTS WITHOUT A HIGH SCHOOL DEGREE RANKINGS RELATIVE TO THE STATE

0 2.5 5 10 Miles

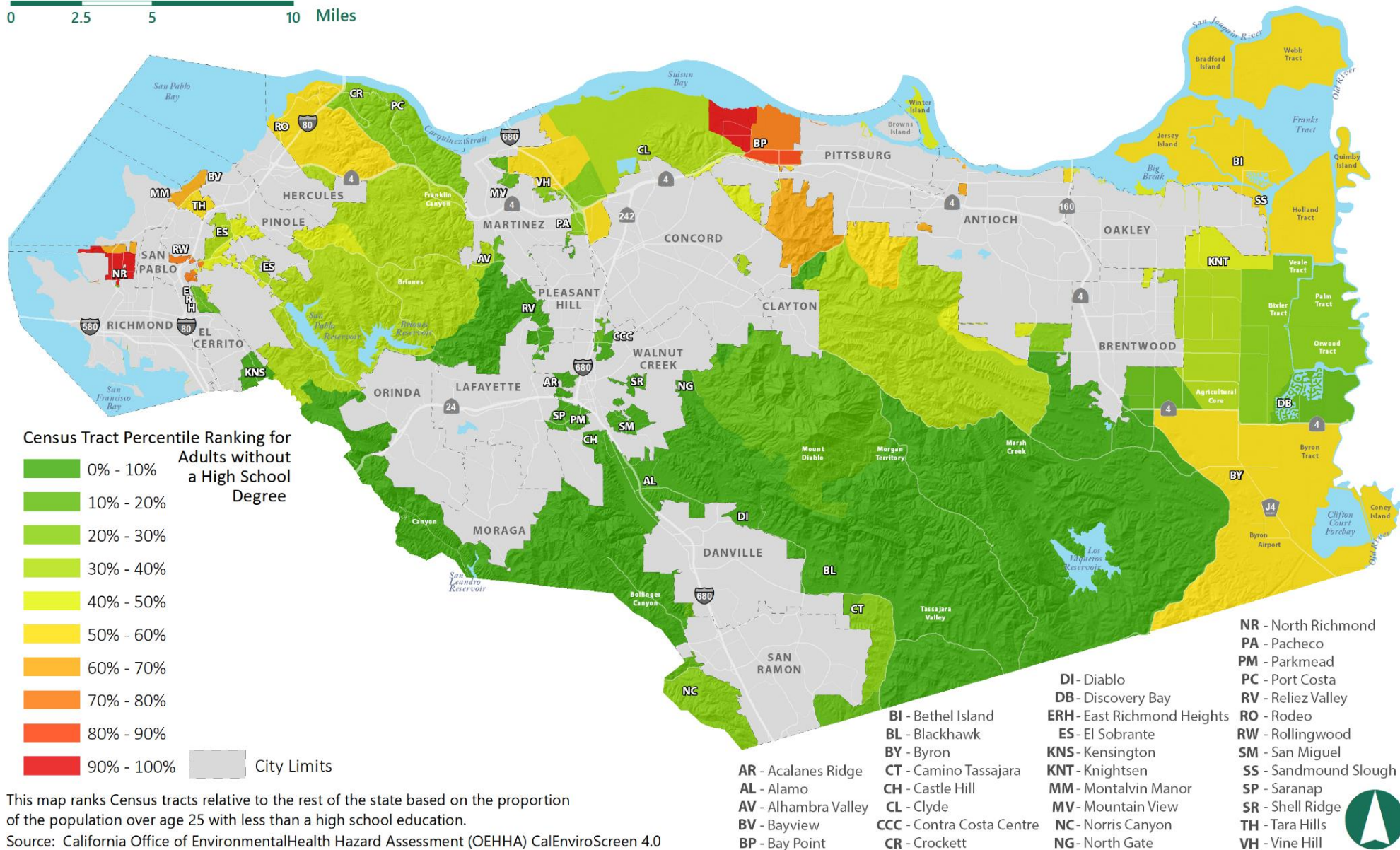
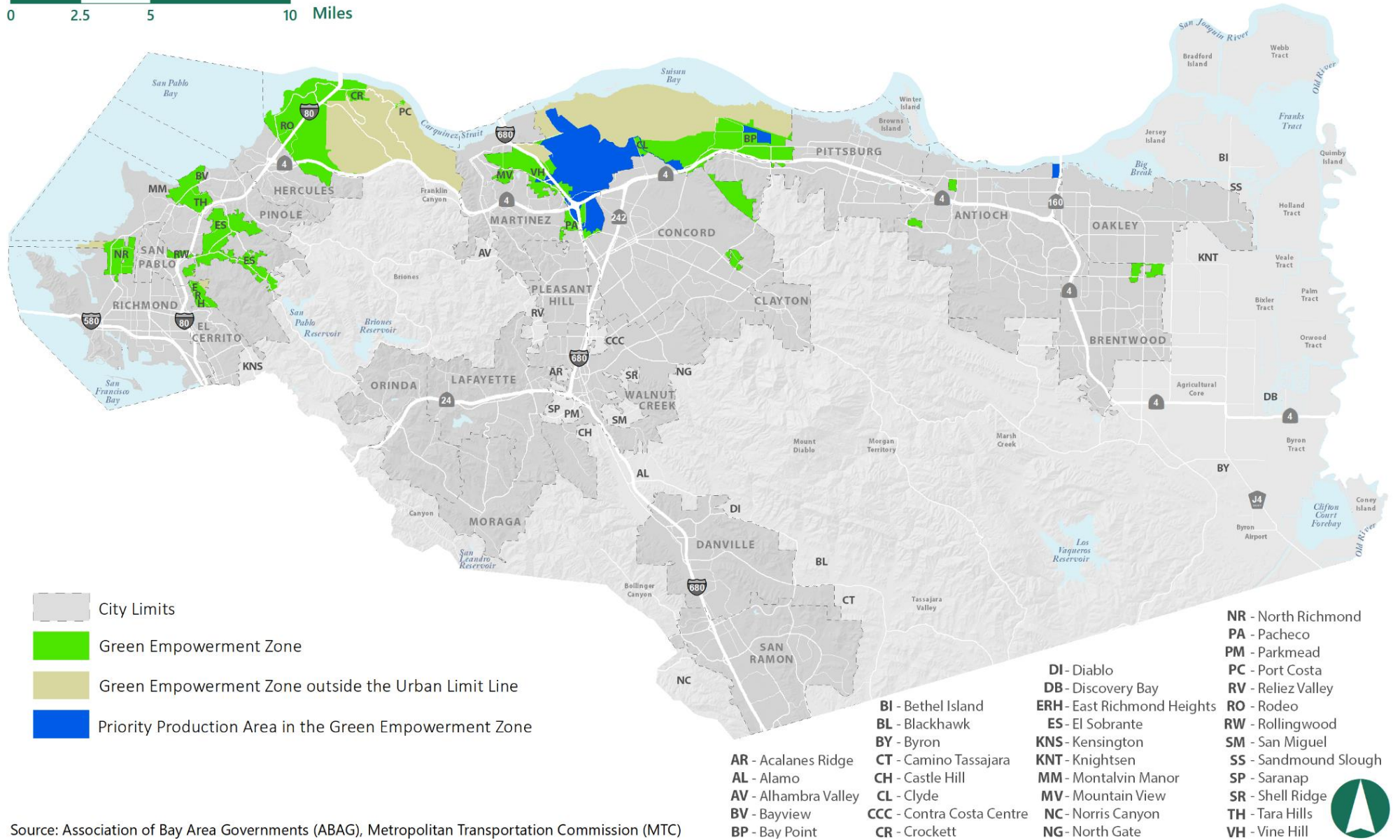


FIGURE SC-8 GREEN EMPOWERMENT ZONE AND PRIORITY PRODUCTION AREAS

0 2.5 5 10 Miles



Source: Association of Bay Area Governments (ABAG), Metropolitan Transportation Commission (MTC)

FIGURE LU-1 GENERAL PLAN LAND USE MAP

0 2.5 5 10 Miles

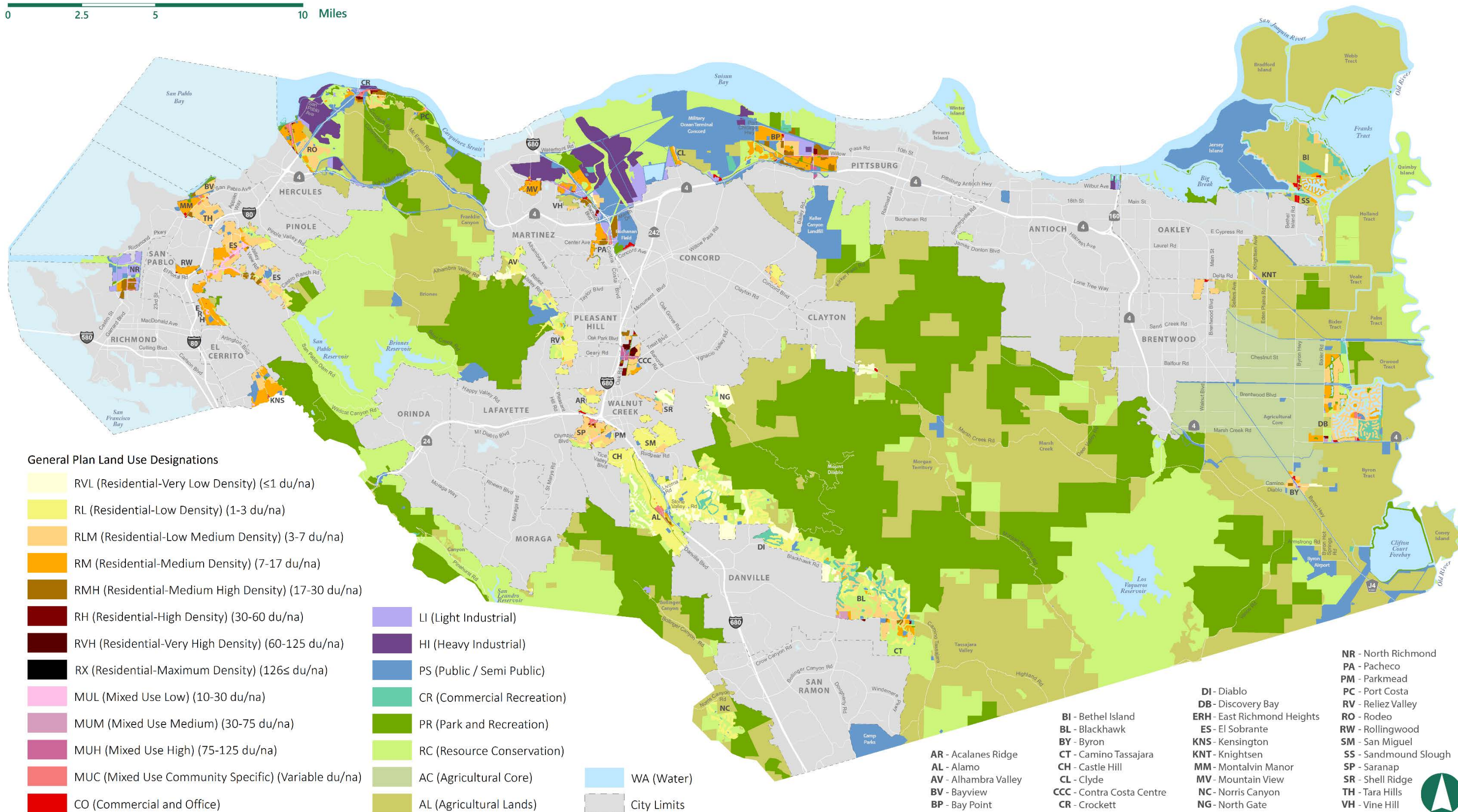
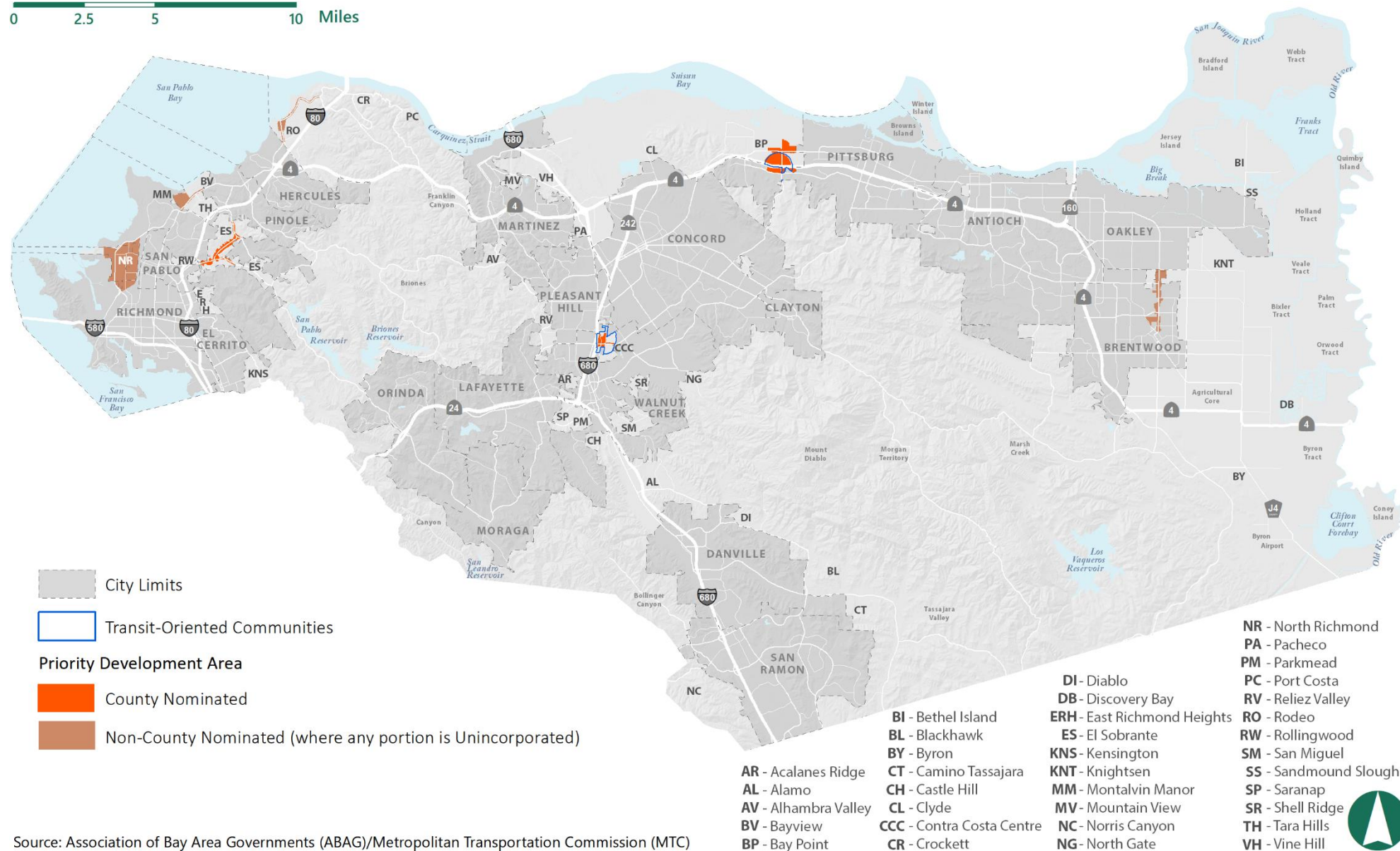




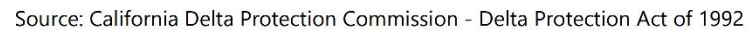
FIGURE LU-5 PRIORITY DEVELOPMENT AREAS

0 2.5 5 10 Miles



Source: Association of Bay Area Governments (ABAG)/Metropolitan Transportation Commission (MTC)

0 2.5 5 10 Miles



0 2.5 5 10 Miles

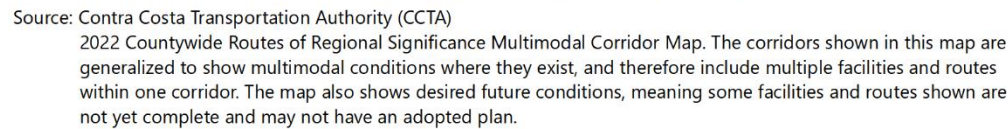
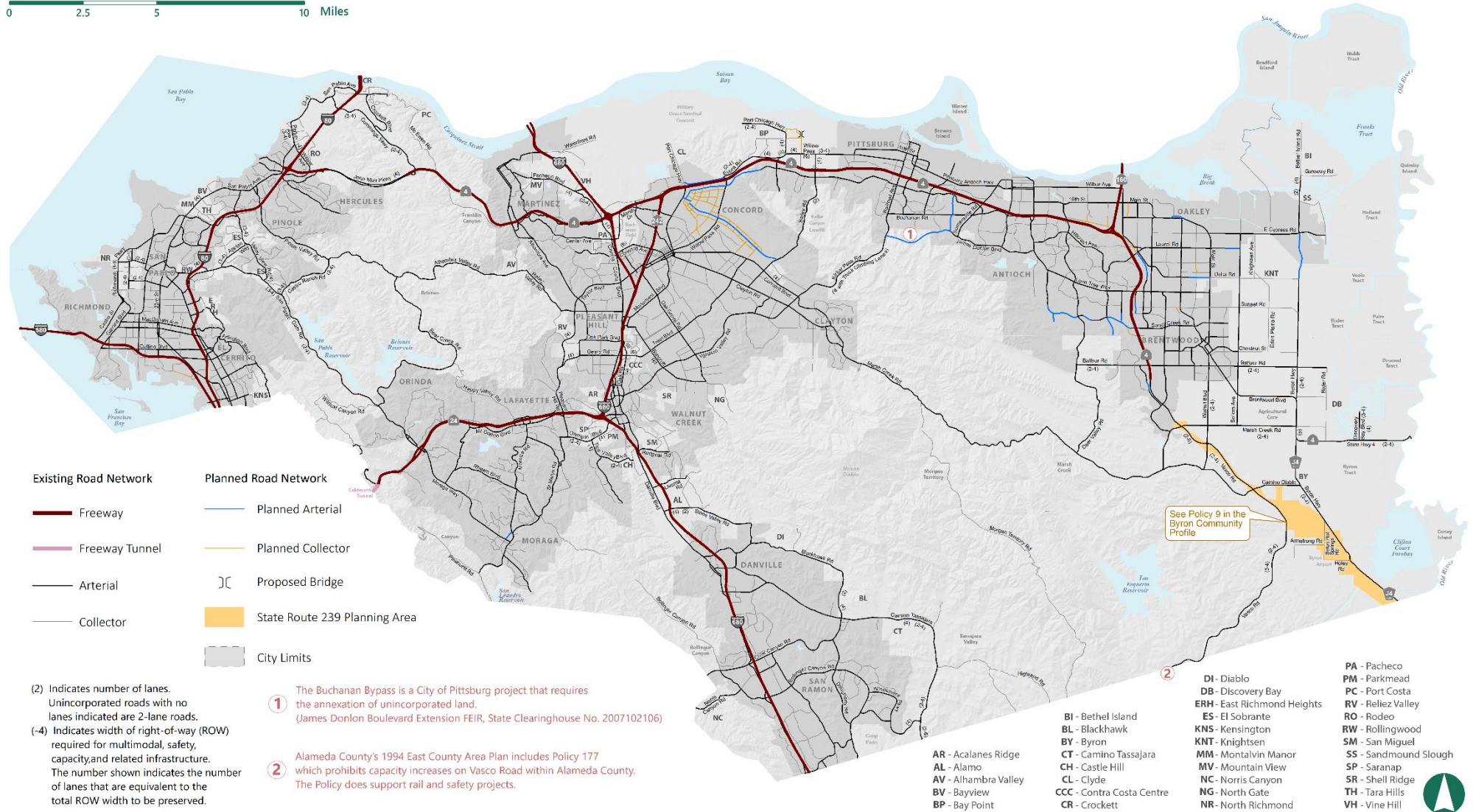


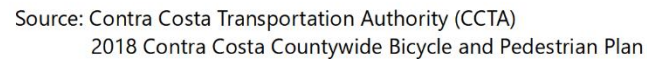


FIGURE TR-3 ROADWAY CLASSIFICATIONS

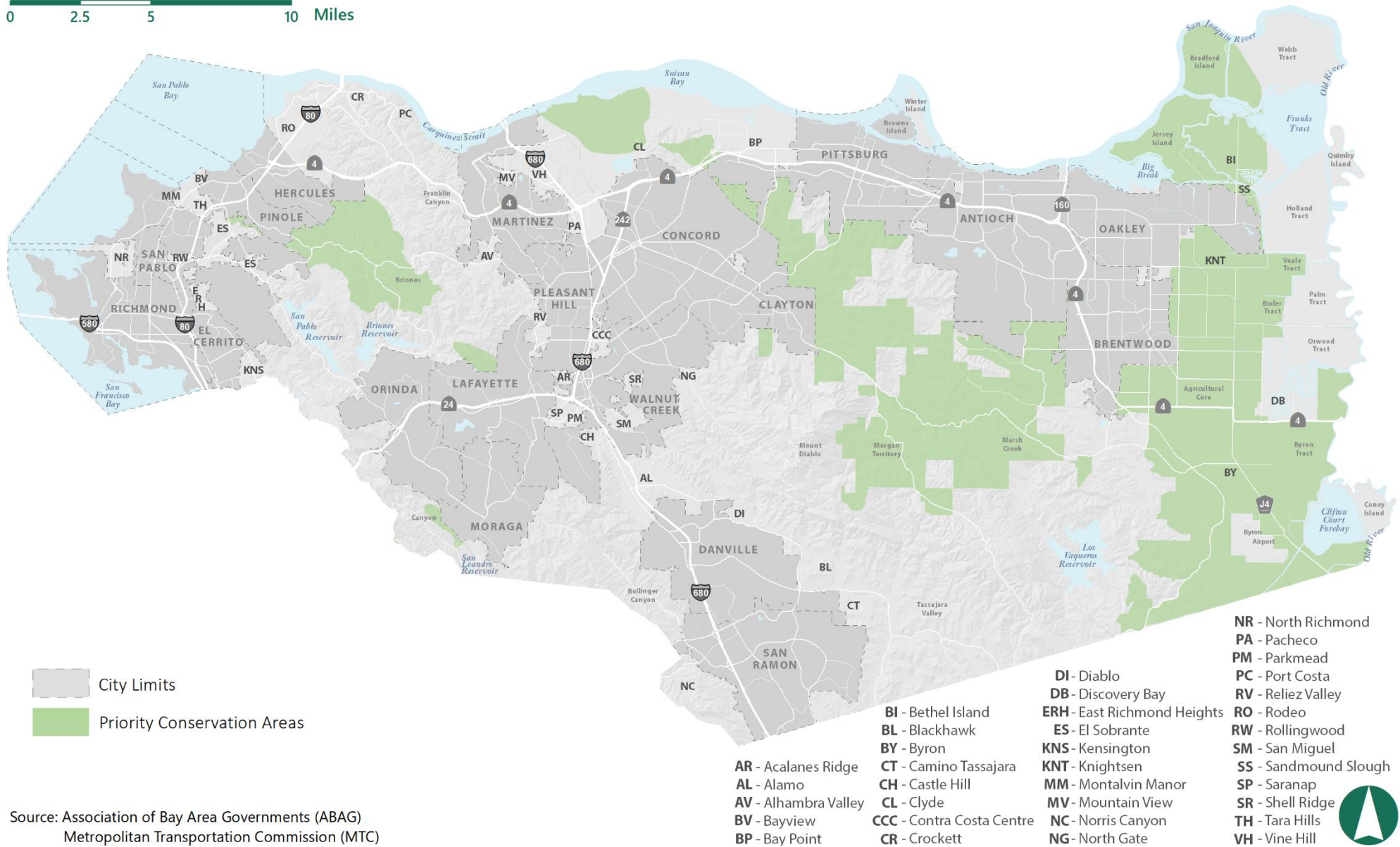
0 2.5 5 10 Miles



0 2.5 5 10 Miles



0 2.5 5 10 Miles



Source: Association of Bay Area Governments (ABAG)
Metropolitan Transportation Commission (MTC)

FIGURE COS-6 WATERSHEDS

0 2.5 5 10 Miles

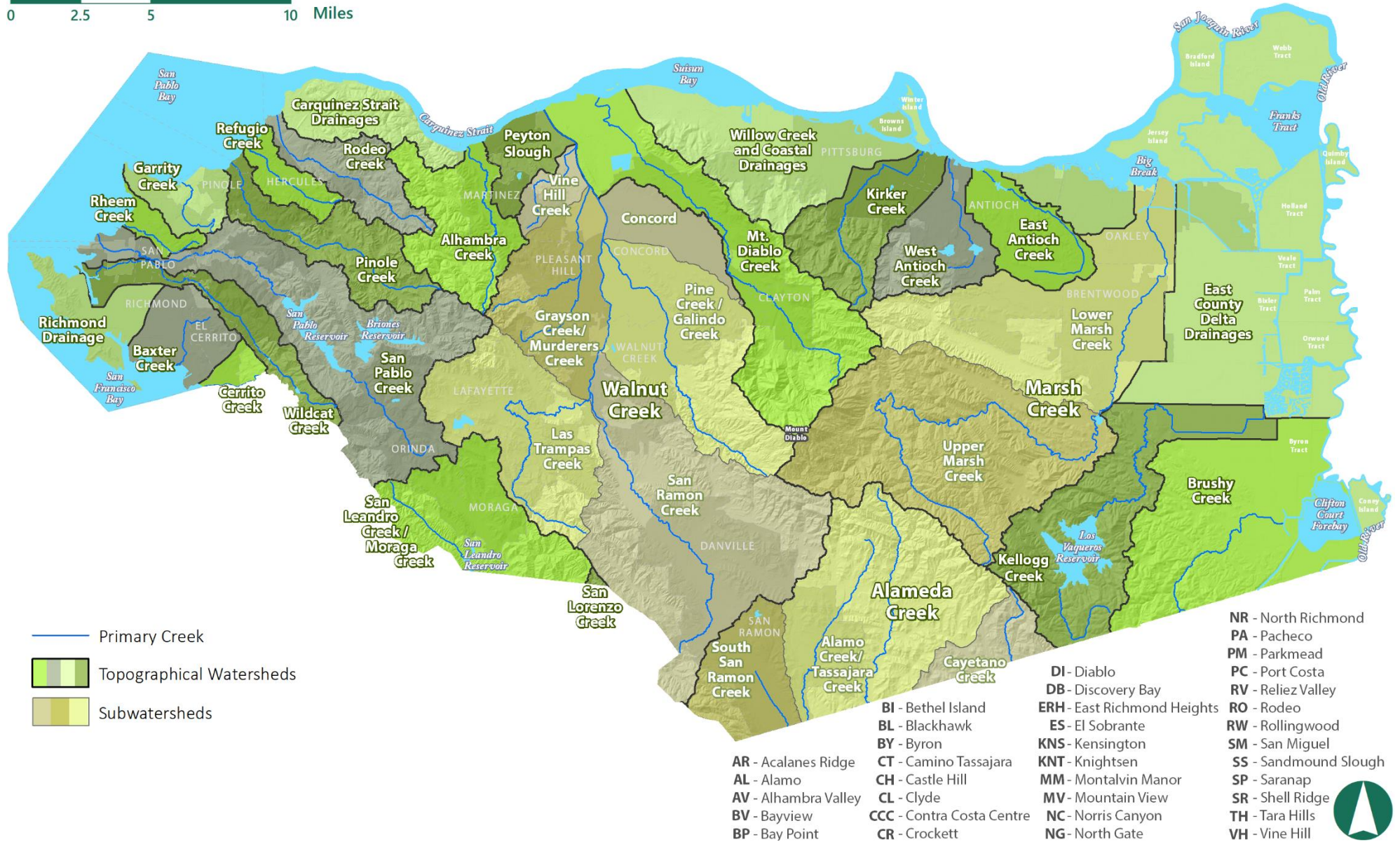




FIGURE COS-8 IMPAIRED WATERBODIES RANKINGS RELATIVE TO THE STATE

0 2.5 5 10 Miles

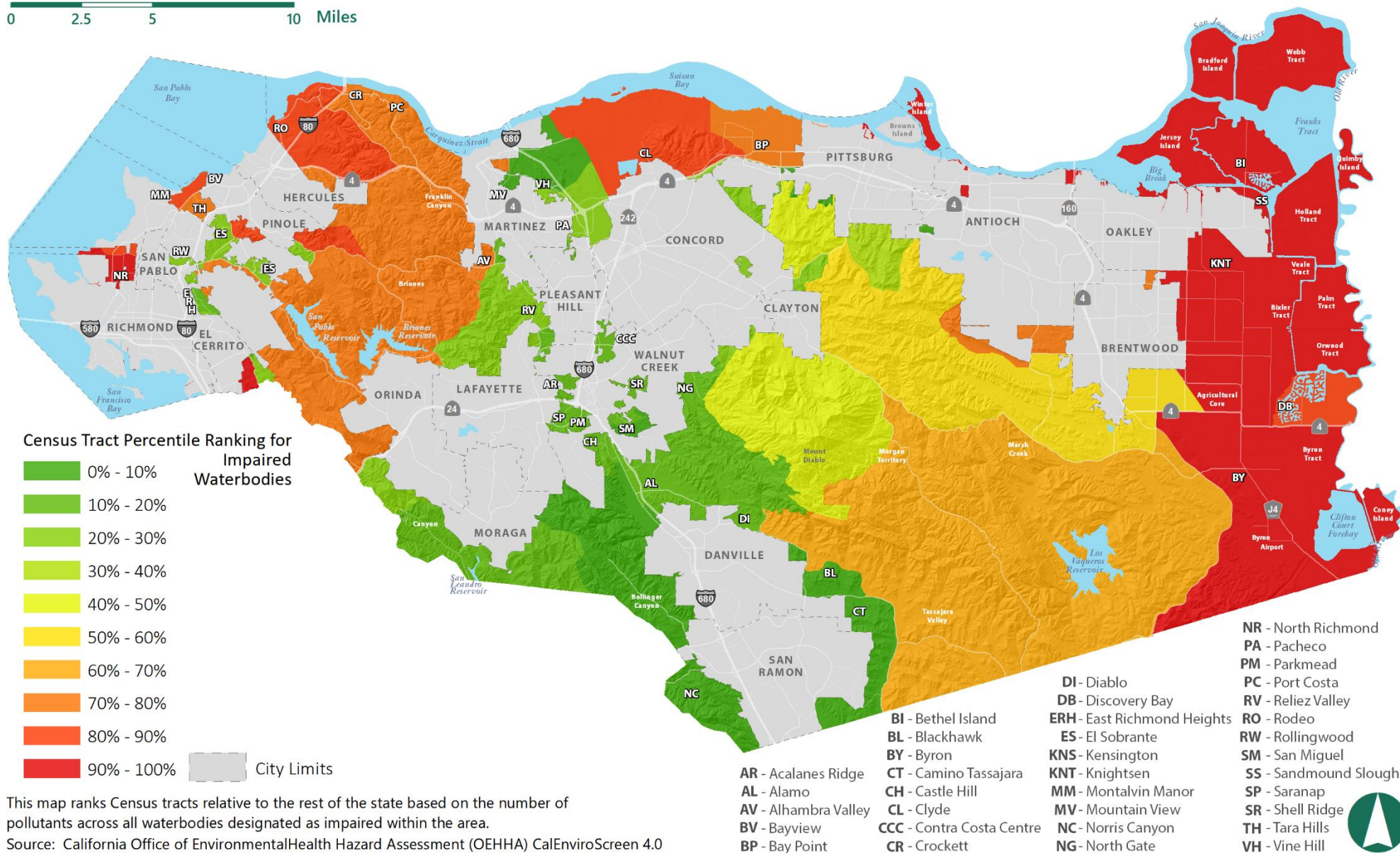
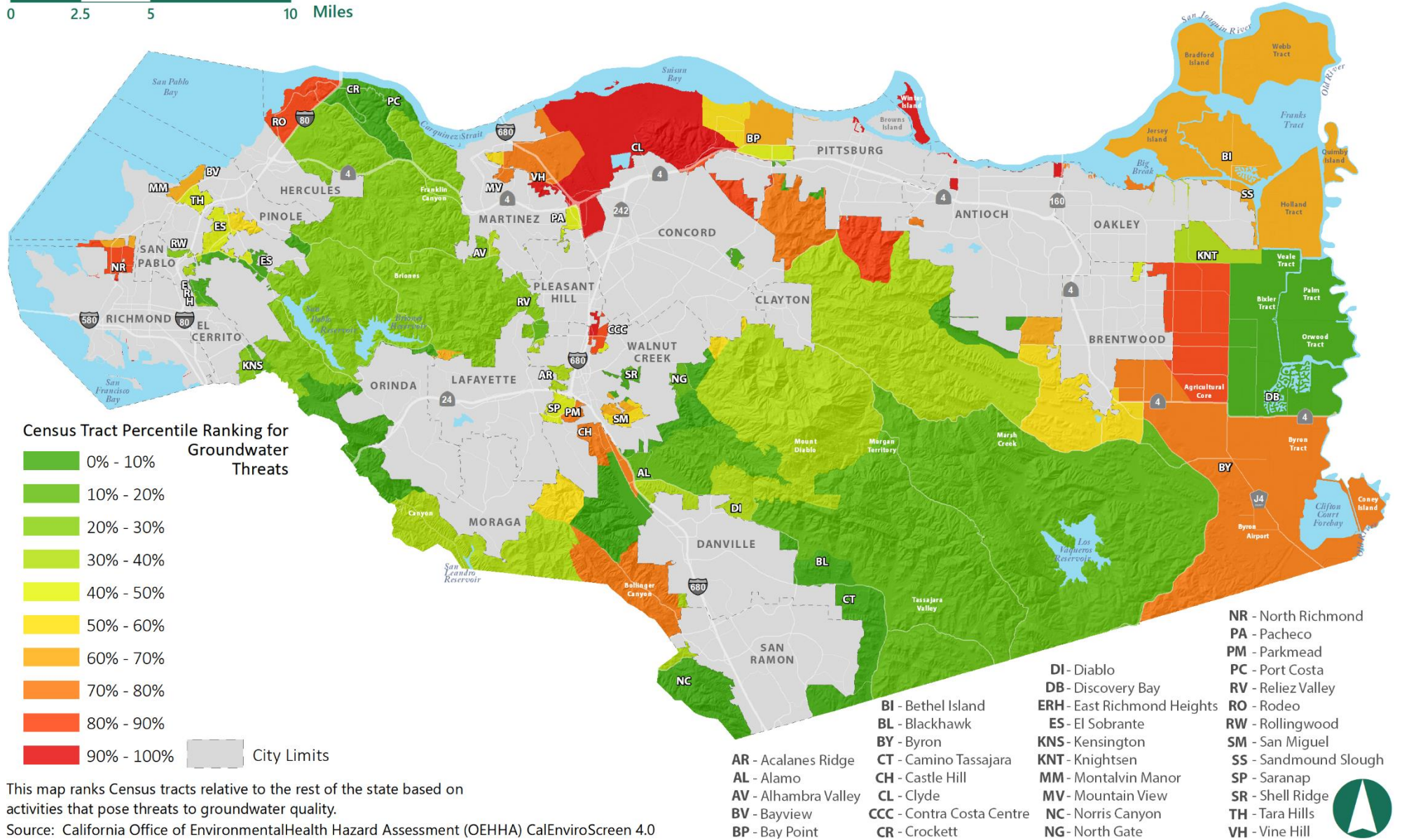


FIGURE COS-9 GROUNDWATER THREAT RANKINGS RELATIVE TO THE STATE

0 2.5 5 10 Miles



This map ranks Census tracts relative to the rest of the state based on activities that pose threats to groundwater quality.

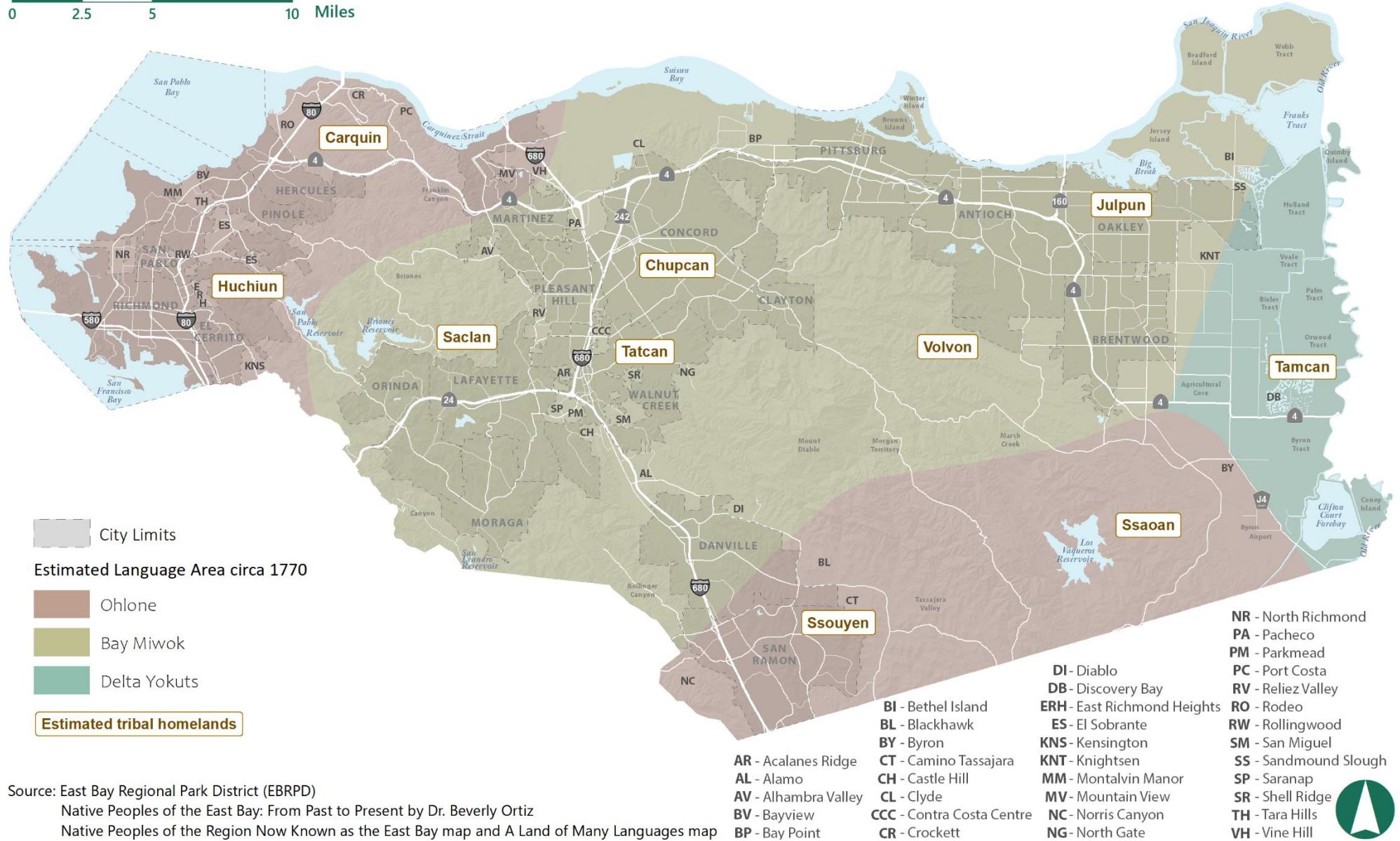
Source: California Office of Environmental Health Hazard Assessment (OEHHA) CalEnviroScreen 4.0



FIGURE COS-11

ESTIMATED TRIBAL HOMELANDS AND LANGUAGE AREAS

0 2.5 5 10 Miles



Source: East Bay Regional Park District (EBRPD)

Native Peoples of the East Bay: From Past to Present by Dr. Beverly Ortiz

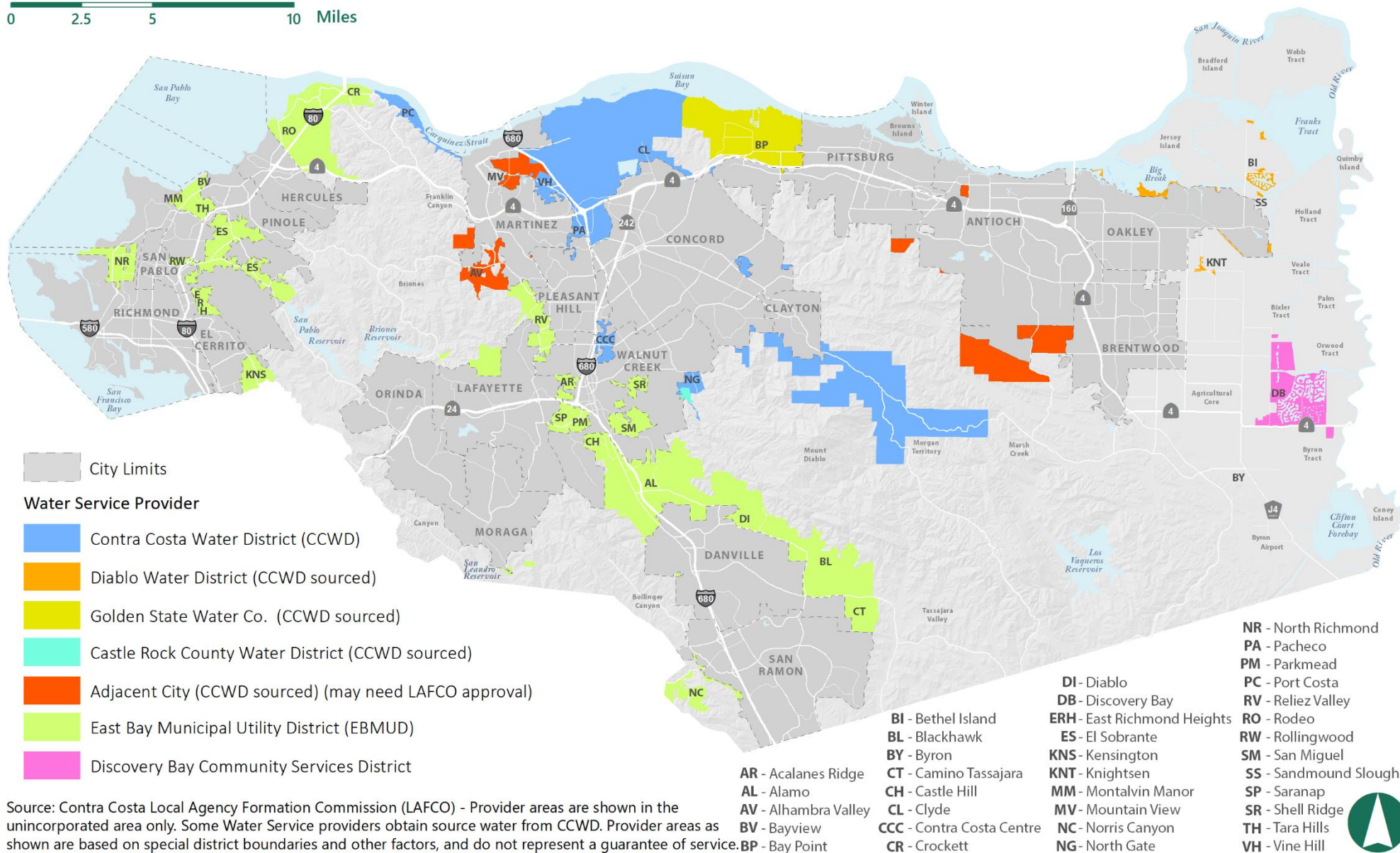
Native Peoples of the Region Now Known as the East Bay map and A Land of Many Languages map

A horizontal number line is shown with tick marks at 0, 2.5, 5, and 10. The word "Miles" is written at the right end of the line. A green rectangular bar is drawn above the line, starting at the 2.5 mark and ending at the 5 mark.



FIGURE PFS-2 WATER SERVICE PROVIDERS

0 2.5 5 10 Miles



Source: Contra Costa Local Agency Formation Commission (LAFCO) - Provider areas are shown in the unincorporated area only. Some Water Service providers obtain source water from CCWD. Provider areas as shown are based on special district boundaries and other factors, and do not represent a guarantee of service.



FIGURE PFS-3 WASTEWATER SERVICE PROVIDERS

0 2.5 5 10 Miles

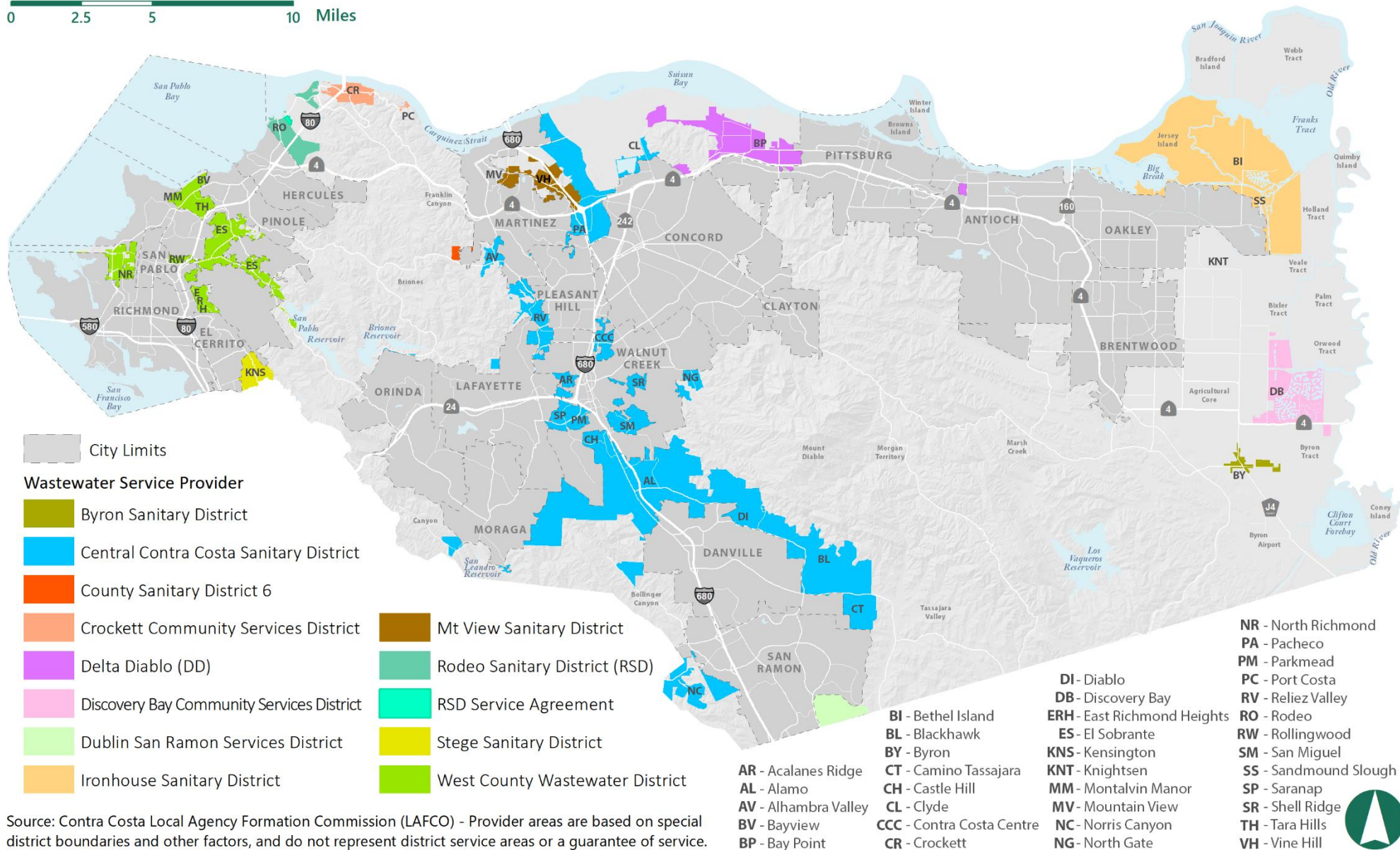
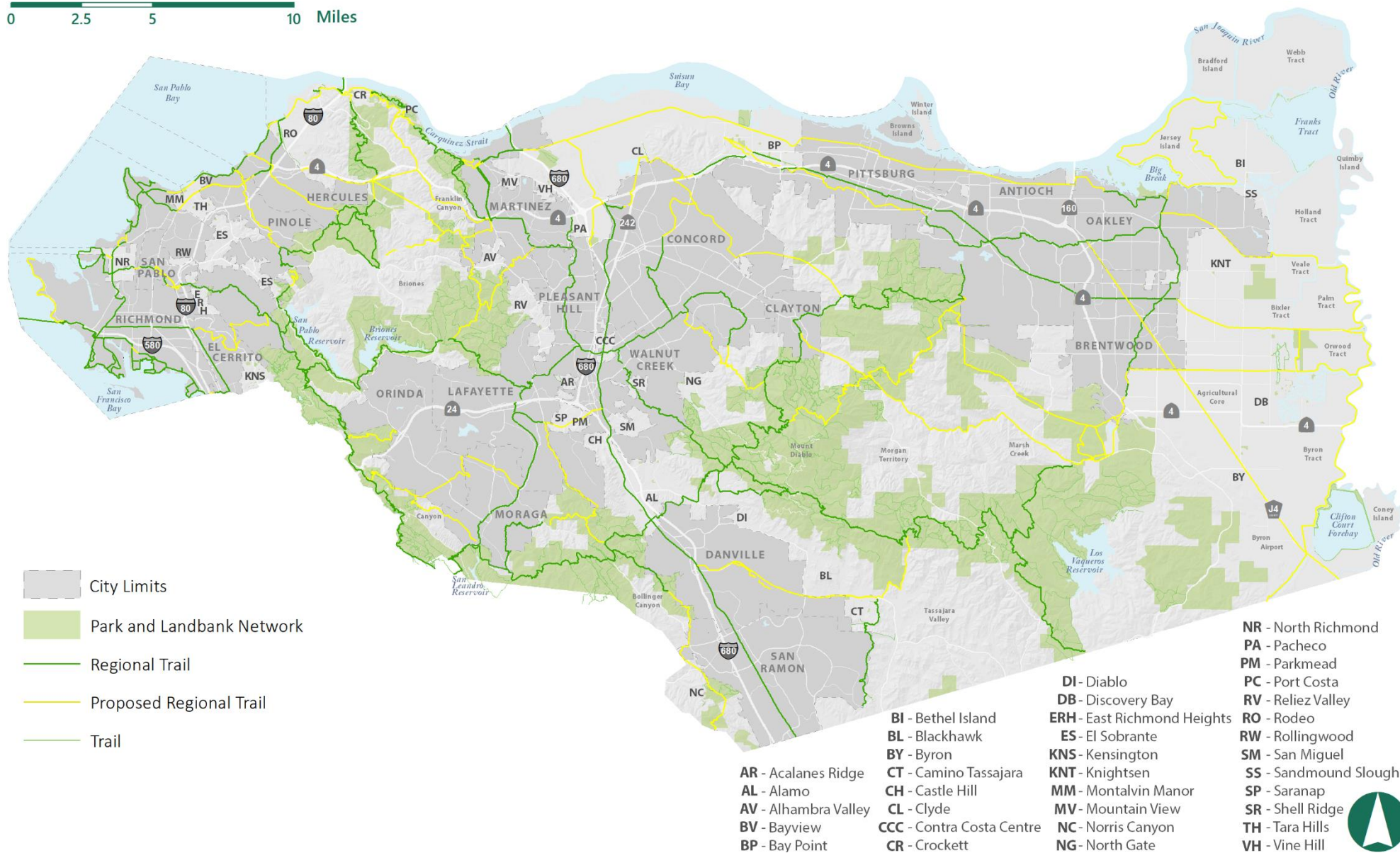






FIGURE PFS-8 TRAILS NETWORK

0 2.5 5 10 Miles



A horizontal number line is shown, labeled "Miles" at the right end. The line has tick marks at 0, 2.5, 5, and 10. A green rectangular segment is drawn above the line, starting at the 2.5 mark and ending at the 5 mark.

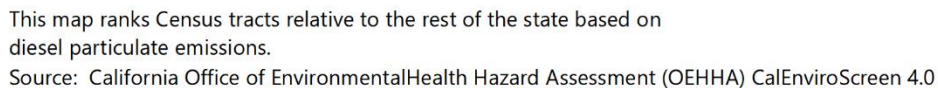
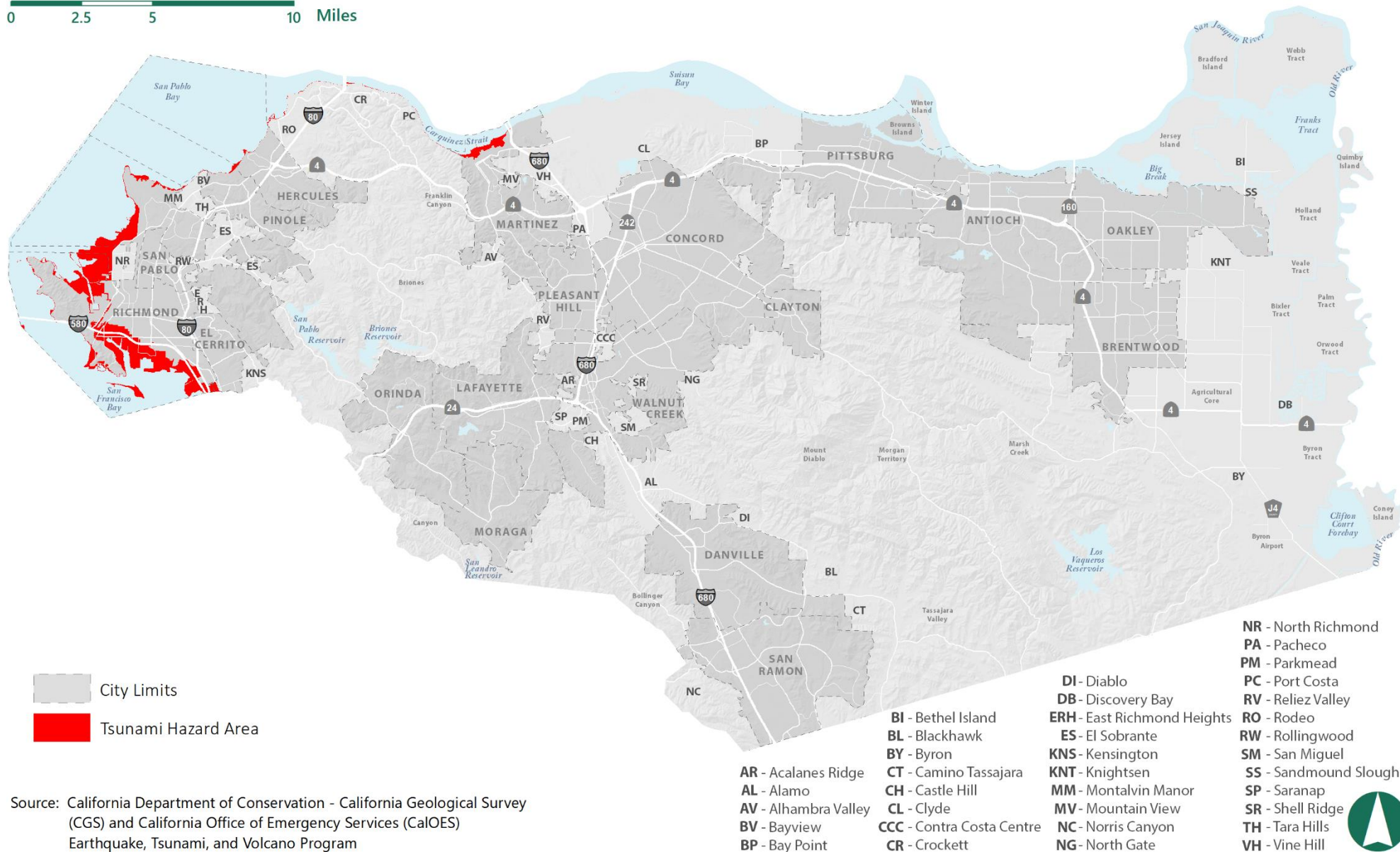




FIGURE HS-5 TSUNAMI HAZARD AREAS

0 2.5 5 10 Miles



Source: California Department of Conservation - California Geological Survey (CGS) and California Office of Emergency Services (CalOES) Earthquake, Tsunami, and Volcano Program

A horizontal number line is shown with tick marks at 0, 2.5, 5, and 10. The word "Miles" is written at the right end. A green bar is drawn above the line, starting at the 2.5 mark and ending at the 5 mark.

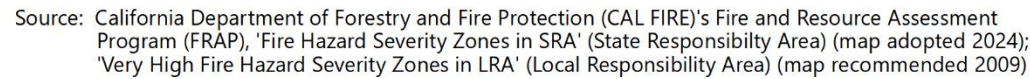


FIGURE HS-13 TEMPERATURE FORECAST

0 2.5 5 10 Miles

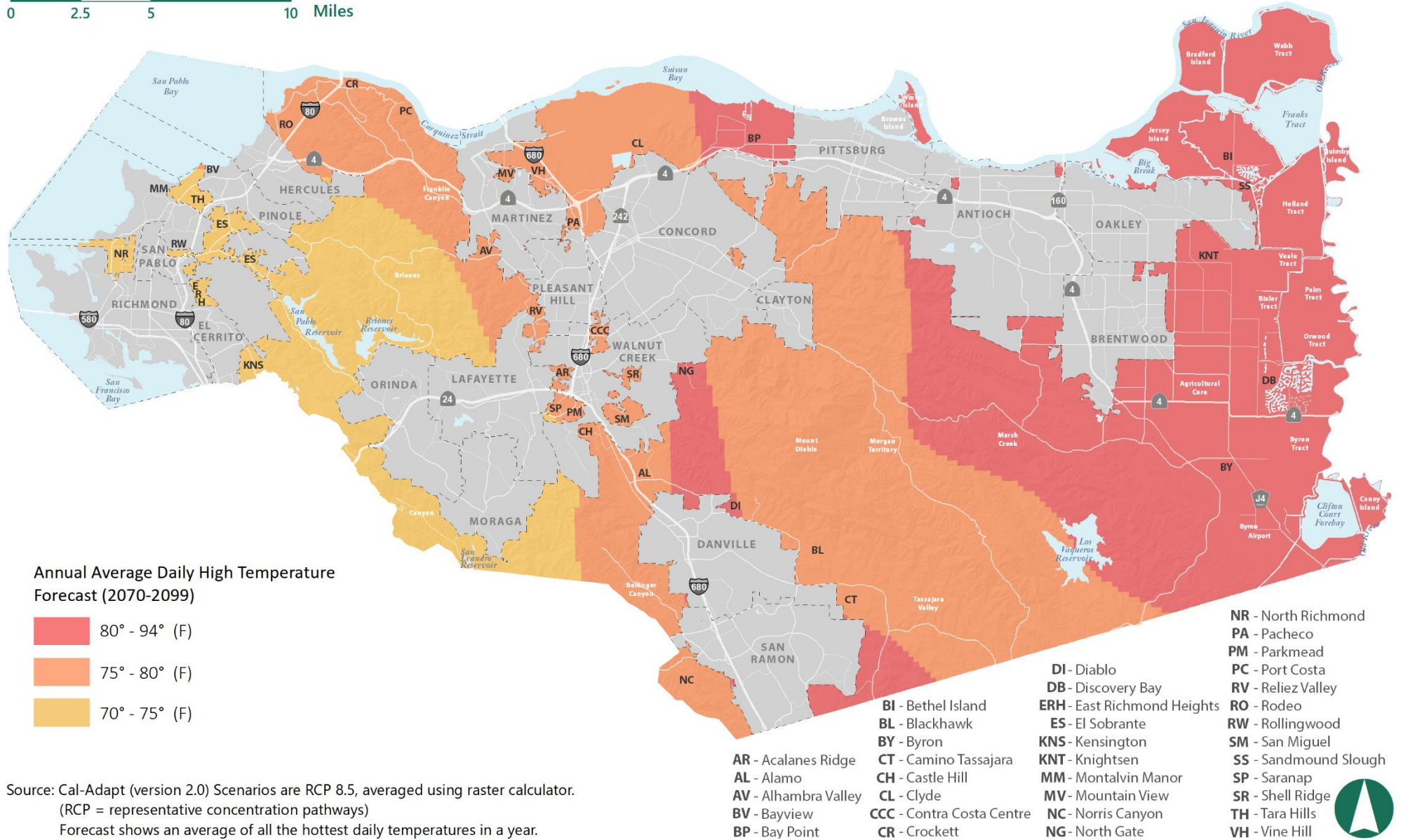
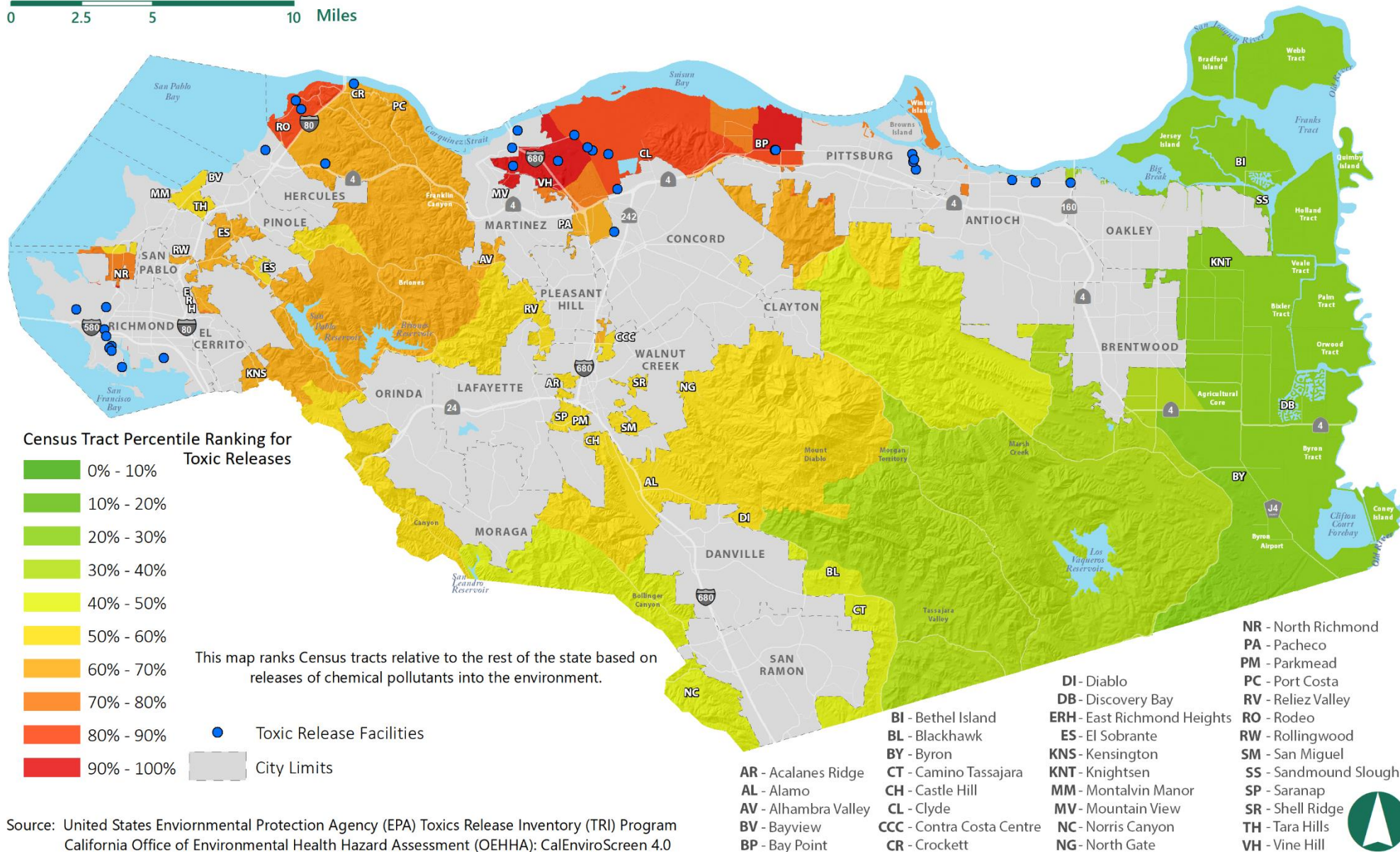




FIGURE HS-14 TOXIC RELEASES RANKINGS RELATIVE TO THE STATE

0 2.5 5 10 Miles



Source: United States Environmental Protection Agency (EPA) Toxics Release Inventory (TRI) Program
California Office of Environmental Health Hazard Assessment (OEHHA): CalEnviroScreen 4.0

0 2.5 5 10 Miles





FIGURE HS-16 CLEAN-UP SITES RANKINGS RELATIVE TO THE STATE

0 2.5 5 10 Miles

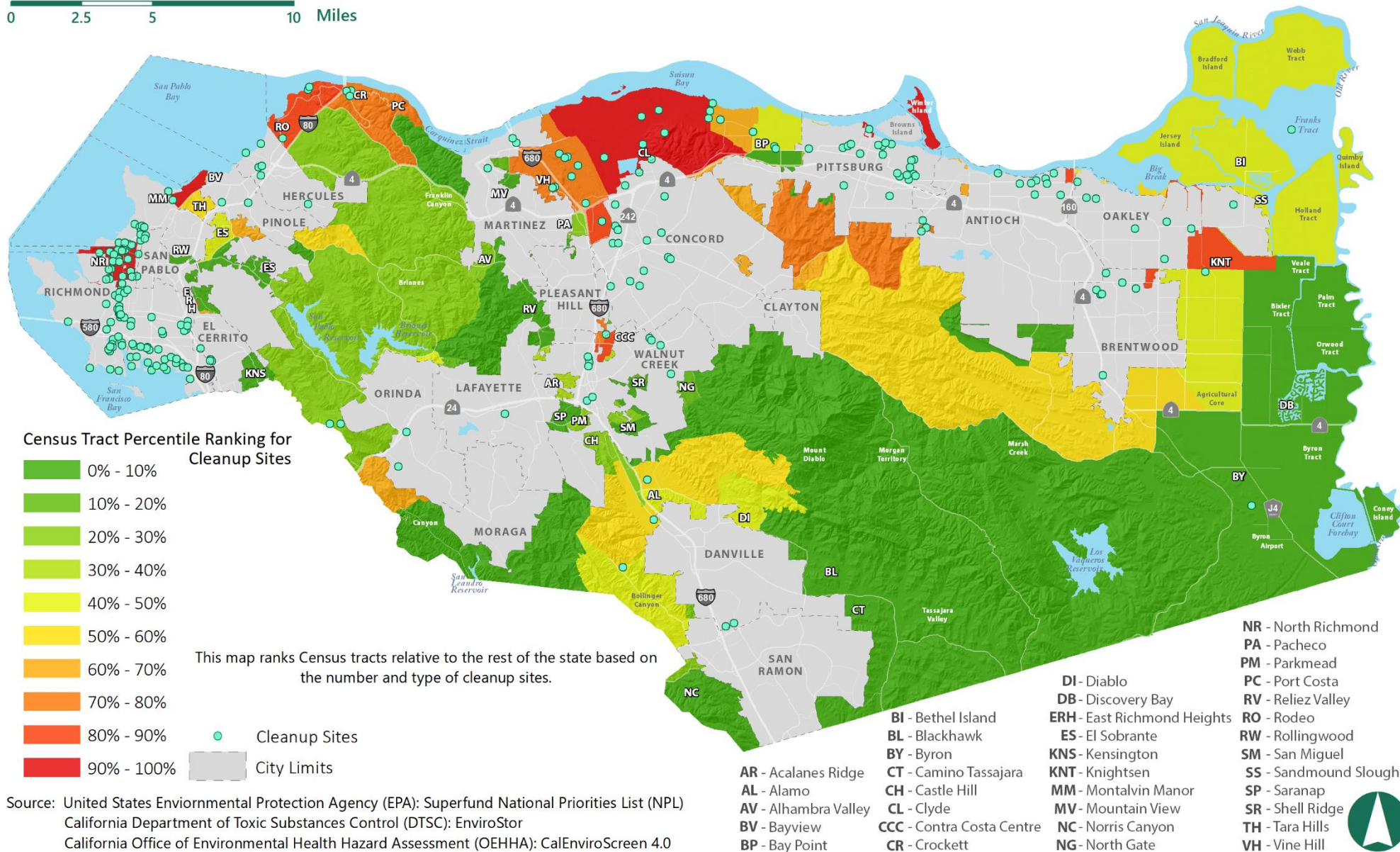
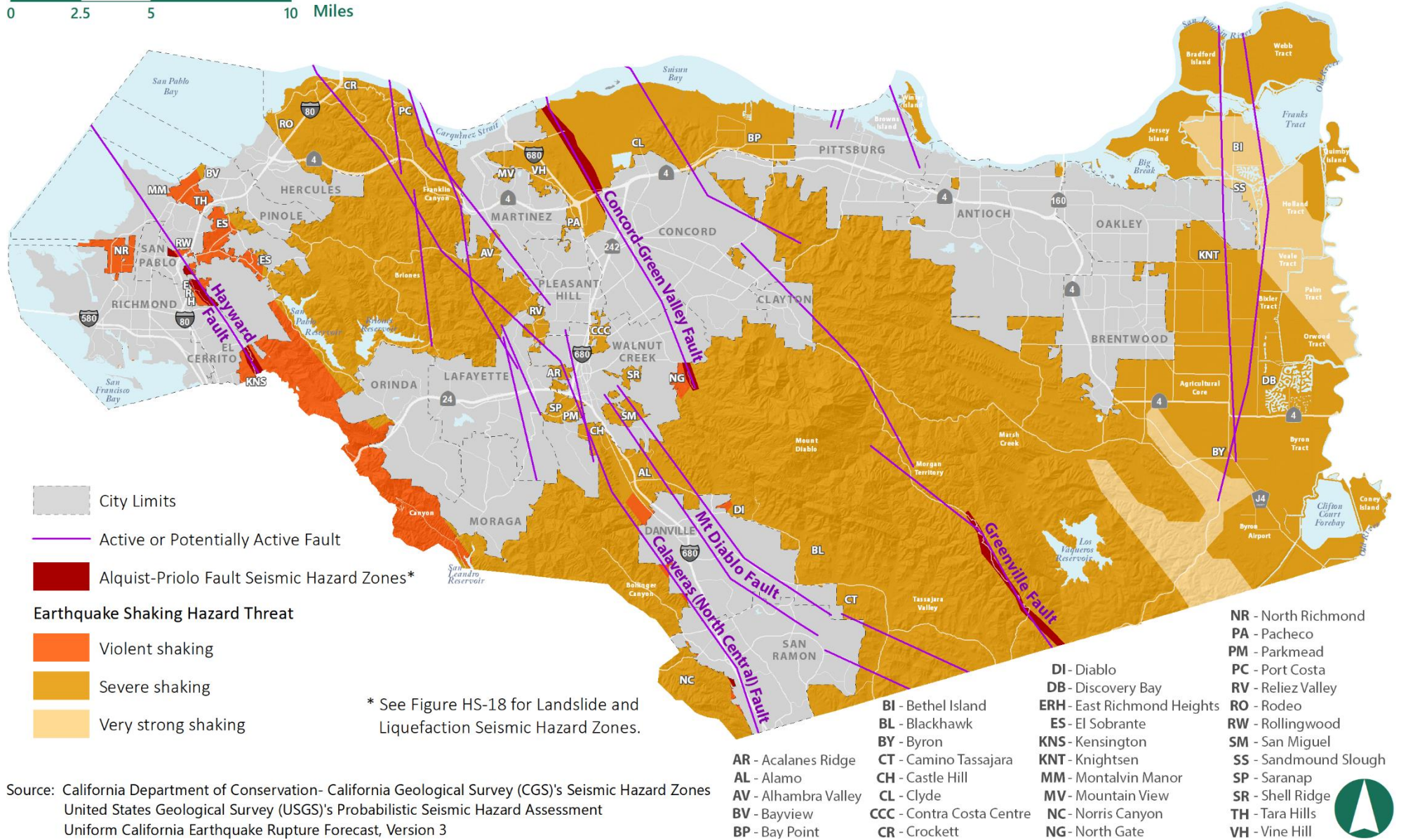


FIGURE HS-17 EARTHQUAKE HAZARDS

0 2.5 5 10 Miles



Source: California Department of Conservation- California Geological Survey (CGS)'s Seismic Hazard Zones
United States Geological Survey (USGS)'s Probabilistic Seismic Hazard Assessment
Uniform California Earthquake Rupture Forecast, Version 3



FIGURE HS-18 LIQUEFACTION SUSCEPTIBILITY

0 2.5 5 10 Miles

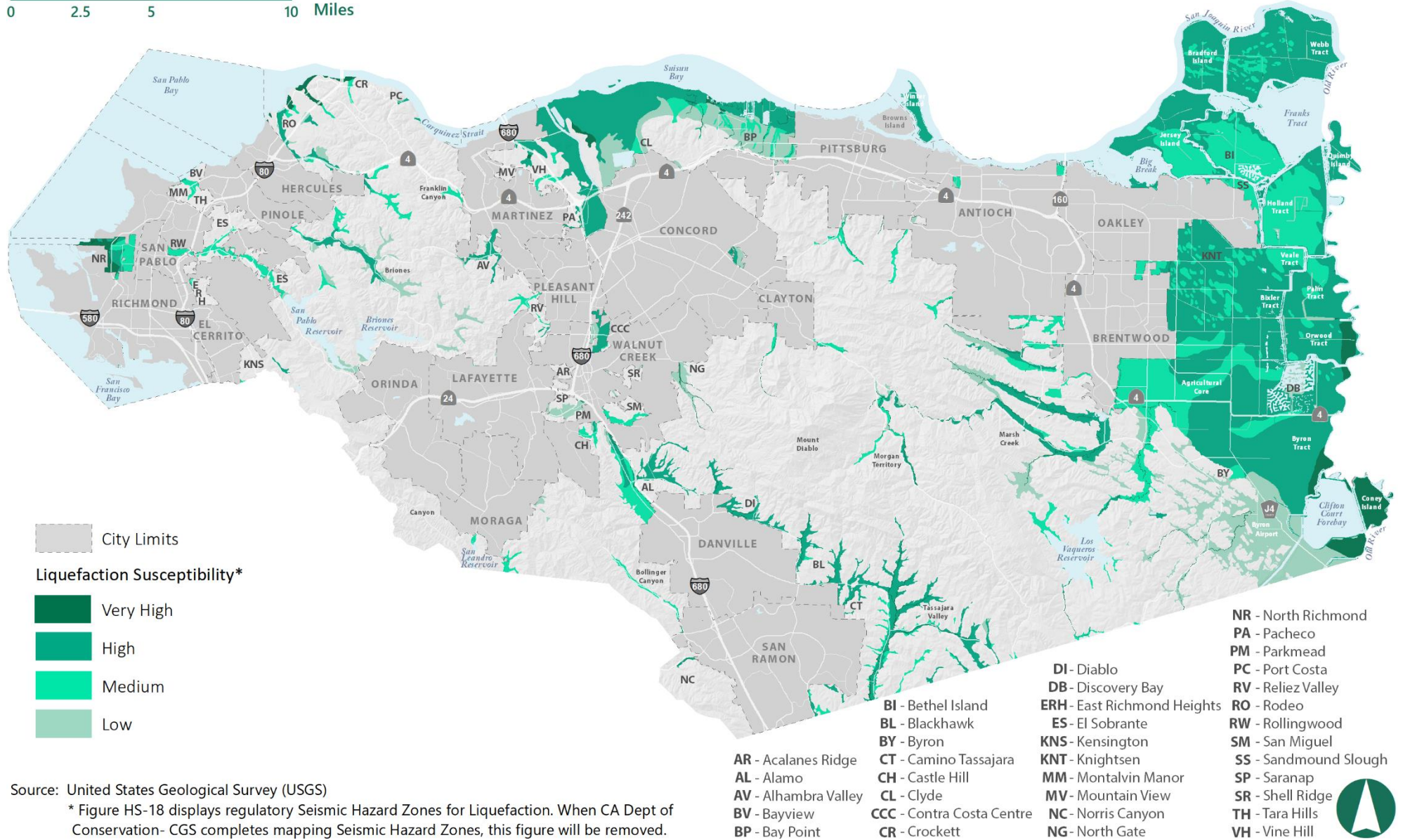
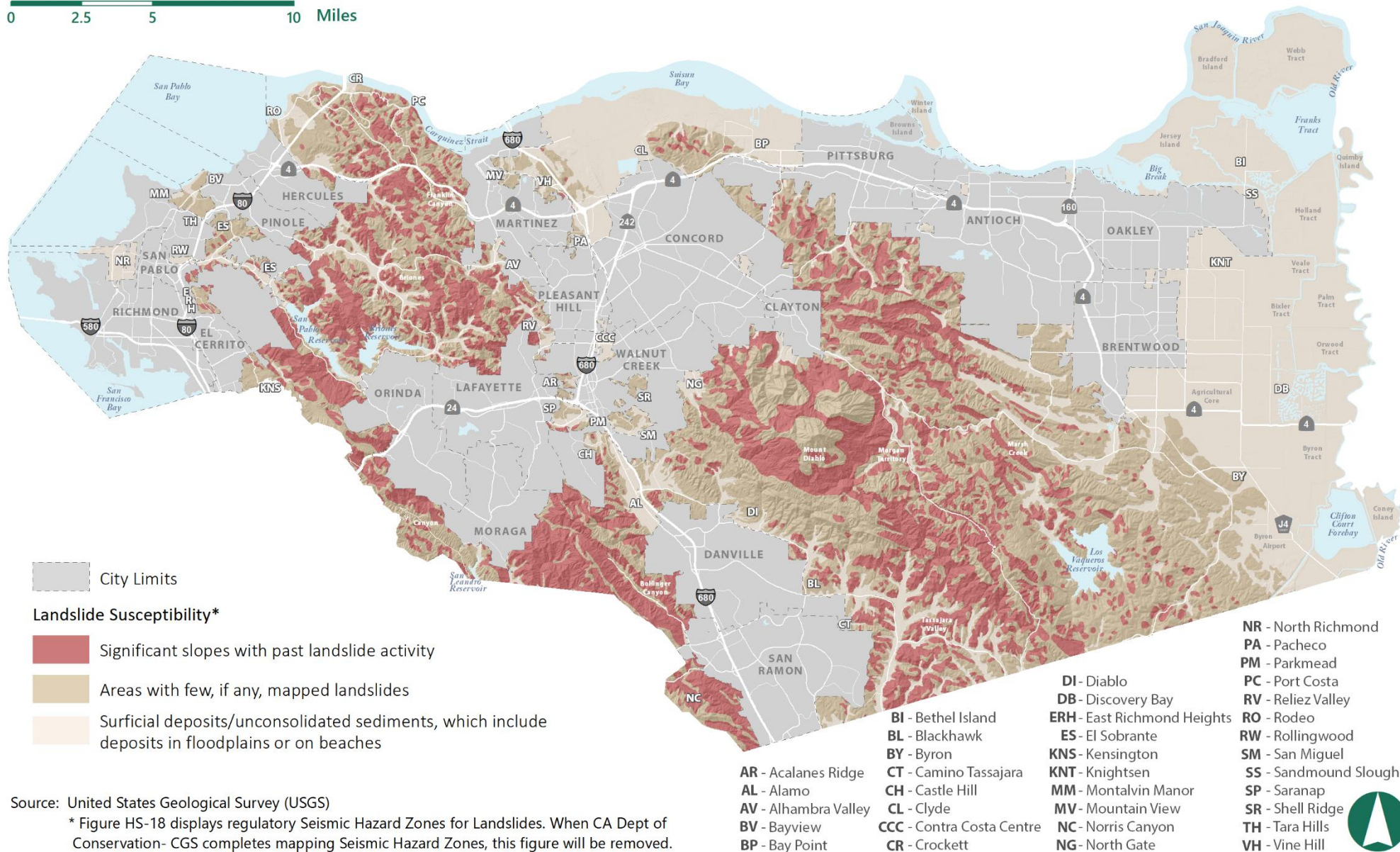




FIGURE HS-18B LANDSLIDE HAZARDS

0 2.5 5 10 Miles



0 2.5 5 10 Miles



ATTACHMENT 3:

PUBLIC REVIEW DRAFT #2 CLIMATE ACTION AND ADAPTATION PLAN 2024 UPDATE



Contra Costa County

Climate Action and Adaptation Plan

2024 Update

August 2024
Public **Review** Draft #2







August 2024
Public **Review** Draft #2

Contra Costa County

Climate Action and Adaptation Plan

2024 Update

Prepared For:

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Cover page photo credit: Jennifer Groth.

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LIST OF ABBREVIATIONS

AB: Assembly Bill

BAAQMD: Bay Area Air Quality Management District

BARCAP: Bay Area Regional Climate Action Planning

BayREN: Bay Area Regional Energy Network

BCDC: Bay Conservation and Development Commission

CAP: Climate Action Plan

CAAP: Climate Action and Adaptation Plan

CARB: California Air Resources Board

CCTA: Contra Costa Transportation Authority

CEC: California Energy Commission

CERT: Community Emergency Response Team

CH₄: ~~M~~methane

CO₂: ~~C~~carbon dioxide

CO_{2e}: c~~C~~arbon dioxide equivalent

CPUC: California Public Utilities Commission

CRIPP: County Road Improvement and Preservation Program

CTP: Countywide Transportation Plan

DCD: Contra Costa County Department of Conservation and Development

e-bike: ~~E~~electric bicycle

EBMUD: East Bay Municipal Utilities District

EPP: Environmentally Preferable Purchasing

ESP: Electric Service Provider

EV: ~~E~~electric vehicle

EVSE: ~~E~~electric vehicle supply equipment

GHG: ~~G~~greenhouse gas

GSA: Groundwater Sustainability Agency



List of Abbreviations

IPCC: Intergovernmental Panel on Climate Change

LCFS: Low Carbon Fuel Standard

MTCO₂e: ~~M~~metric tons of CO₂ equivalence

MWELO: Model Water Efficient Landscaping Ordinance

N₂O: ~~N~~nitrous oxide

PPD: ~~P~~pounds per person per day

PSPS: Public Safety Power Shutoff

RPS: Renewables Portfolio Standard

SGMA: Sustainable Groundwater Management Act

TNC: ~~T~~transportation network company

USEPA: United States Environmental Protection Agency

VMT: ~~V~~vehicle miles traveled

WUI: ~~W~~wildland-urban interface

ZEV: zZero--emission vehicle

EXECUTIVE SUMMARY

This 2024 Climate Action and Adaptation Plan (2024 CAAP) is part of Envision Contra Costa, the County's comprehensive update to the General Plan, Zoning Code, and Climate Action Plan. The 2024 CAAP, an update of the 2015 Climate Action Plan (CAP), is Contra Costa County's plan to achieve its vision for a sustainable future, adapt to changing climate conditions, and rapidly reduce greenhouse gas (GHG) emissions to support a pathway to statewide net-zero emissions by 2045. The 2024 CAAP is intended to serve as a companion to the Contra Costa County 2045 General Plan (2045 General Plan) and to mitigate GHG emissions in the unincorporated county that result from implementation of the General Plan. The 2024 CAAP features a planning horizon out to 2045 and provides updated information and an expanded set of GHG emissions reduction and climate adaptation strategies that apply to the unincorporated county.

The Contra Costa Board of Supervisors has declared that climate change "threatens the long-term economic and social well-being, health, safety, and security of the County, and that urgent action by all levels of government is needed to immediately address this climate emergency".
(Resolution No. 2020/256)

This 2024 CAAP builds on the work that was established in the 2015 CAP and reflects the latest developments in county- and regional-level climate action planning initiatives, GHG emissions reductions in County operations, and climate action planning policies and practices at the State level. The 2024 CAAP allows the County's decision makers, staff, and communities to understand the sources and magnitude of local GHG emissions and the impacts of climate change on unincorporated communities in the unincorporated areas of Contra Costa County ("unincorporated communities"), prioritize steps to achieve long-term GHG emissions reduction goals, and increase resilience to climate change-related hazards consistent with the County's goals for land use, transportation, housing, and environmental justice.

The Contra Costa County Department of Conservation and Development led preparation of the 2024 CAAP at the direction of the County's Board of Supervisors. Preparation of the 2024 CAAP occurred from 2018 to 2024 as part of Envision Contra Costa and in collaboration with a consultant team, the Board Sustainability Committee, the County's Sustainability Commission, County departments, and community members.

The County remains committed to achieving the ambitious GHG emission reductions adopted by the State of California in response to the increasing impacts and threat of climate change. The [2024 CAAP](#) provides strategies and actions that support the State's GHG emissions reduction goals through 2045, as established by State laws and regulations, including:

- Reduce community-wide¹ GHG emissions by 40 percent from the 1990 levels² by 2030.
- Reduce community-wide GHG emissions by at least 85 percent from the 1990 levels by 2045 and be on a pathway to support statewide carbon neutrality by 2045.

The County's [business-as-usual forecasted GHG emissions and associated emissions](#) reduction goals ~~and associated emissions~~ are summarized in Table ES-1. The [2024 CAAP](#) is designed to enable Contra Costa County to meet the State's regulatory emissions reduction goals ~~while, in addition to~~ attaining other County land use, economic growth, and environmental justice objectives.

TABLE ES-1. [GHG EMISSIONS IN UNINCORPORATED CONTRA COSTA COUNTY AND EMISSION REDUCTION GOALS, 2019 TO 2045](#) (MTCO₂e)

| | 2019 | 2030 | 2045 |
|------------------------------------|----------------------|------------------------|------------------------|
| Forecast GHG emissions | 986,310 ¹ | 1,125,230 ¹ | 1,288,490 ¹ |
| GHG Emissions Goal | N/A ² | 658,700 | 164,680 |
| GHG emissions to be reduced | N/A ² | 466,530 | 1,123,810 |

Note: Numbers rounded to the nearest 10.

¹ [GHG emissions for 2019 were inventoried, and GHG emissions for 2030 and 2045 are projected from 2019 based on growth assumptions in the General Plan.](#)

² [There is not an adopted GHG reduction goal for 2019.](#)

¹ [Community-wide is defined as operative or effective throughout the whole community. In this case, this means throughout the unincorporated areas of Contra Costa County.](#)

² [The State's Assembly Bill 32 Scoping Plan identifies 15 percent below 2005–2008 emissions levels as the local government equivalent of 1990 GHG emissions levels. The County uses 2005 as the baseline year.](#)



CLIMATE ACTION STRATEGIES

The [2024 CAAP](#) presents climate action strategies that build on the County's past achievements and will allow the County to attain its GHG emissions reduction goals while improving community resilience and achieving its goals for growth, economic development, and environmental justice. These climate action strategies include those that directly reduce GHG emissions and those that help lower emissions but are not as easy to directly track, as well as strategies to help improve community resilience to climate hazards through adaptation.

The 2024 CAAP includes goals, actions, and strategies for County operations and facilities. Some jurisdictions prepare a separate "municipal CAAP" document. Contra Costa County is including County operations in the CAAP to ensure the County is modeling its commitment to climate action and equity.

The 29 comprehensive strategies in the [2024 CAAP](#) reflect input and feedback from communities and County staff and incorporate regional regulations and State laws that are expected to be enacted in the future. All strategies are listed in **Table ES-2**. Out of the 29 climate action strategies, 11 directly result in GHG emission reductions. The remaining 18 strategies are focused on climate hazard resilience, leadership, equity, and other sustainability goals. The 29 climate action strategies are organized into eight categories.

TABLE ES-2. 2024 CLIMATE ACTION STRATEGIES

| | |
|---|---|
|  | Clean and Efficient Built Environment (BE) Homes, workplaces, and businesses in unincorporated Contra Costa County run efficiently on clean energy. |
| | BE-1: Require and incentivize new buildings and additions built in unincorporated Contra Costa County to be low-carbon or carbon neutral. * |
| | BE-2: Retrofit existing buildings and facilities in the unincorporated county, and County infrastructure, to reduce energy use and convert to low-carbon or carbon- free <u>neutral</u> fuels. * |
| | BE-3: Increase the amount of electricity used and generated from renewable sources in the county. * |
|  | No Waste Contra Costa (NW) Contra Costa County disposes of no more solid waste than 2.2 pounds per person per day (PPD). |
| | NW-1: Increase composting of organic waste. * |
| | NW-2: Reduce waste from County operations. * |
| | NW-3: Increase community-wide recycling and waste minimization programs. * |
| | NW-4: Reduce emissions from landfill gas. * |
|  | Reduce Water Use and Increase Drought Resilience (DR) Contra Costa County uses less water and communities are prepared for drought. |
| | DR-1: Reduce indoor and outdoor water use. * |
| | DR-2: Ensure sustainable and diverse water supplies. |
|  | Clean Transportation Network (TR) Contra Costa County's transportation network provides safe and accessible options for walking, biking, and transit. If residents and workers are driving, they are in zero-emission vehicles. |
| | TR-1: Improve the viability of walking, biking, zero-emission commuting, and using public transit for travel within, to, and from the county. * |
| | TR-2: Increase the use of zero-emission vehicles. Transition to a zero-emission County fleet by 2035 and a community fleet that is at least 50 percent zero-emission by 2030. * |



Resilient Communities and Natural Infrastructure (NI)

Contra Costa County will increase resilience to climate hazards and foster community health.

NI-1: Protect against and adapt to changes in sea levels and other shoreline flooding conditions.

NI-2: Protect against and adapt to increases in the frequency and intensity of wildfire events.

NI-3: Establish and maintain community resilience hubs.

NI-4: Sequester carbon on natural and working lands in Contra Costa County. *

NI-5: Minimize heat island effects through the use of cool roofs, and green infrastructure, tree canopy, cool paint and pavement, and other emerging strategies.

NI-6: Protect communities against additional hazards created or exacerbated by climate change.



Climate Equity (CE)

Contra Costa County will address environmental factors leading to health disparities, promote safe and livable communities, and promote investments that improve neighborhood accessibility.

CE-1: Provide access to affordable, clean, safe, and healthy housing and jobs.

CE-2: Invest in solutions to support climate equity.

CE-3: Increase access to parks and open space.

CE-4: Ensure residents have equitable, year-round access to affordable, local fresh food.

CE-5: Ensure that large industrial facilities act as good neighbors.



Leadership (L)

Contra Costa County is a model for how local government can take action on climate issues.

L-1: Establish Contra Costa County as a leader among local governments for addressing climate issues.

L-2: Continue to recognize the climate crisis as an emergency for Contra Costa County and make addressing climate change a top County priority.



Implementation (IS)

Contra Costa County will ensure it follows through to achieve the goals and actions in this Climate Action and Adaptation Plan.

IS-1: Monitor and report progress toward achieving Climate Action and Adaptation Plan goals on an annual basis.

IS-2: Continue collaborative partnerships with agencies and community groups that support Climate Action and Adaptation Plan implementation, with an emphasis on residents and community-based organizations from Impacted Communities.

Executive Summary

IS-3: Secure necessary funding to implement the Climate Action and Adaptation Plan.

IS-4: Continue to update the baseline emissions inventory and Climate Action and Adaptation Plan every five years.

IS-5: Maintain and update the Climate Action and Adaptation Plan to allow for greater resilience.

*Indicates strategy with quantified GHG emissions reductions.

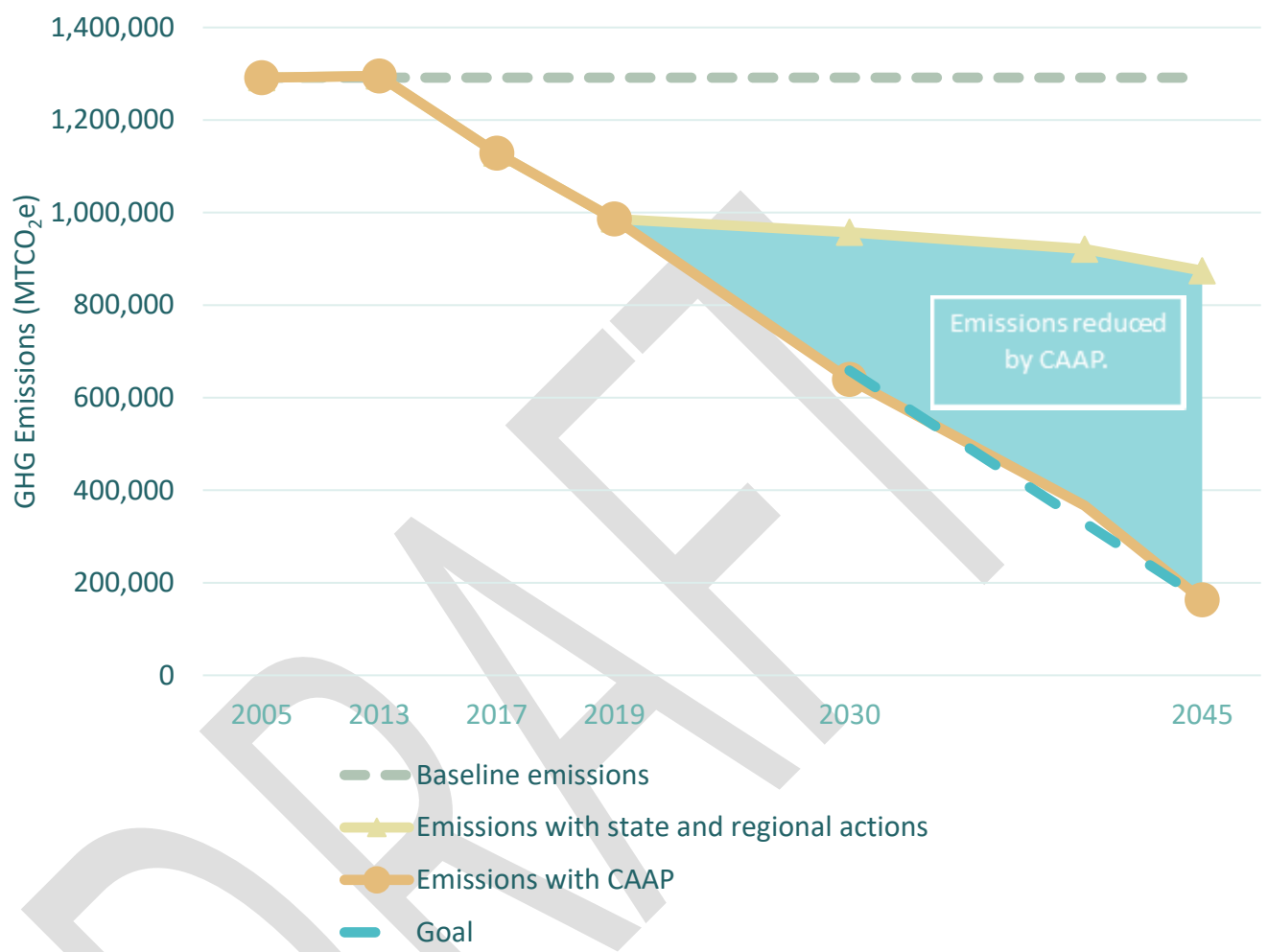
In conjunction with existing local and State programs, these climate action strategies provide a path to reduce the County's GHG emissions to 639,460,300 MTCO₂e by 2030 and to 163,130,57,610 MTCO₂e by 2045 and support statewide attainment of net carbon neutrality by 2045 (**Table ES-3** and **Figure ES-1**). With the reductions currently projected from the 2024 CAAP GHG emissions reduction strategies, 2045 GHG emissions for the unincorporated county are expected to be reduced to 856 percent below 1990 levels, equal to 878 percent below baseline 2005 levels and/or 85-83 percent below 2019 levels. These reductions are predicted to occur across most GHG emission sectors, though emissions within the solid waste sector will continue to be affected by previously deposited waste continuing to decompose in landfills.³ With these reductions as currently assessed, unincorporated Contra Costa County achieves the GHG emissions reduction goals for 2030 and 2045.

TABLE ES-3. GHG EMISSIONS AFTER 2024 CAAP IMPLEMENTATION

| | 2030 MTCO ₂ e | 2045 MTCO ₂ e |
|--|-----------------------------|-----------------------------|
| GHG emissions goals | 658,700 | 164,680 |
| GHG emissions after <u>CAAP</u> implementation | <u>639,460</u> | <u>163,130</u> |
| Goal achieved <u>after CAAP implementation</u> ? | Yes | Yes |
| <u>Note: Due to rounding, totals may not equal the sum of the individual values.</u> | | |

³ The federal Resource Conservation and Recovery Act defines solid waste as “any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, resulting from industrial, commercial, mining, and agricultural operations, and from community activities. Nearly everything we do leaves behind some kind of waste. It is important to note that the definition of solid waste is not limited to wastes that are physically solid. Many solid wastes are liquid, semi-solid, or contained gaseous material”.

FIGURE ES-1. GHG EMISSIONS WITH 2024 CAAP IMPLEMENTATION COMPARED TO REDUCTION GOALS



IMPLEMENTATION

Climate change already touches all aspects of life, work, and play within unincorporated Contra Costa County. In the absence of focused, ambitious, and equitable climate action, these effects will only become more pronounced, disruptive, and harmful over time.

Contra Costa County is dedicated to making our communities cleaner and healthier for families, children, and future generations.

The County will use this document to help set climate action planning priorities, allocate resources to the communities and assets that are most vulnerable to climate change, and monitor and evaluate progress towards GHG emissions reduction goals and increases in community equity and resilience. The [2024 CAAP](#) and 2045 General Plan provide a blueprint for how the County, its residents, and businesses can achieve a more sustainable, resilient future.

The County developed the [2024 CAAP](#) with the support and coordination of communities, and continued collaboration between the County and community partners is central to the [2024 CAAP](#)'s successful implementation. Residents, workers, and business owners can use this document to better understand their personal and community-level vulnerability to climate change and for guidance on how to reduce their GHG emissions and improve their climate resiliency, including finding information about available financial and educational resources.

This [2024 CAAP](#) guides new development by introducing strategies that will reduce GHG emissions associated with the built environment. The [2024 CAAP](#) is a California Environmental Quality Act (CEQA)-qualified [GHG Reduction Plan](#) [Climate Action Plan](#), which means that future development projects requiring environmental review under State law can streamline their GHG impact analyses by demonstrating consistency with the [2024 CAAP](#). This streamlining can save time and money during the environmental review process by allowing developers to reduce the number of steps involved in the environmental impact assessment process. Therefore, it is important that developers, landowners, planners, and others familiarize themselves with the strategies in the [2024 CAAP](#) and comply with these strategies when designing, approving, and building new development.



County staff will monitor progress and provide regular updates to communities to ensure the effectiveness of each strategy. To ensure that the implementation process is efficient and transparent, the [2024 CAAP](#) includes a high-level implementation plan that identifies responsible County departments, partners, and time frames associated with each strategy. Implementation of the plan will occur over ~~three~~four time frames—near term (by 2026), mid-term (by 2028), and long term (by 2030). The strategies do not have end dates because they are intended to remain in effect into the future. County staff will lead [2024 CAAP](#) implementation by collaborating with and supporting community organizations, residents, businesses, and stakeholders to create programs that accomplish the goals, strategies, and actions outlined in the [2024 CAAP](#). To set the [2024 CAAP](#) up for success, the County will integrate the plan's goals, strategies, and actions into applicable County programs, plans, and initiatives. [See Table 12 for complete implementation details for each strategy.](#)

The [2024 CAAP](#) should be considered a living document that the County can modify to ensure that the GHG emissions reduction goals are achieved.



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DRAFT

1. PURPOSE



Photo credit: Ben Weise.

What is the Climate Action and Adaptation Plan?

The Contra Costa County Climate Action and Adaptation Plan (2024 CAAP) is the County's strategic plan to reduce greenhouse gas (GHG) emissions and to adapt to changing climate conditions in the unincorporated areas of the county. The 2024 CAAP demonstrates Contra Costa County's leadership and commitment to reduce GHG emissions and enhance community resiliency to long-term changes associated with climate-related hazards such as heat, flooding, droughts, and wildfires.

The 2024 CAAP is an update of the 2015 Climate Action Plan (CAP). It provides updated information, an expanded set of GHG emissions reduction strategies, climate adaptation strategies, and a planning horizon out to 2045. It also establishes an implementation program and a framework to monitor, track, and report progress over time.

The 2024 CAAP builds on several earlier sustainability and energy efficiency efforts and local accomplishments. The 2024 CAAP is intended to serve as a companion to the County's General Plan, Contra Costa County 2045 General Plan, and to mitigate GHG emissions that result from implementation of the General Plan. This approach supports a holistic view of climate action planning and sustainability—it works to reduce Contra Costa County's contribution to climate change while simultaneously preparing for the changes that cannot

be avoided. **Figure 1** depicts the relationship between reducing GHG emissions, also referred to as climate change mitigation, and climate change adaptation.

FIGURE 1. RELATIONSHIP OF CLIMATE CHANGE MITIGATION AND ADAPTATION

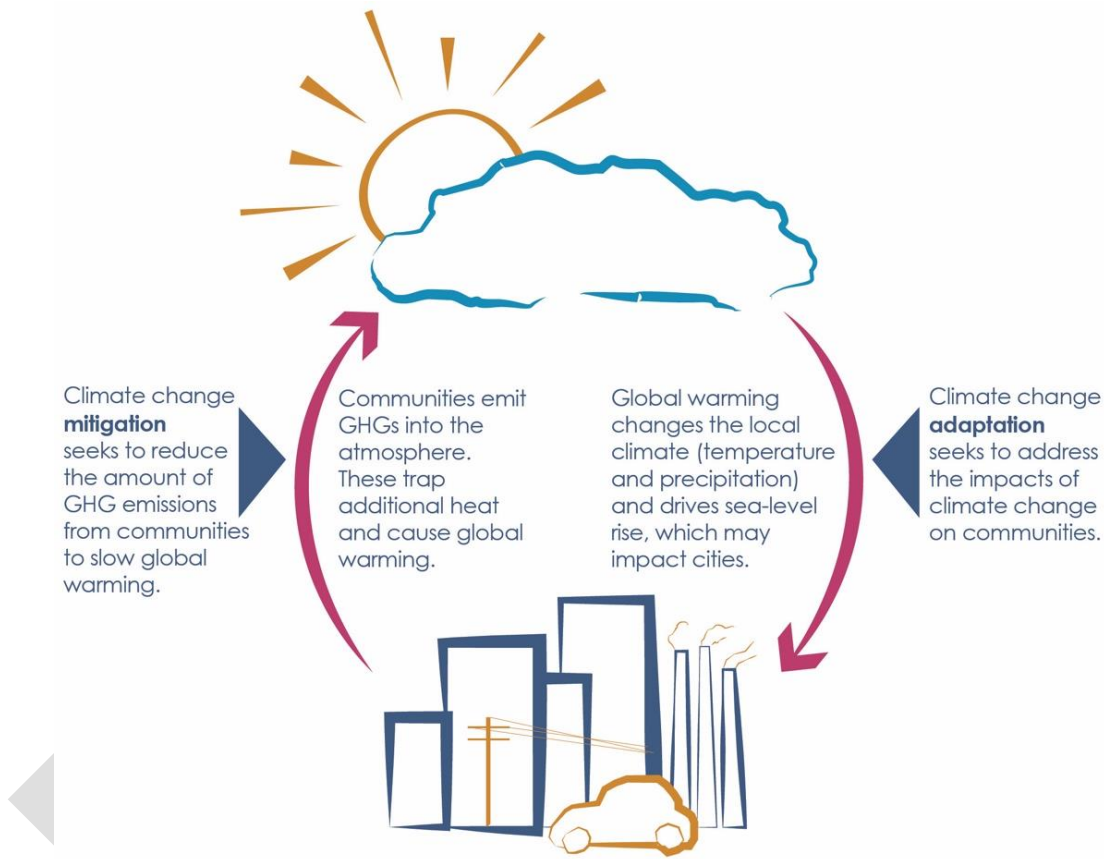
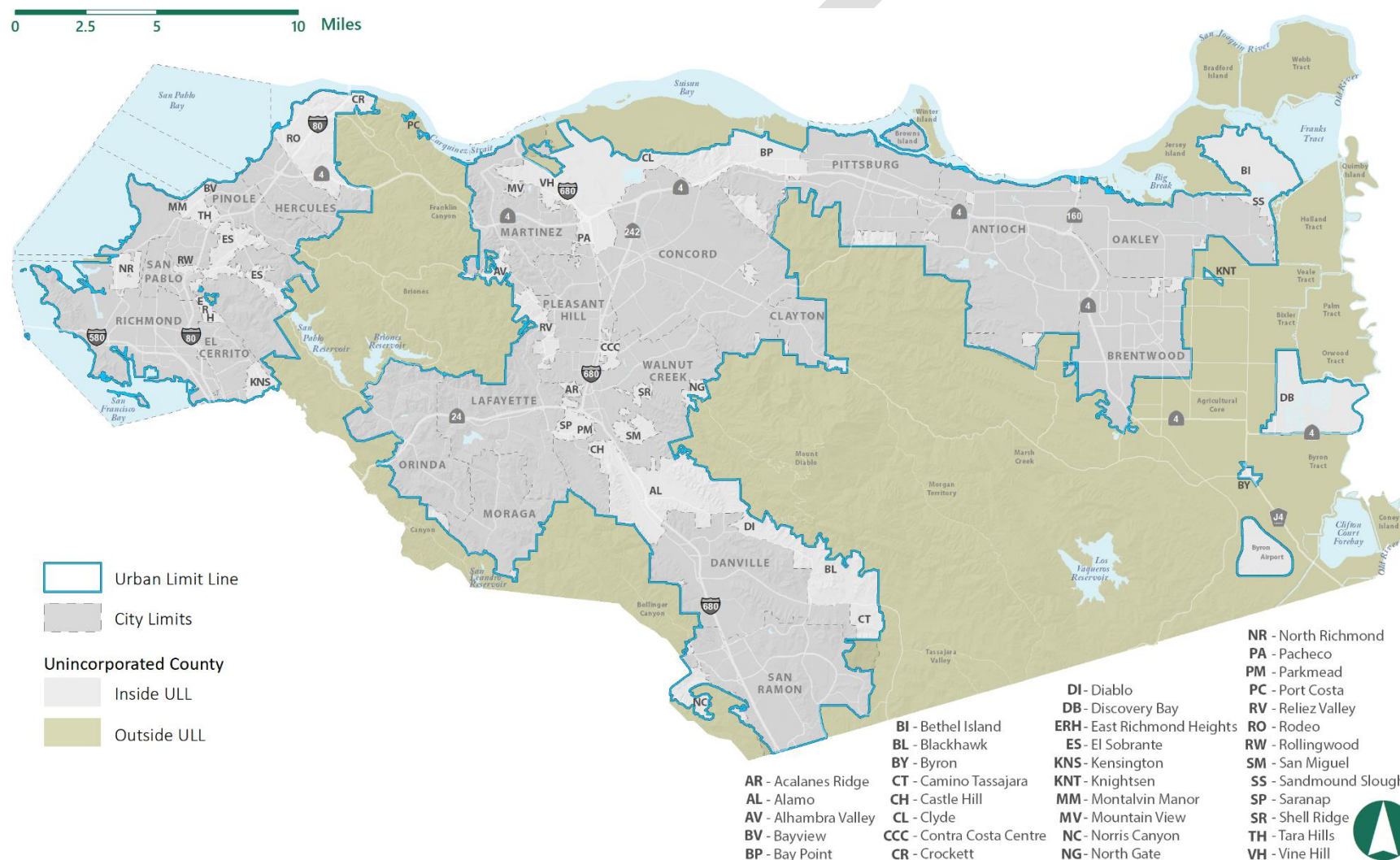


Image credit: California Adaptation Planning Guide.

The [2024 CAAP](#) allows decision-makers, residents, businesses, and community stakeholders to understand the sources and magnitude of local [GHG](#) emissions from the energy, solid waste, water, and transportation sectors of the unincorporated county (see **Figure 2** for the jurisdiction of the [2024 CAAP](#)⁴); establish goals to reduce [GHG](#) emissions; and prioritize steps to achieve reduction goals. The [2024 CAAP](#) includes goals, strategies, and actions that the County and community can take to achieve significant GHG emission reductions in the unincorporated areas of the county and ensure that the County is on track to support the State's goal to achieve statewide net carbon neutrality by 2045.

⁴ **Figure 2** shows the Urban Limit Line (ULL), which limits urban development to certain areas of the county and helps preserve farmland, open space, and habitat.

FIGURE 2. JURISDICTION OF CONTRA COSTA COUNTY CAP (UNINCORPORATED COUNTY)



Contra Costa County is dedicated to making our communities cleaner and healthier for families, children, and future generations.

This [2024 CAAP](#) includes strategies that directly reduce GHG emissions as well as strategies that help lower [GHG](#) emissions but are not as easy to directly track. The [2024 CAAP](#) includes information about how climate change may affect natural hazards and identifies the populations,

infrastructure, services, facilities, and natural resources in the unincorporated county that are most vulnerable to the effects of climate change. The [2024 CAAP](#) has a suite of strategies to help improve community resilience to these hazards, also known as adaptation.

The County developed the [2024 CAAP](#) between 2018 and 2024 as part of the County's General Plan update process, Envision Contra Costa. The Contra Costa County Department of Conservation and Development prepared the [2024 CAAP](#) at the direction of the County's Board of Supervisors and in collaboration with a consultant team, the Board Sustainability Committee, the County's Sustainability Commission, County departments, and community members. This [2024 CAAP](#) builds on the work that was established in the 2015 CAP and reflects the latest developments in county- and regional-level climate action planning initiatives, County GHG emissions reductions, and climate action planning policies and practices at the State level.

[The County has continued its work on climate action as the CAAP and General Plan were under development. Interim climate action work plans for 2021-2022 and 2023-2024 have guided progress during this time. This work has been recorded and shared with the public in annual progress reports.](#)

Climate Action and Equity

Climate action is closely intertwined with equity issues, and a comprehensive approach to addressing climate change must also address the entrenched inequities in our society. In Contra Costa County and elsewhere in California,

Equity: The state in which each individual or group is allocated the resources needed to reach an equal outcome.



Impacted Communities⁵, such as low-income, disabled, senior, and communities of color, have faced extensive discrimination, negligence, and economic disempowerment. Members of Impacted Communities often live in areas that are more at risk from climate change-related natural hazards. These persons also often lack the financial means and other resources or authority to act on climate change. These may include purchasing an electric vehicle, learning skills to pursue jobs in an emerging green economy, and if they own a home, retrofitting their home to better withstand climate change impacts, and renovating their home to improve energy efficiency, or installing solar panels on their house. As seen in **Figure 3**, Impacted Communities in the unincorporated county are concentrated along the county's northern waterfront.

The 2024 CAAP acknowledges such inequities and recognizes that Contra Costa County must play a role in resolving them. Though this 2024 CAAP cannot solve inequity by itself, it can contribute to a more equitable future by:

- Providing resources to persons and communities who have historically been denied them.
- Integrating equity considerations into County decision-making processes.
- Supporting Impacted Communities in taking action to address climate change.
- Creating a Just Transition that helps address the root causes of climate change and system inequities.
- Ensuring that Impacted Communities have a voice in climate action planning through community-driven planning.

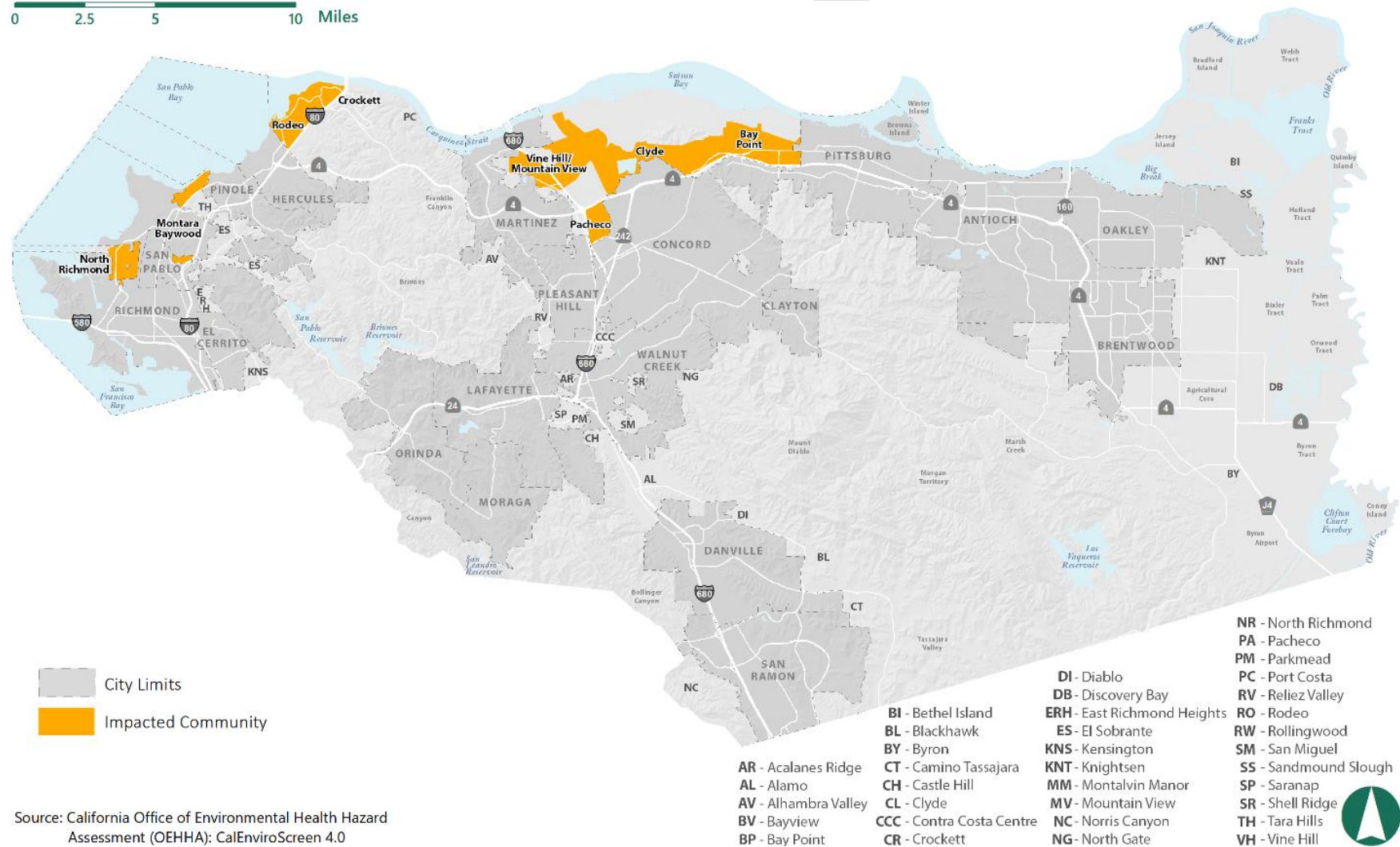
Equity was a key priority of the County in developing the 2024 CAAP and 2045 General Plan. Many of the GHG emissions reduction and climate adaptation strategies in this 2024 CAAP help to improve community equity. Those strategies are marked with the icon of a balance scale, as shown at-on the right.



⁵ "Impacted Communities" refers to a designation developed by CalEPA. CalEPA has formally designated four categories of geographic areas as "disadvantaged": 1. Census tracts receiving the highest 25 percent of overall scores in CalEnviroScreen 4.0; 2. Census tracts lacking overall scores in CalEnviroScreen 4.0 due to data gaps, but receiving the highest 5 percent of CalEnviroScreen 4.0 cumulative pollution burden scores; 3. Census tracts identified in the 2017 DAC designation as disadvantaged, regardless of their scores in CalEnviroScreen 4.0; and 4. Lands under the control of federally recognized tribes. The term "Impacted Communities" was selected via community input.

Chapter 1

FIGURE 3. IMPACTED COMMUNITIES IN THE UNINCORPORATED COUNTY



Equity vs. Equality

“Equity and equality are often used interchangeably, but equity and equality do not mean the same thing. Equality is about sameness—meaning that everyone receives the same thing regardless of any other factors. However, equality is only useful if everyone starts from the same place, which is often not the case. Lower-income populations and communities of color often have less access to healthy and energy-efficient housing, transit, or safe bicycling and walking routes. Equity, on the other hand, is about fairness, which is about ensuring that people have access to the same opportunities and have what they need to thrive and succeed. Equity is needed before equality can be reached. This understanding recognizes that people may have different starting points and may need different types and levels of support to flourish”.

Reference: Urban Sustainability Directors' Network Guide to Equitable Community-Driven Climate Preparedness Planning, May 2017

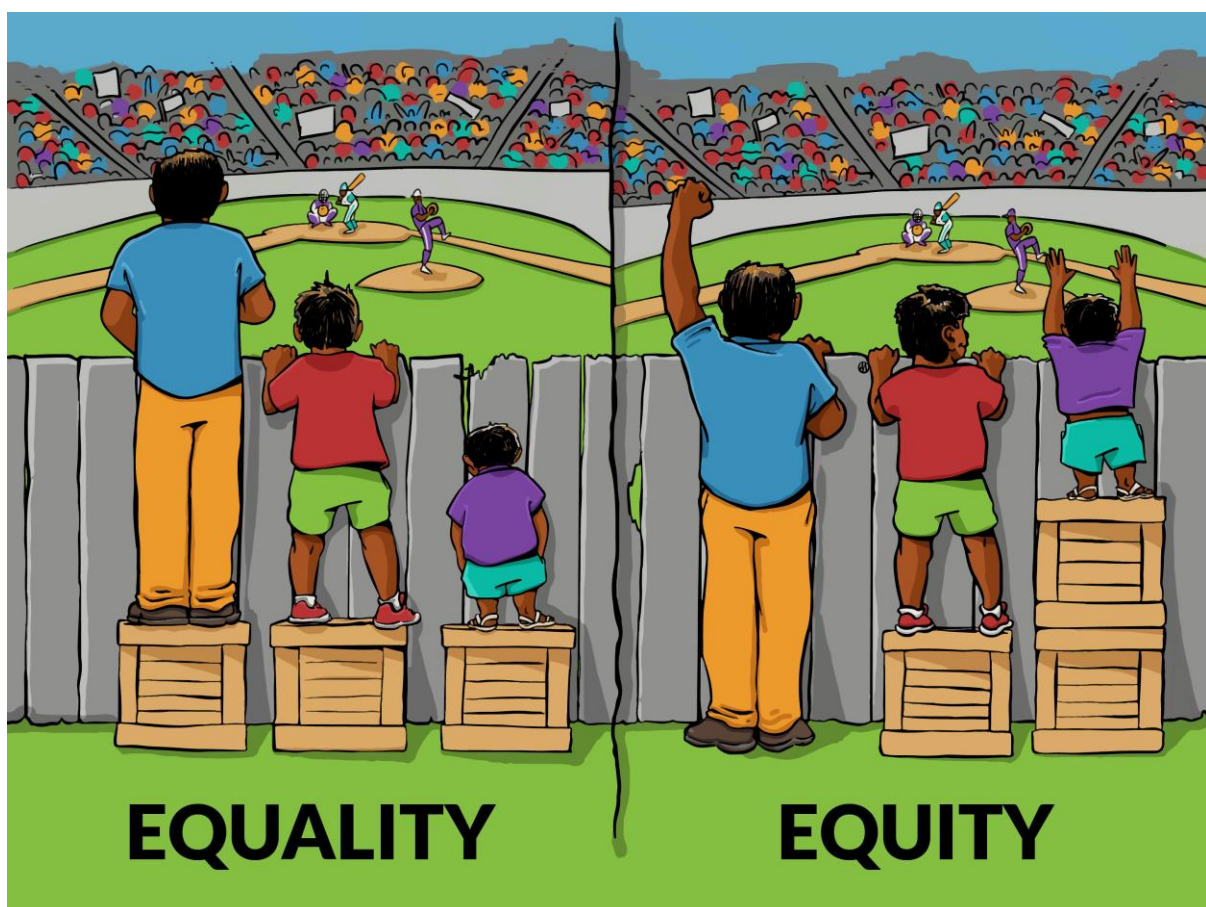



Image credit: Interaction Institute for Social Change | Artist: Angus Maguire

The CAAP and the General Plan

The County updated the CAAP in tandem with the update of the County's General Plan (2045 General Plan). The [2024 CAAP](#) is intended to complement and help implement the General Plan.

There is some overlap in topics addressed by the 2045 General Plan and the [2024 CAAP](#); the concurrent preparation of the plans ensures they are consistent. The 2045 General Plan acknowledges this connection by highlighting policies that promote

The Contra Costa County 2045 General Plan is the County's primary policy tool to guide physical changes in the unincorporated areas of the county. This General Plan looks over 20 years into the future and establishes a vision for development of our communities and stewardship of our natural environment. It is aspirational and long-range, but also practical, providing a useful, everyday guide for community planning.

sustainability with a special icon: . The climate action strategies presented later in this CAAP include General Plan policies and actions that reduce GHG [emissions](#) or increase resilience [and](#) are cross-referenced with the General Plan policy or action number in parenthesis. The [2024 CAAP](#) is thus linked with the General Plan in continuing the County's path towards sustainability.

[Preparation of the 2045 General Plan](#) ~~also included~~ completion of a climate change vulnerability assessment. This assessment considers climate changes likely to affect unincorporated Contra Costa County in the future and projected impacts on populations, assets, and community services. The County used findings from the vulnerability assessment to inform policies related to climate change resilience and adaptation, resource conservation, and energy use in both the 2045 General Plan and [2024 CAAP](#). The results of the vulnerability assessment are provided in [Chapter 3](#) and **Appendix C**.

The [2024 CAAP](#) focuses on behaviors, regulations, and investment decisions that directly reduce GHG emissions and/or promote climate resilience and lays out an implementation and monitoring program to ensure that the County meets its State GHG emissions reduction goals. GHG emissions are highly dependent on County-level policies regulating land use, resource use and conservation, and transportation. A comparison of the topics addressed in the 2045 General Plan and the [2024 CAAP](#) is provided in **Table 1**.

TABLE 1. COMPARISON OF TOPICS IN THE 2045 GENERAL PLAN AND THE [2024 CAAP](#)

| UPDATED GENERAL PLAN | 2024 CAAP |
|---|---|
| SHARED TOPICS | |
| <ul style="list-style-type: none">• Agriculture• Air quality• Climate change resilience and adaptation• Economic development• Energy use and generation• Extreme heat• Flood hazards and sea level rise• Greenhouse gases• Solid waste management• Transportation• Water conservation and quality• Wildfire hazards | <ul style="list-style-type: none">• Agricultural pests and diseases• Air quality• Climate change effects and vulnerabilities• Economic development and Just Transition• Energy use and generation• Extreme heat• Flooding, shoreline flooding, and sea level rise• Greenhouse gas emissions• Solid waste management• Transportation• Water conservation• Wildfires |
| DIFFERENT TOPICS | |
| <ul style="list-style-type: none">• Community health• Emergency response and evacuation• Hazardous materials• Historic and cultural resources• Housing• Land use patterns• Mineral, oil, and natural gas resources• Noise• Open space and ecological preservation• Public facilities and infrastructure• Seismic and geologic hazards | <ul style="list-style-type: none">• Carbon sequestration• Climate change resilience and adaptation• County investments• County leadership• Drought• Fog• Human health hazards• Landslides and debris flows• Severe storms |

How To Use This Plan

Climate change already touches all aspects of life, work, and play within Contra Costa County. In the absence of focused, ambitious, and equitable climate action, these effects will only become more pronounced over time.

The [2024 CAAP](#) is intended for residents, workers, business owners, County staff, and policymakers to provide information about the science of climate change, to highlight what the County has already done to address climate change, and to establish a road map for further [GHG](#) emissions reductions and advances in community equity, [adaptation](#), and resilience.

The County will use this document to help set climate action planning priorities, allocate resources to the communities and assets that are most vulnerable to climate change, and monitor and evaluate progress towards GHG emissions reduction goals and increases in community equity and resilience.

Residents, workers, and business owners can use this document to better understand their personal and community-level vulnerability to climate change and for guidance on how to reduce their GHG emissions and improve their climate resiliency, including finding information about available financial and educational resources.

This [2024 CAAP](#) guides new development by introducing strategies that will reduce GHG emissions associated with the built environment. The [2024 CAAP](#) is a CEQA-qualified Climate Action [and Adaptation](#) Plan or GHG reduction strategy, which means that future development projects in the unincorporated county that require environmental review under State law will have the option to streamline their GHG impact analyses by demonstrating consistency with this [CAAP](#). This streamlining can save time and money during the environmental review process by allowing developers to reduce the number of steps involved in the environmental impact assessment process. Therefore, it is important that developers, landowners, planners, and others familiarize themselves with the strategies in the [2024 CAAP](#) and comply with these strategies when constructing new development.



The remainder of this [2024 CAAP](#) covers the following topics:

- **Chapter 2** (Climate Action Framework) discusses the State, regional, and local regulatory framework that informs the [2024 CAAP](#) and related climate action planning efforts. It also highlights some of Contra Costa County's recent and ongoing efforts to reduce GHG emissions and improve resilience to climate change. Chapter 2 is supported by the Climate Change Policy and Legislation Appendix (**Appendix A**).
- **Chapter 3** (Climate Change and GHGs) presents the results of two analyses: the GHG inventory and forecast for unincorporated Contra Costa County, which assesses recent and projected future GHG emissions; a discussion of the County's consumption-based inventory; and a study of the expected future changes to climate change-related hazards.
- **Chapter 4** (GHG Emission Reduction Strategy) identifies the levels of GHG emissions reductions that the [2024 CAAP](#) seeks to achieve and presents the County's set of strategies and actions to meet or exceed these reductions. It also shows the GHG emissions that have already been reduced through existing and planned State, regional, and local efforts. Chapter 4 is supported by the GHG Technical Appendix (**Appendix B**).
- **Chapter 5** (Climate Adaptation Strategy) presents the findings of the vulnerability assessment, which looks at how people and community assets may be harmed by climate change-related hazards. It lays out the County's strategies to improve resilience to these hazards and adapt to changing conditions. Chapter 5 is supported by the Vulnerability Assessment Technical Appendix (**Appendix C**).
- **Chapter 6** (Realizing the [2024 CAAP](#)) presents the implementation details and high-level work plan of the [2024 CAAP](#), emphasizing the County's leadership on climate action planning.



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2. CLIMATE ACTION FRAMEWORK



Photo credit: Envision Contra Costa picture gallery

The [2024 CAAP](#) builds on a legacy of climate action planning in California on the State level and at the regional and local level. [These Existing State and regional](#) plans, regulations, and programs inform future GHG emissions projections, GHG emissions reduction strategies, and climate action, [adaptation](#), and resilience strategies that appear in this document. [This chapter provides an overview of State actions and regulations that informed the development of the CAAP and climate action that is already underway at the local and regional level. GHG savings from these activities attributed to unincorporated Contra Costa County are presented in Chapter 4.](#)

State Climate Action and Regulation

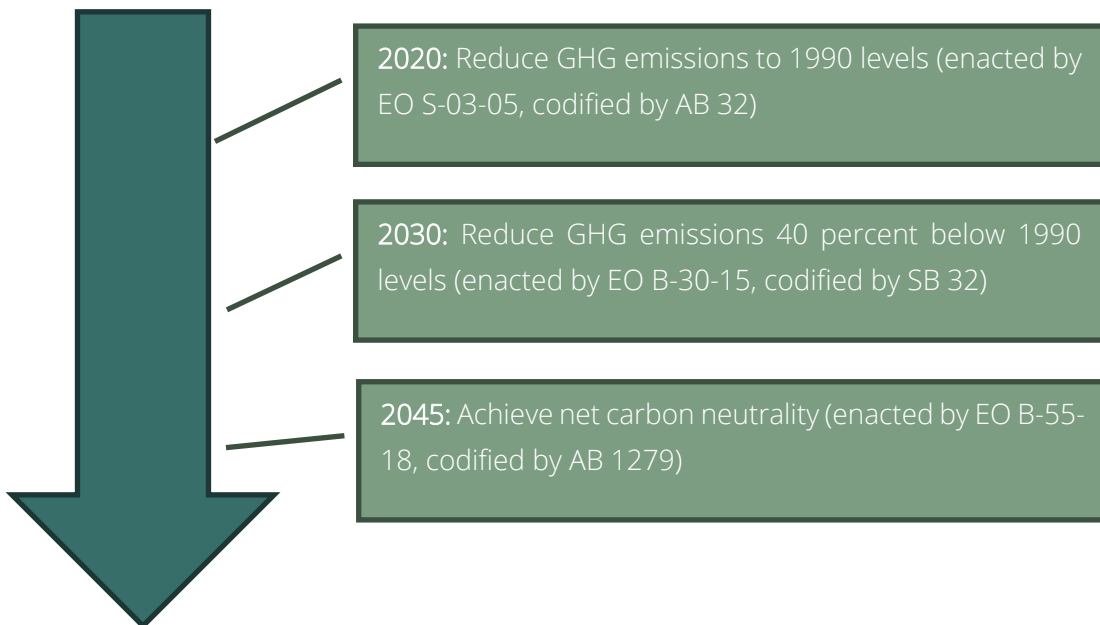
California has a history of enacting legislation aimed at reducing the state's GHG emissions and ensuring resiliency in the face of a changing climate.

California has a history of enacting legislation aimed at reducing the State's GHG emissions and ensuring resiliency in the face of a changing climate. California law first addressed climate change directly in 1988, when Assembly Bill (AB) 4420 directed the State to prepare a GHG inventory and study the impacts of climate change. Since then, California's

governors have signed several executive orders, and the legislature has adopted several laws to assess climate change, analyze GHG emissions and their effects, reduce emissions, and prepare for the impacts of climate change. Many of these laws and regulations affect local governments, but not all create specific requirements for individual communities.

This section provides brief summaries of key climate change legislation, and **Appendix A** provides more detailed descriptions of climate change legislation. The State's major goals are shown in **Figure 4**.

FIGURE 4. **CALIFORNIA'S GHG EMISSIONS REDUCTION GOALS**



EXECUTIVE ORDER S-03-05 AND ASSEMBLY BILL 32 – CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006

In 2005, former Governor Schwarzenegger issued Executive Order S-03-05, which established the first statewide GHG emissions reduction goals for California and directed the State to:

- Reduce emissions to 2000 levels by 2010.



- Reduce emissions to 1990 levels by 2020.⁶
- Reduce emissions 80 percent below 1990 levels by 2050.

In 2006, Governor Schwarzenegger signed Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006.¹ AB 32 codified the 2020 reduction goal, requiring California to reduce statewide GHG emissions to 1990 levels by 2020.

EXECUTIVE ORDER B-30-15 AND SENATE BILL 32

In 2015, former Governor Jerry Brown signed Executive Order (EO) B-30-15, which directed State agencies to take several steps to reduce statewide GHG emissions and adapt to changing climate conditions. One section of this executive order set a GHG emissions reduction goal for the State of 40 percent below 1990 levels by 2030. In 2016, the legislature passed, and the governor signed Senate Bill (SB) 32, which codified the 2030 GHG emissions reduction goal into law.

EXECUTIVE ORDER B-55-18

In 2018, Governor Brown issued Executive Order B-55-18, which established an additional statewide goal of achieving carbon neutrality (no net GHG emissions) by 2045. Under this goal, any GHGs that are emitted by California must be fully offset by other activities by 2045. This goal does not yet have the force of law, but it does indicate the direction that the State is moving in and may be a reference point for future legislative action.

Net carbon neutrality

A net carbon neutral goal means that any GHG emissions produced by the community are balanced out through carbon sequestration, offsets, or other activities that remove GHG emissions from the atmosphere, so that the community's net GHG emissions are zero. Ideally, the community will reduce its own emissions as much as possible, and then balance out the remainder. The scenario in the State's 2022 Scoping Plan would reduce emissions to approximately 85 percent below 1990 levels and then offset the remaining emissions, as required by AB 1279.

⁶ According to an assessment of GHG emissions trends conducted by the Air Resources Board in 2022, statewide GHG emissions dropped below the 2020 GHG emissions limit in 2014 and have remained below the limit since that time.

ASSEMBLY BILL 1279

In 2022, Governor Newsom signed AB 1279, the California Climate Crisis Act, which requires the State to achieve net zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter. The bill also requires California to reduce statewide GHG emissions by 85 percent compared to 1990 levels and directs the California Air Resources Board (CARB) to work with relevant State agencies to achieve these goals.

CLIMATE CHANGE SCOPING PLAN

The Climate Change Scoping Plan² (Scoping Plan) was first adopted in 2008 and was updated in 2014, 2017, and 2022. The Scoping Plan describes the strategies that California will implement to reduce the State's emissions to achieve the emission reduction goals required by statute. It identifies GHG emissions reduction strategies to achieve the State's goals, including direct regulations, alternate compliance mechanisms, incentives, voluntary actions, and market-based approaches like a cap-and-trade program.

Although While the Scoping Plan has a statewide focus, it identifies local governments as strategic partners to achieving the State goals. Each version of the Scoping Plan has provided guidance for local government actions to reduce GHGs. The 2008 Scoping Plan noted that the statewide goal of reducing emissions to 1990 levels by 2020 was comparable to reducing emissions 15 percent below "existing" emissions by 2020 for local governments. Although "existing emission levels" was not formally defined by the Scoping Plan, agencies throughout California have interpreted it as referring to emissions between 2005 and 2008. As a result, Contra Costa County's GHG emissions reduction strategies used 2005 emissions as the "existing" or baseline level to inform the 2020 goal in the 2015 CAP, which in turn informs the 2030 and 2045 goals in the 2024 CAAP. The 2022 update to the Scoping Plan recommends that local governments support statewide efforts to achieve net carbon neutrality.

The 2022 Scoping Plan employs a variety of GHG emissions reduction strategies that include direct regulations, alternative compliance mechanisms, incentives, voluntary actions, and market-based approaches like a cap-and-trade program. Carbon neutrality takes it one step further by expanding actions to capture and store carbon, including through natural and working lands and mechanical technologies, while drastically reducing



anthropogenic sources of carbon pollution at the same time.⁷ The 2022 Scoping Plan focuses on the outcomes needed to achieve carbon neutrality statewide by assessing paths for clean technology, energy deployment, natural and working lands, and others. It is designed to meet the State's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

The 2022 Scoping Plan identifies strategies that would be most impactful at the local level for ensuring substantial progress towards the State's carbon neutrality goals. The 2022 Scoping Plan notes, "These areas and strategies are designated as 'priority' because they are the GHG emissions reduction opportunities over which local governments have the most authority and that have the highest GHG emissions reduction potential". This CAP integrates feasible GHG emissions reductions from the 2022 Scoping Plan.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA)³ requires many proposed development projects to conduct an environmental review that identifies how the project may impact the environment, including changes to GHG emissions. The State CEQA Guidelines include provisions for local governments to use adopted plans for reducing GHG emissions to address the cumulative impacts of individual future projects on GHG emissions (see State CEQA Guidelines Section 15183.5(b)(1)).

Consistent with the State CEQA Guidelines, lead agencies may use adopted GHG emissions reduction plans, such as a CAP, to assess the cumulative impacts of projects on climate change at a programmatic level. If the adopted plan is consistent with State CEQA Guidelines Section 15183.5, the analysis and GHG emissions reduction efforts in the plan may be applied to individual projects, meaning that the projects would not have to conduct separate GHG analyses and project-specific environmental documents may tier from and/or incorporate by reference the existing programmatic review.

A [future](#) project-specific environmental review that relies on this [2024 CAAP](#) for its cumulative impact analysis must show consistency with the plan by preparing a Consistency Checklist, identify specific GHG emissions reduction strategies from the [2024 CAAP](#) that are applicable to the project, and demonstrate how the project will implement

⁷ The County's 2023 *Healthy Lands, Healthy People* study identifies strategies for using natural and working lands to capture and store carbon. A Sustainable Agricultural Lands Conservation Grant from the State of California funded the study.

these strategies. Project applicants and County staff will identify which specific strategies are applicable to each project during project review. If applicable strategies are not otherwise binding and enforceable, they must be incorporated as mitigation strategies for the project. Projects that have cumulative impacts on GHG emissions may still need to prepare a separate GHG analysis and environmental review.

This [2024 CAAP](#) meets the requirements in the State CEQA Guidelines that allow it to be applied to individual projects by:

- Quantifying emissions, both existing and projected over a specified period, resulting from activities within a defined geographic area, as discussed in [Chapter 3](#).
- Establishing a level, based on substantial evidence, below which the contribution of emissions from activities covered by the plan would not be cumulatively considerable. [Chapter 3](#) of this [2024 CAAP](#) identifies the County's GHG emissions reduction goals, consistent with the State's regulatory goals, which are:
 - Reduce emissions to 40 percent below 1990 levels by 2030.
 - Reduce emissions to 85 percent below 1990 levels by 2045.
 - Support statewide net carbon neutrality by 2045.
- Identifying and analyzing the emissions resulting from specific actions or categories of actions anticipated within the geographic area, as discussed in [Chapter 4](#).
- Specifying strategies or a group of strategies, including performance standards that, if implemented on a project-by-project basis, substantial evidence demonstrates they would collectively achieve the specified emissions level, as discussed in [Chapters 4](#) and [5](#) and [Appendix B](#).
- Establishing a mechanism to monitor the plan's progress toward achieving specific levels and to require amendment if the plan is not achieving those levels, as discussed in [Chapter 6](#).
- Including an environmental review of the [2024 CAAP](#). The [2024 CAAP](#) is evaluated by the Contra Costa 2045 General Plan Environmental Impact Report.



Regional Climate Action

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

The Bay Area Air Quality Management District (BAAQMD) regulates stationary sources of air pollution in the nine counties that surround San Francisco Bay: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma counties. The 24-member Board of Directors that governs BAAQMD includes four representatives from Contra Costa

County, including two members of the County Board of Supervisors. BAAQMD's Clean Air Plan (2017) provides a regional strategy to protect public health and the climate via continued progress toward all State and federal air quality standards, and to eliminate health risk disparities from exposure to air pollution among Bay Area communities. It includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as particulate matter, ozone, and toxic air contaminants; to reduce emissions of methane and other GHGs that are potent climate pollutants in the near-term; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion. BAAQMD's Clean Air Plan defines a vision for transitioning the region to the post-carbon economy needed to achieve ambitious GHG emissions reduction goals for 2030 and 2050 and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG emissions reduction goals.

In addition to fulfilling its role as a regulatory agency, BAAQMD plays a vital role in supporting climate action across the Bay Area. In 2018, BAAQMD provided a Climate Protection Grant Program grant to Contra Costa County that allowed the County, in partnership with the Cities of Antioch, San Pablo, and Walnut Creek, and the community organization Sustainable Contra Costa, to launch the Cleaner Contra Costa Challenge. The Cleaner Contra Costa Challenge is an online platform that allows county residents to take actions in their everyday lives that reduce GHG emissions.

BAAQMD's Clean Air Plan defines a vision for transitioning the region to the post-carbon economy needed to achieve ambitious GHG emissions reduction goals for 2030 and 2050 and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG emissions reduction goals.

BAAQMD has offered funding for public agencies for trip reduction; bicycle parking and bikeways; and clean vehicle projects including electric vehicle charging stations, green fleets, and replacement of off-road and heavy-duty vehicles and equipment. BAAQMD's Climate Tech Finance program provides loans for public agencies looking to invest in green technology and pilot projects.

On April 20, 2022, the BAAQMD Board of Directors adopted *CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans* ([2022 CEQA Guidelines](#)).⁴ [Appendix B of the 2022 CEQA Guidelines, CEQA Thresholds for Evaluating the Significance of Climate Impacts, presents BAAQMD's thresholds of significance for use in determining whether a proposed project will have a significant impact on climate change and provides the substantial evidence that lead agencies will need to support their use of these thresholds.](#) The ~~proposed~~ thresholds require that long-range plans, such as the [General Plan and 2024 CAAP](#), must either meet the State's goals to reduce emissions to 40 percent of 1990 levels by 2030 and carbon neutrality by 2045 or must be consistent with a local GHG strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b). [BAAQMD's 2022 CEQA Guidelines also includes Appendix C, Guidance for Greenhouse Gas Reduction Strategies, which Contra Costa County followed during preparation of this CAAP.](#)

In March 2023, BAAQMD adopted amendments to Regulation 9, Rules 4 and 6. These revisions require that, when existing natural-gas-powered space heaters and water heaters reach the end of their operational life, they be replaced with electric-powered models. These requirements are scheduled to take effect in 2027 to 2031 for water heaters (depending on the capacity of the unit) and in 2029 for space heaters.

The [2024 CAAP](#) supports BAAQMD's Clean Air Plan, *CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans*, and revisions to Regulation 9 as well as many other BAAQMD programs and initiatives aimed to reduce regional GHG emissions.

[In 2023, BAAQMD received funding from the U.S. Environmental Protection Agency's \(USEPA's\) Climate Pollution Reduction Grant program, to lead the Bay Area Regional Climate Action Planning \(BARCAP\) initiative, an eight-county climate action planning process to position the region to compete for \\$4.3 billion in implementation funding. This planning effort identifies specific, implementation-ready climate measures in high-priority sectors that provide significant GHG reductions and benefit frontline communities. Contra Costa County is a participating agency in the BARCAP initiative and assisted in the development of the Priority Climate Action Plan for the Northern and Central Bay Area Region.](#)



CONTRA COSTA TRANSPORTATION AUTHORITY

The Contra Costa Transportation Authority (CCTA) maintains the Countywide Transportation Plan (CTP).⁵ The CTP is updated approximately every five years. CCTA conducts extensive outreach to the public, cities, and the County during the update process.

The CTP provides the overall direction for achieving and maintaining a balanced and functional transportation system within Contra Costa County while strengthening links between land use decisions and transportation. It outlines CCTA's vision for future transportation and establishes goals, policies, strategies, projects, and actions for achieving that vision. The CTP is also the detailed plan which helps inform and direct transportation funding allocated throughout Contra Costa County. The CTP helps support the County's climate action planning vision by advancing goals to reduce vehicle miles traveled (VMT), increase the use of active transportation modes, promote transit-oriented development, promote advances in vehicle technology, increase transit capacity, and ensure that the transportation system is resilient in the face of climate change. Implementing these policies will help the County meet its GHG emissions reductions and climate resiliency goals in a way that is consistent with other regional planning efforts.

CCTA also oversaw the creation of Contra Costa County's Electric Vehicle Readiness Blueprint. This document prepares Contra Costa County for the electric vehicle (EV) future by identifying the best locations for charging infrastructure; helping cities to adopt development standards and ordinances that encourage EV adoption; preparing the workforce of the future to maintain EVs and charging infrastructure; and identifying where improvements to the electricity distribution infrastructure are necessary to support electric-ready mobility hubs and zero-emission bus fleets. The Electric Vehicle Readiness Blueprint was adopted in July 2019.

The CCTA's INNOVATE 680 seeks to implement a suite of projects that, when operating together, will address corridor-wide congestion, travel delays, and long-standing operational challenges along Interstate 680 (I-680). INNOVATE 680 projects address part-time transit lanes, express lane completion, shared mobility hubs, mobility on demand, and

The Countywide Transportation Plan helps support the County's climate action planning vision by advancing goals to reduce vehicle miles traveled (VMT), increase the use of active transportation modes, promote transit-oriented development, promote advances in vehicle technology, increase transit capacity, and ensure that the transportation system is resilient in the face of climate change.

automated driving systems. For additional detail on the projects implemented as part of INNOVATE 680, see: <https://ccta.net/projects/innovate-680/>.

Climate Action in Contra Costa County

Since the early 2000s, Contra Costa County has initiated several efforts to address climate change, including efforts to measure and reduce GHG emissions, prioritize climate change mitigation in local government, and employ natural ecosystems for GHG mitigation. The [2024 CAAP](#), with its emphasis on mitigation, measurement, and resilience and adaptation, is the most recent chapter of the County's climate change response and mitigation journey. Highlights of the County's initiatives are shown in **Figure 5** and further described in this section.

Over the years, county voters have supported many strategies that improve the quality of life and the environment. In 1990, Contra Costa County voters approved an Urban Limit Line (ULL) for a period of 20 years. The ULL restricts urban development to certain areas of the county and helps to preserve farmland and open space. In 2006 it was adopted for another 20 years from that date. About 47 percent of the land in the county is inside the urban limit lines and urban growth boundaries adopted by the County and the 19 cities in the county.

The East Contra Costa County Habitat Conservancy is a joint exercise of powers authority formed by Contra Costa County and the Cities of Brentwood, Clayton, Oakley, and Pittsburg to implement the East Contra Costa County Habitat Conservation Plan / Natural Community Conservation Plan (HCP/NCCP). Formed over a ten-year planning and permitting process, the HCP/NCCP began implementation in 2007. The HCP/NCCP provides a framework to protect natural resources in eastern Contra Costa County while improving and streamlining the environmental permitting process for impacts on endangered species. The HCP/NCCP avoids project-by-project permitting that is generally costly and time consuming for applicants and often results in uncoordinated and biologically ineffective mitigation. The conservation strategy of the HCP/NCCP provides for comprehensive species, wetlands, and ecosystem conservation and contributes to the recovery of listed species in northern California.



2. Climate Action Framework

FIGURE 5. TIMELINE OF CLIMATE ACTION PLANNING IN CONTRA COSTA COUNTY



Over the years, county voters have supported many strategies that improve the quality of life and the environment. In 1990, Contra Costa County voters approved an Urban Limit Line (ULL) for a period of 20 years. The ULL restricts urban development to certain areas of the county and helps to preserve farmland and open space. In 2006 it was adopted for another 20 years from that date. About 47 percent of the land in the county is inside the urban limit lines and urban growth boundaries adopted by the County and the 19 cities in the county.

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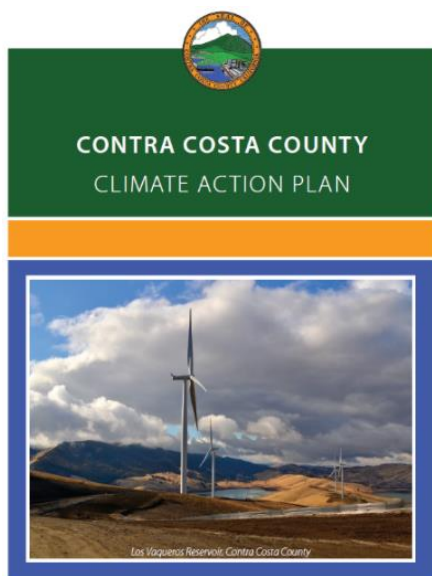
Over the years, voters have approved funding for the East Bay Regional Park District to maintain and expand its network of regional parks and other facilities in Contra Costa County. This includes Measure FF, a \$12/year parcel tax extension of Measure C, which was approved in 2004.

The County partners closely with the Contra Costa Resource Conservation District on a range of conservation programs and projects, including habitat preservation, strategies for supporting agriculture, and related topics.

Contra Costa County began taking significant steps to address climate change in 2005 with the publication of its first Climate Protection Report, which provided an estimate of the County's GHG emissions, reported existing County efforts to reduce GHG emissions, and listed potential actions that could reduce GHG emissions in the future. In February 2007, the Board of Supervisors directed County staff to prepare a GHG emissions inventory of community-wide and County government operations GHG emissions. In October 2007, the Board of Supervisors adopted a resolution to complete a climate action plan for the County's municipal facilities and operations funded by the BAAQMD.

In December 2008, the Board of Supervisors adopted a Municipal Climate Action Plan, which established formal GHG emissions reduction goals, GHG emissions reduction strategies, and methods for analysis and monitoring of GHG emissions reduction strategies for emissions from the County's operations. The County conducted an interim GHG inventory in 2013 to direct priorities toward achieving a goal of reducing the GHG emissions of government operations to 15 percent below 2005 levels by 2020.

2015 CLIMATE ACTION PLAN



The cover of the County's 2015 Climate Action Plan.

On December 15, 2015, the Board of Supervisors adopted a Climate Action Plan (2015 CAP) to reduce community-wide GHG emissions in the unincorporated areas of Contra Costa County. The 2015 CAP included sections covering the scientific and regulatory environment, an updated GHG inventory and forecast, and a climate change health risk assessment. Strategies in the 2015 CAP addressed GHG emissions reductions, promoting healthy communities, and facilitating CAP implementation. The County created its first full-time sustainability staff position, the Sustainability Coordinator, to oversee implementation of the 2015 CAP. The County Board of Supervisors' Sustainability Committee and the County Sustainability Commission were created to support implementation of the strategies in the 2015 CAP.

Since 2015, the County has implemented a variety of actions to help meet the goals set forth in the 2015 CAP. [**Appendix D provides more detail on progress made in meeting 2015 CAP goals.**](#) The County has reduced community-wide emissions associated with electricity use by joining the community choice energy program MCE and promoting the use of MCE's Deep Green and Local Sol products, which allow residents and businesses to purchase 100 percent renewable electricity and 100 percent locally produced solar, respectively. This also includes promoting energy efficiency incentive programs offered within the County by MCE, the Bay Area Regional Energy Network, and others. County facilities that do not have solar panels subscribe to MCE's Deep Green product.

In 2018, through a grant from the Strategic Growth Council, the County developed a Renewable Resource Potential Study that identifies the potential to generate clean energy

in Contra Costa County. Among other things, the study found significant opportunity for solar energy, both on existing rooftops and parking lots in developed areas, and on undeveloped “greenfield” parcels in rural areas. In 2020, the County adopted a solar overlay zone to allow commercial solar energy facilities in certain areas, including commercial, industrial, and some agriculturally zoned parcels that are not prime agricultural land.

As described later in this chapter, in 2023, the County completed *Healthy Lands, Healthy People*⁶ through a Sustainable Agricultural Lands Conservation grant from the California Department of Conservation. This study identifies strategies for storing carbon in the diverse land uses in Contra Costa County.

Since 2015, the County has adopted and is implementing policies for complete streets and Vision Zero and adopted an Active Transportation Plan. The County is constantly seeking funding to implement these policies.

BOARD SUSTAINABILITY COMMITTEE

The County Board of Supervisors’ Sustainability Committee oversees implementation of the CAP. The Sustainability Committee has played a role in several sustainability initiatives, including promoting the installation of EV charging stations in County facilities and converting the County fleet to all-electric, tracking the development of environmental justice goals and initiatives, promoting energy use management and efficiency programs, reviewing environmental justice and sustainability themes in the ongoing update to the General Plan, and raising awareness about climate change among residents and County officials.

COUNTY SUSTAINABILITY COMMISSION

In 2017, the County Board of Supervisors established the Sustainability Commission, a citizen advisory body, that advises County staff and the Board of Supervisors on the successful implementation of the CAP, including suggestions on how the work can be performed more efficiently and effectively;

The Sustainability Commission has addressed topics in the sectors of energy use and green buildings; transportation; water conservation; solid waste; and climate adaptation, resilience, and environmental justice.



2. Climate Action Framework

opportunities to realize equity and fairness across the diverse communities of Contra Costa County in sustainability programs that support the CAP; and provide suggestions on how to better engage residents and businesses on sustainability issues and implementation of the CAP.

The Sustainability Commission, which reports to the Board Sustainability Committee, has addressed topics in the sectors of energy use and green buildings; transportation; water conservation; solid waste; and climate adaptation, resilience, and justice. In addition to supporting preparation of the [2024 CAAP](#), the Sustainability Commission has advised on implementation of the 2015 CAP, Climate Emergency Resolution, and Electric Vehicle Readiness Blueprint, which promote climate resilience, plan for a Just Transition of oil refineries on the Contra Costa County shoreline, examine how to transition to all-electric and carbon-neutral buildings materials, and provide outreach and education on sustainability to Contra Costa County residents and businesses.

East Bay Energy Watch

The East Bay Energy Watch (EBEW) was a partnership between [the Pacific Gas and Electric Company \(PG&E\)](#) and local governments in the East Bay region, including Contra Costa County. EBEW provided support for member agencies to conduct energy efficiency outreach to residents and businesses, retrofit existing government facilities to improve energy efficiency, and provide training to agency staff. EBEW also prepared a series of GHG inventories and provided GHG emission tracking for all member jurisdictions. The GHG inventories presented in Chapter 3 of the 2024 CAAP are based on the inventories EBEW prepared. EBEW ceased operations in 2020 when PG&E elected not to renew the organization's funding, although similar partnerships remain active in other parts of California.

TRANSPORTATION ANALYSIS GUIDELINES

In June 2020, the County adopted the Contra Costa Transportation Guidelines. These guidelines are intended to establish a uniform approach, methodology, and tool set to evaluate the impacts of land use decisions and related transportation projects on the County transportation system. The guidelines use VMT to assess impacts to the transportation system and require the development of mitigation measures to offset traffic impacts that are found to have exceeded CEQA's identified threshold(s) of significance.

COUNTY REACH CODES

The County has adopted building and energy provisions that go beyond the State's building and energy codes. These amendments to the State codes are commonly called "reach codes".

Section 74-4.006 of the Contra Costa County Code of Ordinances, adopted in 2015, amends the California Green Building Standards Code by setting requirements for installation of EV charging stations at new multifamily and nonresidential construction. For most new multifamily dwellings, if residential parking is provided, 10 percent of the total number of parking spaces at the dwelling site are required to be EV spaces. Half of the EV spaces, but not less than one, must be equipped with fully operational electric vehicle supply equipment (EVSE). The remaining EV spaces are required to be capable of supporting future EVSE. New nonresidential construction is required to provide EV spaces in accordance with the amount of available parking.

On January 18, 2022, the County Board of Supervisors adopted Ordinance 2022-02, an All-Electric (New Construction) Ordinance, to amend the 2019 California Energy Code to require the following building types to be all-electric: residential (including single-family and multifamily buildings), detached accessory dwelling units, hotel, office, and retail. [On February 27, 2024, the County Board of Supervisors suspended its enforcement of Ordinance 2022-02, because of a decision on January 2, 2024, by the U.S. Court of Appeals 9th Circuit that invalidated a City of Berkeley ordinance that prohibited natural gas infrastructure in new buildings, precluding cities and counties from adopting ordinances that prohibit the installation of gas plumbing in buildings. On June 4, 2024, the County Board of Supervisors authorized staff to prepare an ordinance amending the County building code to replace its All-Electric \(New Construction\) Ordinance with a new ordinance to increase energy-efficiency standards for certain residential and nonresidential buildings. This action is reflected in this CAAP's discussion of future GHG emissions.](#)



In November 2022, the County Board of Supervisors adopted Ordinance 2022-35, which adopts and amends, among others, the 2022 California Building Code. Amendments include revisions to Section 420.14 to expand requirements for the installation of EV charging infrastructure at newly constructed nonresidential and multifamily residential buildings. ~~It also carries forward the all-electric requirements first adopted in Ordinance 2022-02. Federal courts struck down the City of Berkeley's all-electric ordinance in January of 2024, and County legal experts believed that Contra Costa County's ordinance would be vulnerable under the Court's ruling. The following month, the County suspended enforcement of the all-electric requirements first adopted in Ordinance 2022-02 and modified by Ordinance 2022-35. The County Board of Supervisors has directed County staff to work on a replacement ordinance that would encourage all-electric buildings without being vulnerable to the same legal challenges, and this action is reflected in this CAAP's discussion of future GHG emissions. The County's ordinance that sets additional standards for EV charging stations remains in effect.~~

CLIMATE EMERGENCY RESOLUTION

On September 22, 2020, the Board of Supervisors adopted Resolution No. 2020/256,⁷ declaring that climate change “threatens the long-term economic and social well-being, health, safety, and security of the County, and that urgent action by all levels of government is needed to immediately address this climate emergency”. The resolution prioritizes the urgent implementation of the County’s [2024 CAAP](#) to achieve GHG emissions reductions and to consider equity and social justice issues in the implementation of the plan, and directs that health, socioeconomic, and racial equity considerations be included in policymaking and climate solutions at all levels. The Climate Emergency Resolution also calls for establishing an ongoing task force of County department heads to focus on implementing the [2024 CAAP](#), planning for a Just Transition away from an economy based on fossil fuels, and adopting an all-electric ordinance for new construction.

INTERDEPARTMENTAL CLIMATE ACTION TASK FORCE

When the Board of Supervisors declared a climate emergency in 2020, one of the actions identified to address the emergency was the creation of an Interdepartmental Climate Action Task Force that includes all department heads or their senior deputies. The task force is directed to focus on urgently implementing the CAP and to identify additional actions, policies, and programs the County can undertake to reduce and adapt to the impacts of a changing climate.

The Task Force is directed to focus on urgently implementing the County's Climate Action and Adaptation Plan and to identify additional actions, policies, and programs the County can undertake to reduce and adapt to the impacts of a changing climate.

The Task Force is directed to report to the Board of Supervisors twice a year. The first of these reports, released in March 2021, recommended that the Board establish a Sustainability Fund to support improvements to County facilities and operations that reduce GHG emissions. The Board of Supervisors has directed the Department of Public Works to manage the fund, including the identification and implementation of projects and tracking savings, with the task force serving as an advisory committee to the fund. The Sustainability Committee recommended that the initial focus of the fund be used to install the first tranche of electric vehicle charging stations, an ongoing priority.

The Task Force has also worked on scaling and implementing Green Business Program best practices in each of the County departments. Most County departments have nominated volunteers for the Green Government Group (G3) Champions program. The G3 Champions form a network of over 75 County employees across 18 departments who are focused on making Contra Costa County a cleaner, healthier place to live and work. The G3 Champions meet ~~every other month~~ regularly to discuss climate action work happening in their departments and develop strategies and activities to educate and engage their colleagues in sustainability. ~~learn about different topics and take action to educate their colleagues and implement change.~~



The Green Government Group (G3) Champions logo.



ENVISION CONTRA COSTA

Every county and incorporated community in California is required to adopt and occasionally update a document called a general plan, which is a comprehensive and long-range plan for the jurisdiction's land use policies and related matters for how communities will grow and develop. State law requires that each general plan includes the following topics:

- Land use
- Circulation
- Housing
- Conservation
- Open space
- Noise
- Safety
- Environmental justice (for communities that meet criteria)

The County's process to update its current General Plan⁷ is referred to as Envision Contra Costa. Envision Contra Costa began in late 2018 and included the 2045 General Plan, a zoning code update, and this [2024 CAAP](#). The 2045 General Plan and the [2024 CAAP](#) are organized around four specific topics: environmental justice, sustainability, community health, and economic development.

HEALTHY LANDS, HEALTHY PEOPLE CARBON SEQUESTRATION STUDY

In 2023¹, the County ~~began~~[completed](#) a feasibility study—*Healthy Lands, Healthy People*—to identify strategies for storing carbon in the diverse land uses in Contra Costa County. The County received a Sustainable Agricultural Lands Conservation grant from the State that funded the project. The County partnered with the Contra Costa Resource Conservation District, the University of California Cooperative Extension, and a consultant team to develop *Healthy Lands, Healthy People*. The study ~~, completed in 2023, will~~ informs next steps to increase investments in trees, gardens, agricultural practices, and other activities that can use natural and working lands to address climate change.

COMMUNITY LEVEL ACTION

Just as climate change touches on all aspects of community life in Contra Costa County, all community members can take personal and collective action to reduce GHG emissions and advance resilience. Many community organizations, businesses, and individuals have already acted. The [2024 CAAP](#) builds on these initiatives while engaging all members of the Contra Costa County community in climate action.

[As described previously,](#) in 2018, the County partnered with the cities of Antioch, San Pablo, and Walnut Creek and Sustainable Contra Costa to launch the Cleaner Contra Costa Challenge. A Climate Protection grant from the Bay Area Air Quality Management District provided funds to build an online platform tailored to Contra Costa communities that allows residents to take actions to create a cleaner, healthier place to live, work, and play. The two-year grant provided an opportunity to pilot the program before launching it more widely. Sustainable Contra Costa now operates the program across the county.

3. CLIMATE CHANGES AND GHGS



Photo credit: Envision Contra Costa picture gallery

Climate Science

WHAT IS CLIMATE CHANGE?

Climate is the long-term average of weather conditions, such as temperature and precipitation. It is normal for Earth's climate system to experience long-term shifts, but human activity is causing global climate change at a much more rapid pace than in the past.

Human-caused climate change is largely attributable to the burning of fossil fuels, which causes greenhouse gases (GHGs)—~~called GHGs~~ to build up in the atmosphere and trap heat close to the Earth's surface, a phenomenon known as the greenhouse effect. Most GHGs are naturally occurring gases, such as water vapor, carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), that absorb heat radiated from the Earth's surface. Some GHGs can persist in the atmosphere and trap heat for thousands of years once they are emitted.

Human-caused climate change is largely attributable to the burning of fossil fuels.

As the levels of GHGs in the atmosphere increase because of human activity, more heat is trapped, increasing the temperature of the Earth's surface at an unprecedented rate. Because Earth's climate system is driven by the movement of heat in the atmosphere and in the oceans, more heat creates shifts in the global climate system, causing climate change. The effects of climate change vary in different geographic locations, and often include significant changes to temperatures, precipitation patterns, and storm activity.

EFFECTS OF CLIMATE CHANGE

Globally, the effects of human-caused climate change have been observed as:

- Increases in global surface temperatures.
- Increases in precipitation over land and increases in storm intensity.
- Retreat of glaciers.
- Ocean acidification.
- Warming of the global upper ocean.
- Increase in global mean sea level.⁸

Human-induced climate change is already affecting many weather and climate extremes in every region across the globe. According to the Intergovernmental Panel on Climate Change's (IPCC) Sixth Assessment Report, global warming of 1.5°C and 2°C will be exceeded during the 21st century unless we make great reductions in CO₂ and other greenhouse gas-GHG emissions in the coming decades.

Extreme heat days have become more frequent and more intense across most land regions since the 1950s, and extreme cold events have become less frequent. The frequency and intensity of heavy precipitation events have increased since the 1950s over most land areas, and drought has become more frequent in some areas due to increased evapotranspiration (water evaporation from land to sky).

CLIMATE CHANGE IN CALIFORNIA

In California and western North America, observations of the climate have shown: (1) a trend toward warmer temperatures with an increase in extremely hot days and nights; (2) an increase in the area burned by wildfires; (3) a smaller fraction of precipitation falling as snow; (4) an increase in frequency of drought and an increase in consecutive dry years; and (5) sea level rise is expected to continue to increase flooding and erosion on beaches, bluffs, and cliffs.⁹ Research suggests that California will continue to experience hotter and



3. Climate Changes and GHGs

drier conditions, reductions in winter snow and increases in winter rains, sea level rise, significant changes to the water cycle, and an increase in extreme weather events.

These changes in climate will affect economic systems throughout California, including Contra Costa County. To refrain from action is costly and risky; the California Fourth Climate Change Assessment estimates that taking no action to address the potential impacts of climate change will lead to economic losses of “tens of billions of dollars per year in direct costs” and “expose trillions of dollars of assets to collateral risk”. **Table 2** summarizes potential impacts in California due to climate change.

TABLE 2. CLIMATE CHANGE IMPACTS IN CALIFORNIA

| CLIMATE IMPACT | HISTORICAL TRENDS | FUTURE DIRECTION OF CHANGE | CONFIDENCE FOR FUTURE CHANGE |
|--|-----------------------|----------------------------|------------------------------|
| Temperature | Warming | Warming | Very High |
| Sea Level Rise | Rising | Rising | Very High |
| Snowpack | Declining | Declining | Very High |
| Annual Precipitation | No significant trends | Unknown | Low |
| Intensity of Heavy Precipitation Events | No significant trends | Increasing | Medium-High |
| Frequency of Droughts | No significant trends | Increasing | Medium-High |
| Marine Layer Clouds | Some downward trends | Unknown | Low |
| Acres Burned by Wildfire | Increasing | Increasing | Medium-High |
| Source: Louise Bedsworth et al. 2018 , “Statewide Summary Report,” in <i>California’s Fourth Climate Change Assessment</i> , publication no. SUMCCCA4-2018-013, 2018 . | | | |

CLIMATE CHANGE IN CONTRA COSTA COUNTY

Climate change is expected to alter many aspects of the county’s climate, including temperature, precipitation patterns, and sea levels, potentially exacerbating both the severity and geographic scope of climate hazards. Contra Costa County is most vulnerable to hazards associated with pests and diseases, changes in air quality, drought, extreme heat, flooding, fog, human health hazards, landslides and debris flows, severe storms, sea level rise, shoreline flooding, and wildfire. These climate stressors are described in the following paragraphs.

Agricultural pests and diseases



The farms and ranches of Contra Costa County face risks from assorted pests and diseases that may affect crop plants, trees, and livestock. These pests and diseases can reduce or delay plant and animal growth, inflict such damage that agricultural products are less appealing and harder to sell, or cause plant or animal death. To manage greater pest and disease pressure, farmers may also need to increase pesticide applications.

Many pests and organisms that carry diseases are most active during warmer months, so the threat of infection or infestation is usually higher during these months. As the climate changes, temperatures are expected to get warmer earlier in the year and remain warmer until later in the year, creating a wider window for agricultural and urban pests and diseases to be active.

Both evergreen and oak woodlands in the county can be damaged by forestry pests and diseases, such as Sudden Oak Death and redwood bark beetles. These diseases severely harm ecosystems, including both woodlands and the animals that depend on them to provide habitat and foraging, such as coyote, gray fox, barn owl, red-tailed hawk, and Cooper's hawk.



Nunn Vineyard. Photo credit: Stan Muraoka.

Air quality



The primary determinants of air quality in Contra Costa County are ozone pollution from vehicle exhaust, particulate matter from industrial centers and diesel trucks, and allergen distribution. Higher temperatures can increase surface ozone concentrations, and increased water vapor can trap ozone in already-polluted areas. Ground-level ozone is associated with a variety of negative health outcomes, including reduced lung function, pneumonia, asthma, cardiovascular diseases, and premature death.

Ozone concentrations are projected to increase in most places that already experience high ozone levels, such as eastern Contra Costa County.

Drought



A drought happens when conditions are drier than normal for an extended period, making less water available for people (especially if local water supply depends on surface water), agricultural uses, and ecosystems. Communities in Contra Costa County may experience water shortages during drought conditions and mandatory water restrictions for domestic and agricultural uses. Farmers may need to cut back on irrigation, and ranchers may need to reduce the number of their livestock. Farmers may also be forced to plant varieties that are more drought tolerant or alter the timing and location of fields to ensure that irrigation water is available at critical times. Land may be left fallow if irrigation water is not available, which may increase the pressure to develop prime agricultural land.

Less precipitation could lower water levels, decrease water quality, and raise water temperatures at streams and lakes. These conditions can cause algal blooms in Delta areas and harm salmonid populations and other aquatic species, such as the California red-legged frog and western pond turtle. Droughts are a regular occurrence in California; however, scientists expect that climate change will lead to more frequent and more intense droughts statewide.

Extreme heat

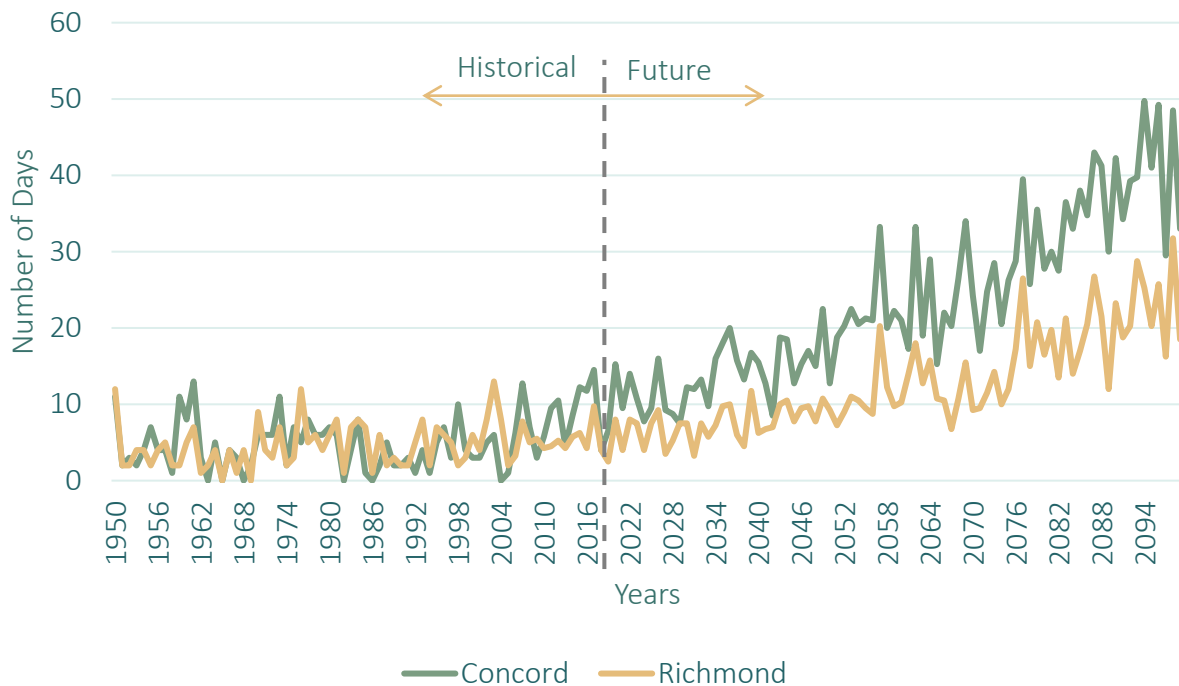


Contra Costa County has different thresholds for extreme heat in different parts of the county. An extreme heat day is where temperatures reach 94 degrees [Fahrenheit](#) in Rodeo, 99 degrees [Fahrenheit](#) in Alamo, and 102 degrees [Fahrenheit](#) in Knightsen.¹⁰ Extreme heat temperatures for the western part of the county are lower, but any higher-than-usual temperature can be harmful to people and assets that are not accustomed to it.

Historically, Contra Costa County has experienced an average of four extreme heat days a year. This number is expected to increase dramatically because of climate change, as illustrated in **Figure 6**.

By the middle of the 21st century (2040 to 2070), Contra Costa County is likely to have an average of 15 to 20 extreme heat days per year. By the end of the century, the county is projected to experience an average of 21 to 37 extreme heat days per year.

FIGURE 6. FREQUENCY AND PROJECTION OF EXTREME HEAT DAYS IN CONCORD AND RICHMOND



Source: Cal-Adapt. <https://cal-adapt.org/>. Historical data is available through 2020.

Extreme heat can cause heat-related illnesses, such as heat cramps, heat exhaustion, and heat stroke. High temperatures can harm animals and plants that are not adapted to them. Some types of infrastructure, including power lines and roadways, experience greater stresses during high temperatures, making failure more likely. People are less likely to venture outside in very high temperatures, hurting economic sectors that depend on outdoor activities. Extreme heat can also increase the risk of wildfires by drying out plant material, and prolonged high temperatures contribute to drought conditions.

An example of health inequity tied to climate change is that Black Americans have been found to be at a higher risk of illness and death from heat. However, there is no biological basis for this. Instead, this finding has been linked to social factors such as poverty, neighborhood conditions, access to air conditioning, and vehicle ownership. These factors are also associated with higher rates of chronic health conditions among the Black community, including cardiovascular disease and hypertension. Long-standing patterns of racial residential segregation and institutional racism mean that Black individuals disproportionately live in high-poverty, disinvested neighborhoods, regardless of income. The Contra Costa County communities with the highest proportions of Black residents are



3. Climate Changes and GHGs

the unincorporated community of North Richmond and the cities of Antioch, Pittsburg, and Richmond.

These conditions exist in Contra Costa County for other low-income residents of impacted communities. Extreme heat also can create vulnerability for workers whose jobs are outdoors, such as those in agriculture or construction, and those who work in poorly ventilated buildings and/or buildings that lack air conditioning.

Analysis conducted as part of the 2015 Contra Costa County ~~Health-Extreme Heat~~ ~~Vulnerability~~ ~~a~~Assessment determined that the neighborhoods most vulnerable to heat are Bethel Island, East County, the Monument Corridor in Concord, the Rossmoor Area in Walnut Creek, and West County. These results are found in a summary of the assessment, *2015 Climate Change Vulnerability in Contra Costa County: A Focus on Heat*.¹¹

Air Conditioning

Air conditioner ownership helps protect against extreme heat events. However, while air conditioners allow households to adapt to extreme heat, increased household air conditioning could strain energy capacity and counter mitigation goals by leading to ~~greenhouse gas~~GHG emissions. Identifying areas where few households have air conditioners is important to ensure that these communities are adequately served by cooling centers. Low-income households are less likely to have or use air conditioning, and a lack of air conditioning may be one of the drivers of racial inequalities in morbidity and mortality during heat waves. ~~Within~~ Contra Costa County, households in historically cooler areas and areas with older housing stock are less likely to have home air conditioning. All-electric heat pumps can provide both air conditioning and heating services, reducing the need for natural gas service, and helping to address this inequity.

Extreme weather may also lower water quality and cause water temperatures to rise, which can lead to algal blooms and declines in aquatic populations. Native fish species may have a more difficult time surviving in warmer waters and non-native species may out-compete native species.

Flooding



Flooding happens when there is too much water in inland areas to be held in local bodies, carried away by drains or creeks, or soaked into the soil. This water can build up and wash into normally dry areas and significantly harm buildings, people, and habitats. Floodwaters can be deep enough to drown people and may move fast enough to carry away people, cars, or even homes. Floodwaters

can carry contaminants into communities, impacting public health, ecosystem health, and water quality. Floods can be caused by heavy rainfall, extended periods of moderate rainfall, or clogged drains during periods of rainfall. Flash floods can be especially dangerous because they happen so fast that they give little or no warning.

Although climate change is expected to increase the frequency and intensity of droughts, scientists also project that it will increase the frequency and intensity of heavy rain and associated floods in Contra Costa County.

Fog



Fog is a very low cloud, usually low enough to touch the ground. It forms when air near the surface reaches the right temperature to form water vapor, which condenses into a cloud. In Contra Costa County, fog usually forms in two areas—western Contra Costa County along the bayfront and eastern Contra Costa County as part of the Central Valley. Western Contra Costa County experiences coastal fog that flows in from the Pacific Ocean. Eastern Contra Costa experiences tule fog, which usually forms after heavy rain between late autumn and early spring in the Central Valley. The cool air brought in by fog is necessary for the productivity of agriculture in the region and the growth of many tree-dominated habitats on the hillsides of Contra Costa County.

The cool air brought in by fog is necessary for the productivity of agriculture in the region and the growth of many tree-dominated habitats on the hillsides of Contra Costa County.

The impacts of climate change on fog are less clear. There has been close to a 50 percent reduction in tule fog in California's Central Valley since the 1980s. Coastal fog is projected to decline by 12 to 20 percent between 1900 and 2070. Climate scientists believe that the warmer temperatures created by climate change make it harder for the air to become cool enough to create fog, and warmer temperatures are more likely to evaporate any fog that does form.

In agriculture, many varieties of fruit and nut trees require winter chill (measured as a number of chill hours) for high fruit and nut quality and yield. Research has shown that the warmer air that is replacing seasonal fog decreases the number of these important chill hours. This reduces the yield and quality of the cherries, almonds, walnuts, and other stone fruit that are grown in Contra Costa County.

Redwoods depend on the coastal fog for water in the summer months. The absence of coastal fog may cause higher evapotranspiration rates and increase the demand for water in woodland ecosystems during the drier summer months.

Human health hazards



There are several diseases that are linked to climate change and can be harmful to the health of Contra Costa County community members. Examples of these diseases include hantavirus pulmonary syndrome, Lyme disease, and West Nile virus, which can be debilitating or fatal for some of the population.

These diseases are carried by animals such as mice and rats, ticks, and mosquitos. Climate change can increase the rate of infection because, with warmer temperatures earlier in the spring and later in the winter, these animals can be active for longer, widening the window for disease transmission. Warmer temperatures and more intense rainfall can lead to larger populations of animals such as mosquitos, rodents, and ticks, increasing the risk of contracting diseases carried by these animals.

As described previously in the section on Agriculture, as the climate changes, temperatures are expected to get warmer earlier in the year and remain warmer until later in the year, creating a wider window for agricultural and urban pests and diseases to be active.

Landslides and debris flows



Landslides occur when a slope, such as the side of a hill or mountain, becomes unstable, causing soil and rocks to slide down the slope. Landslides are most common on steep slopes made up of loose soil and other materials and are often triggered by precipitation. The types of landslides caused by precipitation are typically debris flows (a landslide made of a wet mix of rock, soil, and other materials) and mudflows (or mudslides, which are primarily made of wet soil). Because they are so fluid, debris flows and mudflows can flow for long distances past the base of the slope and affect large areas. Landslides can damage or destroy buildings and infrastructure, block roadways, disrupt sensitive ecosystems, and injure or kill people in their path.

Climate change does not directly cause more frequent or intense landslides. However, it is expected to increase the conditions that can lead to landslides, such as an increase in heavy storms that saturate the ground and make a landslide more likely. These events can cause significant damage to important infrastructure in Contra Costa County, as happened during the Morgan Territory landslide in 2017. After large storm events in January and February of that year, the resulting landslide snapped a water main and collapsed a section

of Morgan Territory Road, leaving homes without water for a week and closing the road for months. Wildfires also increase the likelihood of a landslide by removing vegetation that supports slopes and slows down water. Wildfires can alter soil conditions, increasing erosion and water runoff, further exacerbating slope instability. Because climate change is projected to increase wildfire activity, it is possible that this could also increase the size and/or intensity of future landslides.

Severe storms



Severe storms include strong winds, hail, and lightning. Severe weather is usually caused by intense storm systems, although some types of strong winds can occur without a storm. Hail can damage buildings and plants (and in extreme cases, injure people), and lightning can spark fires, injure people, or cause fatalities. There have been no reported damage or injuries from lightning in Contra Costa County, although hail up to 0.75 inches in diameter fell in portions of Contra Costa County in April of 1983. Severe winds, such as the Diablo Winds that blow in northern California in the spring and fall, can damage or destroy buildings, knock over trees, and damage power lines and electrical equipment (potentially causing wildfires). In some cases, strong winds can reach between 40 and 80 miles per hour, causing trees to fall and damage power lines. Strong winds are the most common type of severe weather in Contra Costa County. In winter 2023, a series of severe storms triggered high wind, flooding, and freeze warnings across the county. Felled trees and debris caused power outages, the cold temperatures caused delays on BART, and slick roads made driving more dangerous.¹²

The connection between climate change and severe storms is not as well established as other weather events, but new evidence suggests that severe storms may happen more often and more intensely than in the past. Climate change may affect strong winds that are not associated with intense storms, but scientists are not clear on how these wind patterns might change.



Sea level rise



As global temperatures rise, glaciers and other land ice near the north and south poles melts. The water flows into the ocean, increasing sea levels across the globe. Higher temperatures also cause water to expand in oceans, further raising sea levels.

In California, sea levels may increase in most places by 6 to 10 inches by 2030, 13 to 23 inches by 2050, and 41 to 83 inches by 2100, relative to the average sea levels between 1991 and 2009. However, it is possible that sea level may increase faster than these projections.

Eventually, sea levels may increase enough to permanently flood low-lying areas near the Bay shoreline and Delta areas. Sea level rise threatens buildings, infrastructure, and ecosystems that may be temporarily or permanently flooded by water in the shoreline areas and Delta of Contra Costa County. Structures built above the increased sea level can still be harmed if the higher level of the water erodes away the rock or soil supporting the structure, potentially making it unsafe and at risk of collapse. Sea level rise can also promote saltwater intrusion into the Delta aquatic systems and groundwater basins, which would negatively affect water quality and aquatic habitats. Aquatic habitats may be harmed if industrial or oil facilities are inundated, as hazardous materials could be released into the soils and water.

Shoreline flooding



Rising sea levels mean that shoreline floods can become more severe and more frequent along shoreline communities and areas in the Delta. Because the ocean is at a higher level during new normal conditions, shoreline floods such as king tides can reach further onto land. Higher sea levels can also give a “boost” to smaller floods that would not have been large enough to flood dry land during past normal conditions, making shoreline flooding more frequent.

During strong storms and king tides, shoreline flooding can damage or destroy buildings in low-lying areas, disrupt transportation routes, and harm important economic assets such as the oil refineries and the Delta. The communities facing



*Shoreline facilities, such as this marina, are at particular risk from shoreline flooding.
Photo credit: Lisa Gorrell.*

the greatest risk in the unincorporated areas of the county are North Richmond, Rodeo, Crockett, Bay Point, Bethel Island, and Discovery Bay. Shoreline flooding could also damage water infrastructure and interrupt regional and statewide water services.

Wildfire



Wildfires are a regular feature of the landscape in much of California. Winter rains support plant growth, and the summer dry season dries out vegetation, increasing the potential for ignition during the late summer and fall when temperatures are high. Wildfires are defined as fires burning in natural areas, but they can easily spread into the developed areas between urban and wildland zones, known as the wildland-urban interface. Large sections of Contra Costa County are considered to be high or very high fire hazard severity zones by CAL FIRE. This exposes people and property to the flames, increasing the risk of injury, death, and property damage or destruction. The smoke and ash from wildfires can increase air and water pollution levels and create a significant health risk in the region, particularly under weather conditions that prevent smoke from clearing, as happened during the Camp Fire in Butte County in Northern California (2018) and LNU Lightning Complex Fire in Northern California wine country areas (2020).

Fire activity is projected to increase where development expands in the wildland-urban interface, in addition to the dry hills around the Mount Diablo region in Contra Costa County.

Local ecosystems can be harmed by wildfire. Chaparral and scrub ecosystems are in high fire hazard severity zone areas. Although wildfires naturally occur in chaparral ecosystems, fires more than every 20 years can reduce the biodiversity of chaparral habitat and cause the ecosystem to convert to a grassland or scrub habitat. Riparian ecosystems can be harmed by wildfires due to loss of canopy and changes in soil structure, erosion, and shifts in specific composition due to changes in habitat structure. Large fires can cause widespread devastation throughout woodland areas in Contra Costa, particularly if trees have been weakened or killed by drought, extreme heat, or pest infestation.

Climate change is expected to lead to an increase in wildfires throughout California. Warmer temperatures, an increase in drought conditions, and forestry pests and diseases are likely to create more fuel in State and federal wildlands and a greater chance that a spark will grow into a potentially dangerous blaze. Excessive heat and dry conditions have already contributed to the rapid spread of wildfires in Contra Costa County during events



such as the 3,700-acre Morgan Fire on Mount Diablo (2013); the 396,624-acre SCU Lightning Complex fires (2020), which impacted six counties; and the Franklin Fire (2022). Climate change is also expected to extend the fire season throughout much (or even all) of the year. Because wildfires burn the trees and other vegetation that help stabilize a hillside and absorb water, increases in fire activity may also lead to an increase in landslides and floods.

GHG Inventory and Forecast

INTRODUCTION

A GHG inventory is an estimate accounting of the GHG emissions attributable to a particular community over the course of a specific year. A GHG forecast takes information from the GHG inventory as well as predictions of future demographic trends and the projected impacts of climate-related legislation to predict future levels of GHG emissions.

GHG emissions are generated by various activities that are commonplace in daily life, such as driving, electricity use, and water use. Some daily activities release GHG emissions in the location of the activity, such as gases released any time an internal combustion engine is operated. Other activities cause GHG emissions to be released elsewhere, such as using nonrenewable or non-carbon-free electricity to power a home, which generates GHG emissions in the location of the power plant that supplies the power, not in the home itself. Therefore, Contra Costa County must consider all GHG emissions caused by resulting from activities attributed to residents, business, workers, and visitors of the unincorporated community, including GHG emissions generated both inside and outside the County's jurisdictional boundaries.

Determining the annual level of GHG emissions for specific years on a recurring basis will aid the County in establishing an attainable goal for continually reducing emissions. Furthermore, knowing which activities release GHG emissions allows the County to develop policies and programs that facilitate a decrease in emissions for each activity.

The County ~~has~~develops two types of GHG inventories: (1) community-wide inventories and (2) County operations inventories.

- A community-wide GHG inventory identifies GHG emissions that result from activities of unincorporated Contra Costa County residents, employees, visitors, and other community members. Examples include GHG emissions from residents driving cars, homes using water, and businesses using electricity. The community-wide GHG inventory presented for the unincorporated county is a production-based inventory, which means that it assesses the GHG emissions produced by activities occurring in the community.
- A County operations GHG inventory summarizes emissions that are a direct result of Contra Costa County's government operations. Examples include GHG emissions from electricity and water used in County buildings or the fuel used for County vehicles.

The project team prepared the new GHG inventories and updates to past GHG inventories consistent with the guidance in widely adopted, standard protocol documents. These protocols provide guidance on what activities should be evaluated in the GHG inventories and how emissions from those activities should be assessed. Using standard methods also allows for an easy comparison of GHG emission levels across multiple years and communities. The methods used to create these inventories are described in **Appendix B**.

Determining the annual level of GHG emissions will aid the County in establishing an attainable goal for continually reducing emissions. Furthermore, knowing which activities release GHG emissions allows the County to develop policies and programs that facilitate a decrease in emissions for each activity. Details about implementing these GHG reduction activities are included in the Enacting the Climate Action and Adaptation Plan section in Chapter 6.

GHG Inventory

The following sections present the results of the community-wide and County operations GHG inventories for the years 2005, 2013, 2017, and 2019.

Total community-wide emissions declined ~~2448~~ percent from 2005 to 2019.

COMMUNITY INVENTORY

The community-wide GHG inventory assessed GHG emissions from the following 11 categories of activities, known as sectors.

- **Transportation** is GHG emissions created by driving on-road vehicles in the unincorporated county, including passenger and freight vehicles.
- **Residential energy** is GHG emissions attributed to the use of electricity, natural gas, and other home heating fuels in residential buildings.
- **Nonresidential energy** is GHG emissions attributed to the use of electricity and natural gas in nonresidential buildings.
- **Solid waste** is the GHG emissions released from trash collected in the unincorporated areas of Contra Costa County, as well as collective annual emissions from waste already in place at the Acme, Keller Canyon, and West Contra Costa Landfills.
- **Agriculture** is GHG emissions from various agricultural activities in the unincorporated county, including agricultural equipment, crop cultivation and harvesting, fertilizer application, and livestock operations.
- **Off-road equipment** is GHG emissions from equipment that does not provide on-road transportation (excluding agricultural equipment), such as tractors for construction, ~~or~~ equipment used for landscape



maintenance, commercial and industrial equipment, and outdoor recreational equipment.

- **Water and wastewater** accounts for the electricity used to transport and process water and wastewater used or generated by unincorporated county residents and businesses, as well as direct emissions resulting from wastewater treatment activities.
- **Bay Area Rapid Transit (BART)** is GHG emissions associated with the operation of BART for unincorporated county residents.
- **Land use and sequestration** is GHG emissions absorbed and stored in trees and soils on locally controlled lands as part of healthy ecosystems and released into the atmosphere from development of previously undeveloped land.
- **Stationary sources** are emissions from fuel use at major industrial facilities, permitted by State and regional air quality authorities. These emissions are informational and are not counted as part of the community total.
- **Wildfire** includes emissions released as a result of wildfires. These emissions are informational and are not counted as part of the community total.
- **Direct access electricity** is electricity purchased directly from an Electric Service Provider (ESP) rather than an investor-owned utility company or Community Choice Energy provider such as MCE, generally to power large industrial, commercial, and institutional facilities.



~~The community-wide emissions inventory also records emissions released via wildfire and stationary sources such as oil refineries. Emissions from stationary sources, wildfire, and direct access electricity. These emissions~~ are reported for informational purposes but are not formally counted as part of the unincorporated county's GHG emissions.



3. Climate Changes and GHGs

Contra Costa County is home to large industrial facilities whose operations have generated significant GHG emissions and/or products that create GHGs, such as gasoline for internal combustion engines. Most of those facilities were constructed before land use permits from the County were required. If these facilities apply for new land use permits, the County can impose new operational requirements in some circumstances. An example of this is applications the County received in 2020 from two refineries to process renewable fuels.

There are several factors outside of the County's control that influence the operations and related emissions and energy use at these facilities. The County has therefore elected to exclude the direct emissions and energy use at these facilities from consideration of the County's GHG reduction goals for the following reasons:

- These facilities are regulated primarily through the Federal Energy Regulatory Commission and the California Energy Commission (CEC) and are subject to air quality and emissions standards set forth by the USEPA, CARB, and BAAQMD.
- The energy used at some of these facilities fluctuates from year to year, depending on the demand for resources and the availability of other electricity-generating sources, such as hydropower or renewable resources. This makes it difficult to accurately forecast the energy use at these facilities.
- The County has limited jurisdictional authority to reduce GHG emissions from these sources because they are subject to cap-and-trade regulations set forth by CARB.
- The approach to excluding energy from sources that are outside of the County's jurisdictional control is consistent with the *U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions*.
- The resultant jurisdictional inventory more accurately reflects the energy use from nonresidential customers in unincorporated Contra Costa County and allows the County to focus on actions that are within its control.

Large industrial customers frequently purchase direct access electricity. Direct access customers can purchase electricity from any Electric Service Provider (ESP) operating in the state. Different EPSs will rely on different power sources with different proportions of fossil and renewable energy to produce electricity. The California Public Utilities Commission (CPUC) regulates the sale of direct access electricity in California, and the identities of direct access customers and the specific ESPs from which they purchase electricity are not made

available to the public. Given the County's limited ability to monitor and regulate the sale and use of direct access electricity, as well as historical inconsistencies in how direct access electricity use is reported, direct access emissions are reported for informational purposes only.

Table 3 and **Figure 7** show the community-wide GHG emissions for the unincorporated county during the four inventory years. Total community-wide emissions declined 18 percent from 2005 to 2019. **Table 4** shows the proportion of GHG emissions from each sector for the unincorporated county for the four inventory years.

TABLE 3. ABSOLUTE ANNUAL GHG EMISSIONS, 2005 TO 2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005–2019 |
|---------------------------------------|----------------------|----------------------|----------------------|-----------------------|------------------------------|
| Transportation (excluding BART) | 628,200 | 651,130 | 571,650 | 464,040 | -26% |
| Energy - Residential | 294,930 | 280,870 | 212,420 | 191,780 | -35% |
| Energy - Nonresidential | 118,740 | 125,350 | 98,850 ¹ | <u>85,390</u> | <u>-28%</u> |
| Solid waste | 243,940 | 224,570 | 223,100 | 220,760 | -10% |
| Agriculture | 33,350 | 39,300 | 44,880 | 36,130 | 8% |
| Off-road equipment | 34,160 | 36,290 | 42,840 | 54,010 | 58% |
| Water and wastewater | 8,080 | 7,400 | 4,400 | 4,870 | -40% |
| BART | 1,040 | 1,320 | 1,440 | 190 | -82% |
| Land use and sequestration | -70,860 | -70,860 | -70,860 | -70,860 | 0% |
| Total Annual MTCO₂e | 1,291,580 | 1,295,370 | 1,128,720 | <u>986,310</u> | <u>-24%</u> |
| <i>Informational Items</i> | | | | | |
| Stationary sources | 13,983,030 | 11,956,000 | 11,232,290 | 10,867,670 | -22% |
| Wildfire | 14,270 | 66,080 | 0 ² | 10,100 | N/A ³ |
| <u>Direct access electricity</u> | <u>0⁴</u> | <u>0⁴</u> | <u>0⁴</u> | <u>74,130</u> | <u>N/A</u> |

Note: All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows.

¹ Estimates of nonresidential electricity use in 2013 are used in 2017 to account for a lack of available data in 2017.

² No wildfires were recorded in the unincorporated county in 2017.

³ Overall change between 2005 and 2019 for wildfire is not calculated because of the high degree of year-to-year variability.

⁴ PG&E did not provide direct access electricity use data in these years.

FIGURE 7. ABSOLUTE ANNUAL GHG EMISSIONS BY SECTOR, 2005 TO 2019

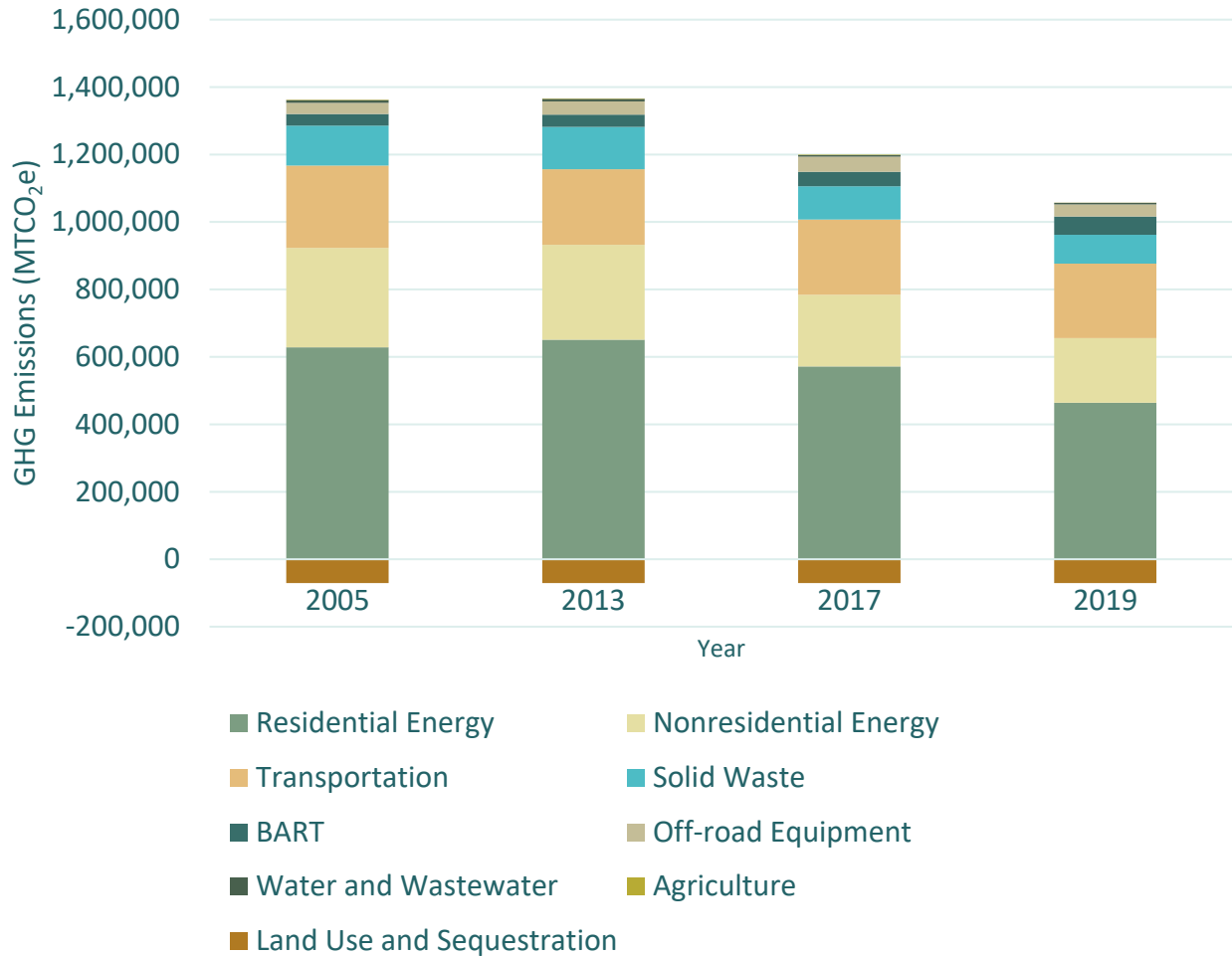


TABLE 4. PROPORTION OF GHG EMISSIONS, 2005 TO 2019

| SECTOR | 2005 | 2013 | 2017 | 2019 |
|---------------------------------------|--------------|--------------|--------------|--------------|
| Transportation | 49% | 50% | 51% | 47% |
| Energy - Residential | 23% | 22% | 19% | 19% |
| Energy - Nonresidential | 9% | 10% | 9% | 9% |
| Solid waste | 19% | 17% | 20% | 22% |
| Agriculture | 3% | 3% | 4% | 4% |
| Off-road equipment | 3% | 3% | 4% | 5% |
| Water and wastewater | 1% | 1% | Less than 1% | Less than 1% |
| BART | Less than 1% | Less than 1% | Less than 1% | Less than 1% |
| Land use and sequestration | -5% | -5% | -6% | -7% |
| Total Annual MTCO₂e | 100% | 100% | 100% | 100% |

Note: Totals may not equal the sum of individual rows [due to rounding](#).

The transportation sector has consistently been the largest source of GHG emissions in the unincorporated county, accounting for between 47~~6~~ and 51~~3~~ percent of total community-wide GHG emissions (excluding informational items). Residential and nonresidential energy combined are the second-largest source of emissions, comprising 28 to 32 percent of community-wide emissions. Of the energy-related emissions, approximately 70 percent come from residential buildings and 30 from nonresidential buildings. In both building types, most emissions are associated with natural gas use. Solid waste is the third-largest source of emissions, accounting for between 17 and 22 percent of the community-wide total. Residential energy and solid waste are the second- and third-largest sources of GHG emissions, followed by nonresidential energy. Agriculture GHG emissions account for between 3 and 4 percent, and off-road equipment accounts for between 3 and 5 percent. GHG emissions from the water and wastewater and BART sectors are each 1 percent or less.

The sectors that experienced the largest decrease in annual GHG emissions between 2005 and 2019 were BART (82 percent), water and wastewater (40 percent), residential energy (35 percent), nonresidential energy (28 percent), and transportation (26 percent). Collectively, emissions from energy use declined 33 percent over this time period. Emissions reductions also occurred in the solid waste sector (10 percent), and the nonresidential energy sector (8 percent).

These changes are primarily due to an increase in renewable and carbon-free electricity, the County joining MCE in 2017 (which provides more electricity from renewable and carbon-free sources than PG&E), and better resource-efficiency practices by community members. Emissions reductions also occurred in the solid waste sector (10 percent). Three~~we~~ sectors nonresidential energy, off-road equipment, and agriculture saw increases in their emissions from 2005 to 2019.

Between 2005 and 2019, offroad emissions increased by 58 percent. Increases in offroad emissions are due to increased emissions from agricultural and other types of commercial and industrial equipment. Agricultural emissions increased due to changes in crop activity and livestock population. Detailed summaries of changes in GHG emissions by sector appear in **Appendix B.**

The transportation sector has consistently been the largest source of GHG emissions in unincorporated Contra Costa County. The sectors that experienced the largest decrease in annual GHG emissions between 2005 and 2019 were BART, water and wastewater, residential energy, and transportation.

Per-person GHG emissions

Along with the “absolute” GHG emission levels discussed previously, the project team assessed the per-person GHG emissions from the unincorporated county. The team calculates per-person GHG emissions by taking the absolute GHG emissions in **Table 3** and dividing them by the number of residents in the unincorporated county for that inventory year. **Table 5** and **Figure 8** show the per-person emissions for the inventory years for the unincorporated county.

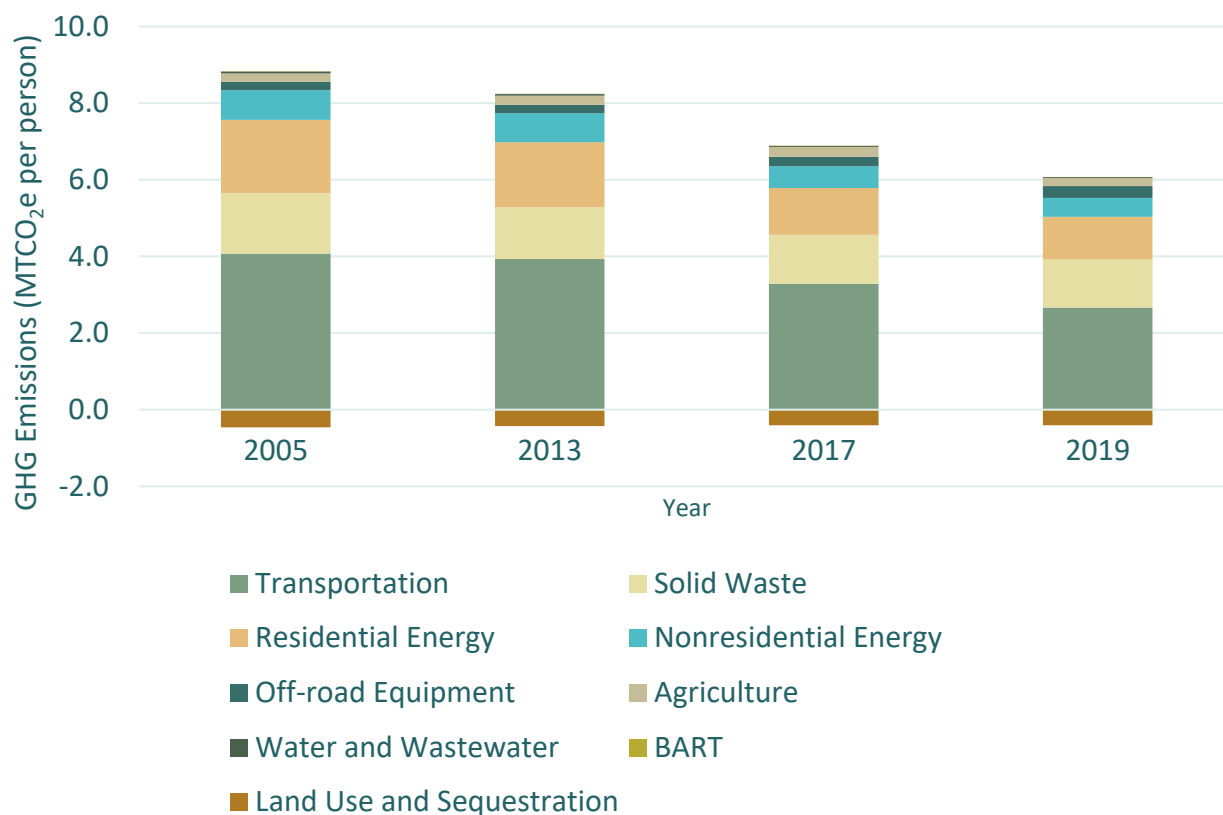
Overall, per-person emissions declined 3227 percent from 2005 to 2019. Because the population of the unincorporated county grew during this time, most sectors saw their per-person emissions decline. Even for sectors that had increases in their absolute emissions, such as Agriculture, population growth resulted in a decline in per-person emissions. Only per-capita off-road equipment emissions increased between 2005 and 2019. The two sectors that saw an increase in per-person emissions were Off-road equipment, and Nonresidential energy, although the per-person emissions grew by 53 percent from 2005 to 2019 compared to a 73 percent increase in absolute emissions.

TABLE 5. PER-PERSON GHG EMISSIONS, 2005 TO 2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005–2019 |
|---|---------|---------|---------|----------------|------------------------------------|
| Population | | | | | |
| Residents | 154,270 | 165,700 | 174,110 | 174,150 | 13% |
| Emissions (MTCO₂e per-person) | | | | | |
| Transportation | 4.07 | 3.93 | 3.28 | 2.66 | -35% |
| Energy - Residential | 1.91 | 1.70 | 1.22 | 1.10 | -42% |
| Energy - Nonresidential | 0.77 | 0.76 | 0.57 | 0.49 | -36% |
| Solid waste | 1.58 | 1.36 | 1.28 | 1.27 | -20% |
| Agriculture | 0.22 | 0.24 | 0.26 | 0.21 | -4% |
| Off-road equipment | 0.22 | 0.22 | 0.25 | 0.31 | 53% |
| Water and wastewater | 0.05 | 0.04 | 0.03 | 0.03 | -47% |
| BART | 0.01 | 0.01 | 0.01 | Less than 0.01 | -84% |
| Land use and sequestration | -0.46 | -0.43 | -0.41 | -0.41 | -11% |

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005–2019 |
|--|-------------|-------------|-------------|-------------|------------------------------|
| Total Annual (MTCO ₂ e per-person) | 8.37 | 7.82 | 6.48 | <u>5.66</u> | <u>-32%</u> |
| <i>Informational Items</i> | | | | | |
| Stationary Sources | 90.64 | 72.15 | 64.51 | 62.40 | -31% |
| Wildfire | 0.09 | 0.40 | 0.00 | 0.06 | N/A ^{1*} |
| <u>Direct access electricity</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.44</u> | <u>N/A^{2**}</u> |
| <p>Note: All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows.</p> <p>¹ Overall change between 2005 and 2019 is not calculated because of the high degree of year-to-year variability.</p> <p>² <u>Overall change between 2005 and 2019 is not calculated because of limited availability of direct access electricity use data between 2005 and 2017.</u></p> | | | | | |

FIGURE 8. PER-PERSON ANNUAL GHG EMISSIONS BY SECTOR, 2005 TO 2019



The typical resident in Contra Costa County...



...uses about 4,610 kWh of electricity annually.



...uses about 200 therms of natural gas each year.



...drives about 6,530 miles annually.



...throws out about 910 pounds of trash each year.



...uses about 46,000 gallons of water annually.

COUNTY GOVERNMENT OPERATIONS EMISSIONS INVENTORY

Contra Costa County conducted government operations emissions inventories in 2006 and 2017.⁸ In 2006, Contra Costa County government operations emissions totaled 54,130 MTCO₂e for the sectors reported in this inventory (see **Table 6**). In 2017, County government operations GHG emissions were 43,380 MTCO₂e, a 20 percent decrease from 2006. This decrease is primarily the result of reductions in energy use, reductions in County Fleet emissions, and reductions in government-generated solid waste. The 2017 inventory also includes emissions from Wastewater Treatment and Refrigerants, which were not included in the 2006 inventory. In summary:

In 2017, GHG emissions from County government operations were 43,380 MTCO₂e, a 20 percent decrease from 2006. This decrease is primarily the result of reductions in energy use, reductions in County fleet emissions, and reductions in government-generated solid waste.

⁸ The budget for the 2024 CAAP included one County operations inventory. The County operations inventory will be updated on a regular basis, along with the community-wide inventory.

- The largest source of emissions in 2017 is from the Employee Commute sector (25,800 MTCO₂e). In the 2006 inventory, Employee Commute is also the largest contributor of GHG emissions (23,530 MTCO₂e).
- Significant emissions also originate from the Buildings and Facilities sector (12,500 MTCO₂e in 2017) and Government (County) Fleet (3,430 MTCO₂e in 2017).
- Emissions from every sector except for Employee Commute decreased between 2006 and 2017. There was a 10 percent increase in GHG emissions related to Employee Commute over this time.
- The greatest reduction in the amount of emissions was in the Buildings and Facilities sector (-6,760 MTCO₂e), followed by Government (County) Fleet sector (-5,070 MTCO₂e), and Solid Waste (-1,070 MTCO₂e).
- The number of County employees increased by 19 percent from 2006, accounting for 1,335 new positions in 2017.
- County employee transportation VMT increased, although this increase was slightly offset by improvements in vehicle efficiency. As a result, overall employee commute emissions increased 10 percent from 2006 to 2017.
- Energy usage in Buildings and Facilities as well as the Public Lighting sector emissions decreased overall due in large part to lower utility electricity emissions factors and energy efficiency.
- Annual solid waste volumes decreased.

Figure 9 compares 2017 GHG emissions to the 2006 baseline GHG emissions for the County operations inventory.

Local Energy Providers

As of January 2024, approximately 88.7 percent of customers in unincorporated Contra Costa County are buying electricity from MCE, a not-for-profit clean energy provider. Approximately 7.1 percent of these accounts, equating to 4,422 accounts, are enrolled in MCE's Deep Green electricity service, which provides electricity from 100 percent renewable energy. As a result of MCE's generation services, an estimated 3,485.73 metric tons of carbon dioxide equivalent were reduced in the unincorporated areas of the county in 2023. PG&E provides electricity to most of the remaining customers, as well as providing natural gas to all customers. Some large industrial facilities receive electricity from third-party providers. Some residents heat their homes using propane, kerosene, or wood.

FIGURE 9. 2006 BASELINE AND 2017 COUNTY OPERATIONS GHG EMISSIONS SUMMARY

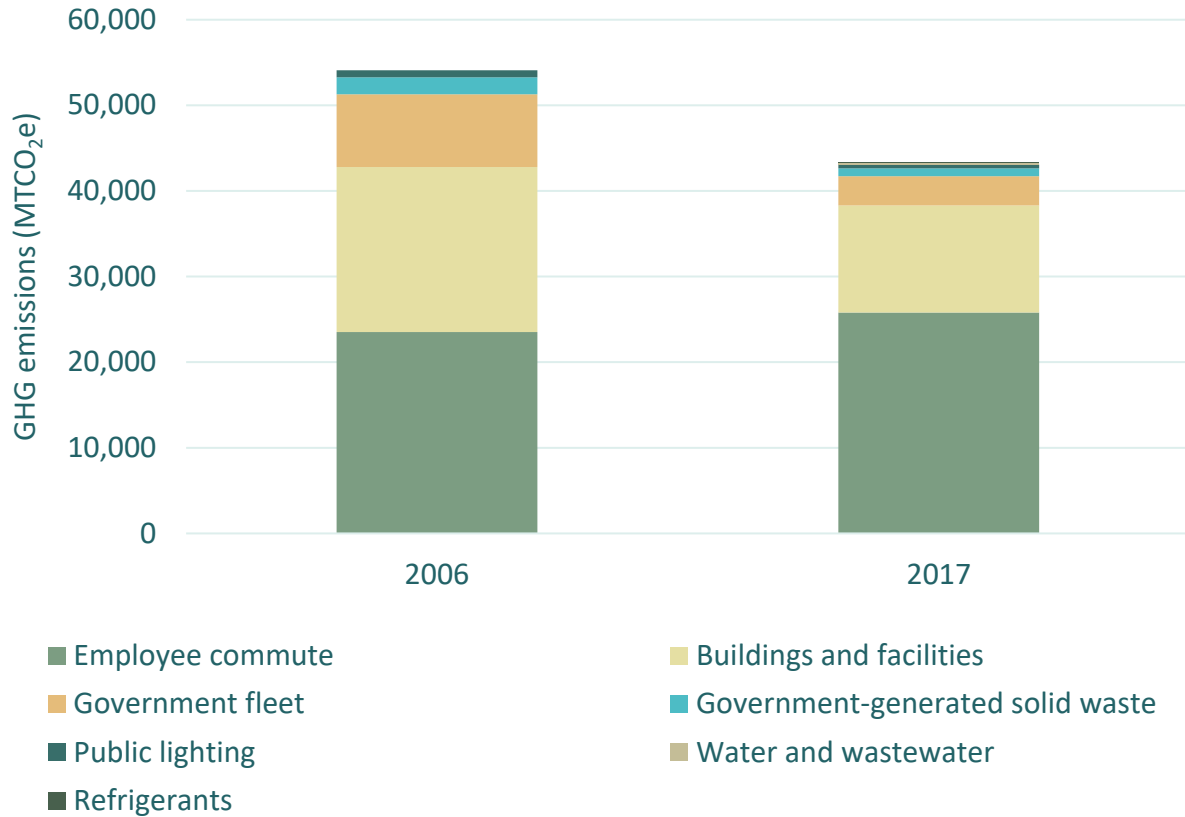


TABLE 6. 2006 BASELINE AND 2017 COUNTY OPERATIONS GHG EMISSIONS SUMMARY

| SECTOR | 2006 GHG EMISSIONS (MTCO ₂ E) | 2017 GHG EMISSIONS (MTCO ₂ E) | PERCENTAGE CHANGE |
|----------------------------------|--|--|-------------------|
| Employee commute | 23,530 | 25,800 | 10% |
| Buildings and facilities | 19,260 | 12,500 | -35% |
| Government fleet | 8,500 | 3,430 | -60% |
| Government-generated solid waste | 1,980 | 900 | -54% |
| Public lighting | 830 | 440 | -47% |
| Water and wastewater | Not included | 220 | — |
| Refrigerants | Not included | 90 | — |
| Total | 54,090 | 43,380 | -20% |

Notes: These inventories assume 8,420 County employees in 2006 and 10,030 employees in 2017, a 19% increase.
All numbers are rounded to the nearest 10. Totals may not add up to the sum of individual rows due to rounding.

Many factors contribute to changes in GHG emissions. Key factors may include changes in electricity and natural gas use, the proportion of electricity obtained from carbon-free sources, VMT, vehicle fuel efficiency, landfilled waste tonnage, temperature (affecting heating and cooling demand), and demographic changes (e.g., changes in population, household, and job numbers). Sector-specific descriptions of sources of and changes in GHG emissions are provided in **Appendix B**.

CONSUMPTION-BASED INVENTORY EMISSIONS

The community-wide GHG inventory presented for the unincorporated county is a protocol-compliant, production-based inventory, which means that it assesses the GHG emissions produced by activities occurring in the community. However, the inventory does not account for most of the emissions created by the consumption of food or material goods or use of services in the unincorporated county, including emissions from the

A consumption-based inventory assesses emissions associated with the manufacture, transportation, and disposal of these goods and services regardless of where they occur.

manufacture and transportation of goods purchased in the community, food grown and processed in other locations, air travel by unincorporated Contra Costa County community members, and the disposal or reprocessing of certain materials and products. For example, if someone who lives or works in an

unincorporated county community purchases new clothes, the production-based inventory will include vehicle emissions for the trip to and from the store, energy use at the store and home, and any landfilled waste generated. It would not include emissions from the growing and processing of the raw materials in the clothes, the manufacturing of the clothes, transportation of the clothes to the store, or the reprocessing of any waste materials that do not end up in a landfill, unless these activities occur within the unincorporated county.

In contrast to a production-based inventory, a second type of GHG inventory, known as a consumption-based inventory, looks at a wider array of GHG emissions created by the goods and services used by unincorporated county community members, including residents, businesses, and employees. A consumption-based inventory assesses emissions associated with the manufacture, transportation, and disposal of these goods and services regardless of where they occur. Such inventories can provide a more complete picture of the GHG emissions associated with the lifestyle and consumer behavior of unincorporated county community members.



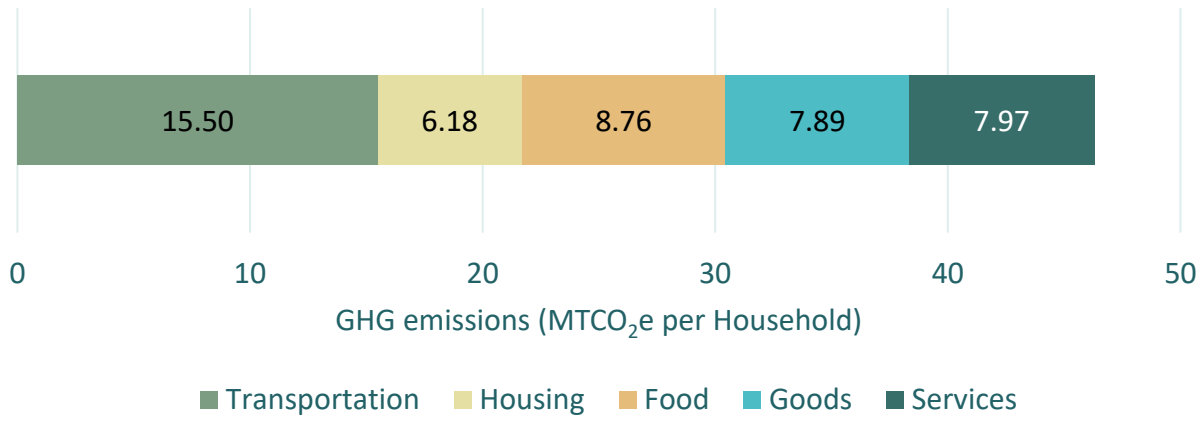
3. Climate Changes and GHGs

A consumption-based inventory is more complex to prepare than a production-based inventory. There are not established protocols and methods for consumption-based inventories, and California does not yet have a statewide consumption-based inventory or any guidance for preparing one. Due to these limitations, the project team did not prepare one as part of this [2024 CAAP](#). In 2015, BAAQMD worked with the Cool Climate Network at the University of California, Berkeley, to prepare a consumption-based inventory for all Bay Area jurisdictions. This inventory includes GHG emissions from the following sources:

- **Travel:** GHG emissions from fuel use by on-road vehicles, vehicle manufacturing and repairs, public transportation, and air travel.
- **Housing:** GHG emissions from electricity and natural gas use in homes as well as other fuels associated with home heating (such as kerosene or fuel oil), electricity emissions from water and wastewater activities, and waste emissions. This category also includes emissions from the manufacture, transportation, and construction and demolition of materials used to construct houses.
- **Food:** GHG emissions from the growth, processing/manufacturing, and transportation of food products.
- **Goods:** GHG emissions from the manufacture, transportation, and disposal of consumer products, such as home furnishings, appliances and electronics, clothing, and healthcare and personal items.
- **Services:** GHG emissions from personal and business services, including entertainment and recreation, communication, education, healthcare, and maintenance and repair activities.

Some of these GHG emission sources are also included in the production-based inventory prepared as part of the [2024 CAAP](#), and others are covered by either the production-based or consumption-based inventory but not both. According to the consumption-based inventory, transportation is responsible for [15.5 MTCO₂e per household, or](#) 34 percent of emissions produced by activities conducted and goods consumed within [unincorporated](#) Contra Costa County. Food is responsible for [8.79 MTCO₂e per household](#) (19 percent), goods and services for [7.89 MTCO₂e per household and 7.97 MTCO₂e per household, respectively](#) (17 percent each), and housing for [6.18 MTCO₂e per household, or](#) 13 percent (see **Figure 10**).

FIGURE 10. CONSUMPTION-BASED GHG EMISSIONS INVENTORY RESULTS



While the [2024 CAAP](#) does not directly speak to the goods and services used and offered by residents, business, and industry, the Contra Costa County community should recognize the role that consumption patterns play in achieving the County's sustainability and climate goals.

GHG Emissions and Food Consumption

Food production, transport, storage, cooking, and waste are substantial contributors to GHG emissions, accounting for approximately 30 percent of emissions globally. These emissions include carbon dioxide, from fossil fuels used to power farm machinery and to transport, store, and cook foods; methane, released by animals as part of their digestive process; and nitrous oxide, released from tilled and fertilized soils. The majority of the emissions associated with food consumption occur outside of Contra Costa County.

Different food groups are associated with different levels of GHG emissions. Animal-based products are generally responsible for significantly greater emissions than plant-based products per unit weight. Emissions are released during multiple stages of the meat-producing process, including the cultivation of cereal crops to use as animal feed, which may require the conversion of existing forestland; during the animal digestive process; and during the decomposition of animal wastes. Emissions are also generated during the meat storage, processing, and transportation process. Plant-based foods, such as fruits, vegetables, whole grains, beans, and lentils, typically require fewer resources to cultivate. According to the consumption-based inventory, meat is responsible for approximately 30 percent of diet-related GHG emissions within unincorporated Contra Costa County. Research has also found that healthier diets tend to be associated with lower GHG emissions. Fostering awareness of the connection between food choices and the environment can therefore be an effective way of lowering GHG emissions and promoting healthy lifestyles.

The 2024 CAAP and General Plan help reduce emissions associated with food consumption by including policies to support local food production and equitable access to healthy food.

Sources:

Clune S, Crossin E, Verghese K (2017). Systematic review of greenhouse gas emissions for different fresh food categories. *Journal of Cleaner Production* 140(2): <https://www.sciencedirect.com/science/article/abs/pii/S0959652616303584>.

Rippin HL, Cade JE, Berrang-Ford L, Benton TG, Hancock N, Greenwood DC (2021). *Variations in greenhouse gas emissions of individual diets: Associations between the greenhouse gas emissions and nutrient intake in the United Kingdom*. PLoS ONE 16(11): e0259418. <https://doi.org/10.1371/journal.pone.0259418>.

Scarborough P, Appleby PN, Mizdrak A, Briggs ADM, Travis RC, Bradbury KE, Key TJ (2014). Dietary greenhouse gas emissions of meat-eaters, fish-eaters, vegetarians, and vegans in the UK. *Climate Change* 125(2): 179-192. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4372775/>

GHG Forecast

The following sections present the results of the community-wide and County operations GHG emissions forecasts for the years 2030 and 2045. For a detailed description of GHG forecast methods and assumptions, see **Appendix B**.

ABSOLUTE BUSINESS-AS-USUAL GHG EMISSIONS FORECAST

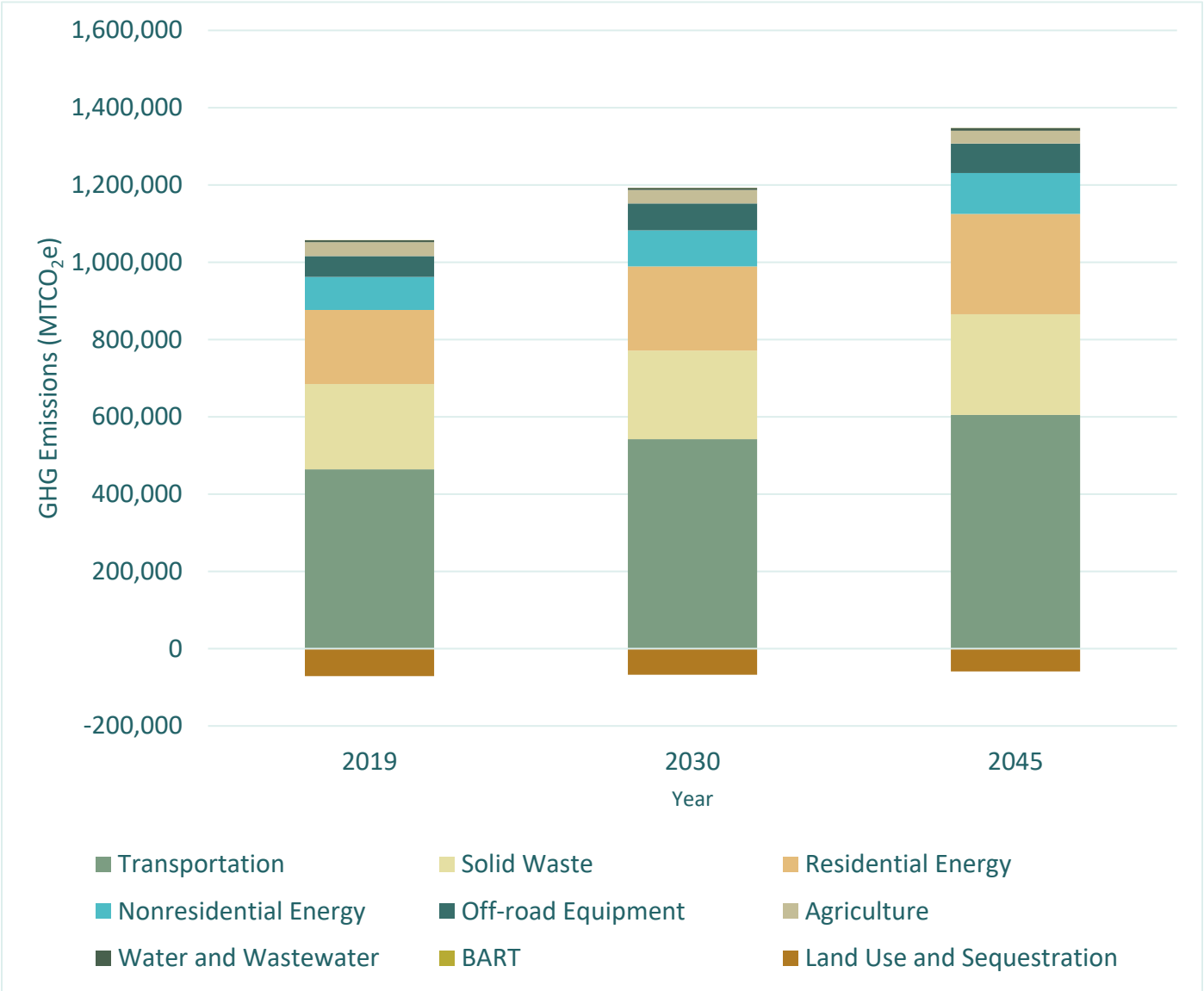
Table 7 and **Figure 11** show an estimate of unincorporated Contra Costa County's projected future GHG emissions if no further action is taken at the state, regional, or local level to reduce emissions, relative to the 2019 inventory. These projections are obtained by applying projected changes in community population to resource use and transportation behavior recorded in 2019. As such, these projections do not account for any potential changes in transportation or resource use directly resulting from the COVID-19 pandemic, the long-term effects of which are not currently known.

Most sectors show an increase in GHG emissions due to the growing population. Agricultural emissions decrease because the amount of land used for agricultural purposes is projected to decline. Although the land use and sequestration sector is expected to remain a net carbon sink (negative emissions), the amount of emissions sequestered (removed from the atmosphere) by the activities in this sector are projected to decline. This is due to anticipated development of currently undeveloped land, removing the potential for this land to sequester, or store, carbon. Sequestration in forested and urbanized areas is projected to increase slightly.

TABLE 7. ABSOLUTE BUSINESS-AS-USUAL GHG EMISSIONS FORECAST, 2019 TO 2045

| SECTOR | 2019 | 2030 | 2045 | PERCENTAGE CHANGE, 2019–2045 |
|---------------------------------------|-----------------------|-------------------------|-------------------------|------------------------------|
| Transportation | 464,040 | 542,020 | 605,080 | 30% |
| Energy - Residential | 191,780 | 217,710 | 259,380 | 35% |
| Energy - Nonresidential | <u>85,590</u> | <u>93,590</u> | <u>106,070</u> | <u>24%</u> |
| Solid waste | 220,760 | 229,450 | 260,490 | 18% |
| Agriculture | 36,130 | 34,770 | 33,410 | -8% |
| Off-road equipment | 54,010 | 69,520 | 76,100 | 41% |
| Water and wastewater | 4,870 | 5,530 | 6,590 | 35% |
| BART | 190 | 220 | 260 | 37% |
| Land use and sequestration | -70,860 | -67,580 | -58,890 | -17% |
| Total Annual MTCO_{2e} | <u>986,310</u> | <u>1,125,230</u> | <u>1,288,490</u> | <u>31%</u> |

FIGURE 11. ABSOLUTE BUSINESS-AS-USUAL GHG EMISSIONS FORECAST, 2019 TO 2045





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4. GREENHOUSE GAS EMISSION REDUCTION STRATEGY



Briones Valley. Photo credit: Stephen Joseph.

GHG Emissions Reduction Goals

A key part of any CAAP is one or more goals for future GHG emissions levels. These goals may be “firm” levels of GHG emission reductions supported by State regulations and local commitments (also called regulatory goals) or aspirations that go beyond adopted minimums and represent a higher level of GHG emission reductions that communities can strive toward. The [2024 CAAP](#) includes GHG emission reduction goals for 2030 and 2045.

As discussed in [Chapter 2](#), California has two statewide regulatory goals for reduction of GHGs:

- Reduce GHG emissions to 40 percent below 1990 levels by 2030. This goal was codified into law by SB 32.
- Reduce emissions to 85 percent below 1990 levels and achieve net carbon neutrality by 2045. This is the goal codified by AB 1279.

The 2022 Scoping Plan recommends that local governments support statewide efforts to achieve net carbon neutrality by achieving an 85 percent reduction in GHG emissions compared to 1990 by 2045. The 2022 Scoping Plan also removes specific goals for per-person emissions reductions that appeared in previous versions. The BAAQMD 2020 CEQA Guidelines,¹³ *CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans*, require that local climate action plans such as the [2024 CAAP](#) be consistent with these State-level goals.

CONTRA COSTA COUNTY'S GHG EMISSION REDUCTION GOALS

Local GHG emissions reduction efforts, such as this [2024 CAAP](#), may select any GHG emissions reduction goals that are appropriate for unincorporated Contra Costa County. However, to comply with State and regional guidelines for CEQA, the GHG emission reduction goals in the [2024 CAAP](#) should be broadly consistent with the State-level goals. Additionally, the 2045 General Plan informs the County's land use decisions and related policies out to 2045; therefore, consistency with the State's 2045 goal also aligns with the General Plan's horizon year. Given these considerations, the GHG emissions reduction goals for Contra Costa County are:

- Reduce GHG emissions to 658,700 MTCO_{2e} by 2030.
- Reduce GHG emissions to 164,680 MTCO_{2e} by 2045.

Table 8 and **Figure 12** show these emission goals and how they compare to the County's projected [business-as-usual](#) GHG emissions in [Chapter 3](#).

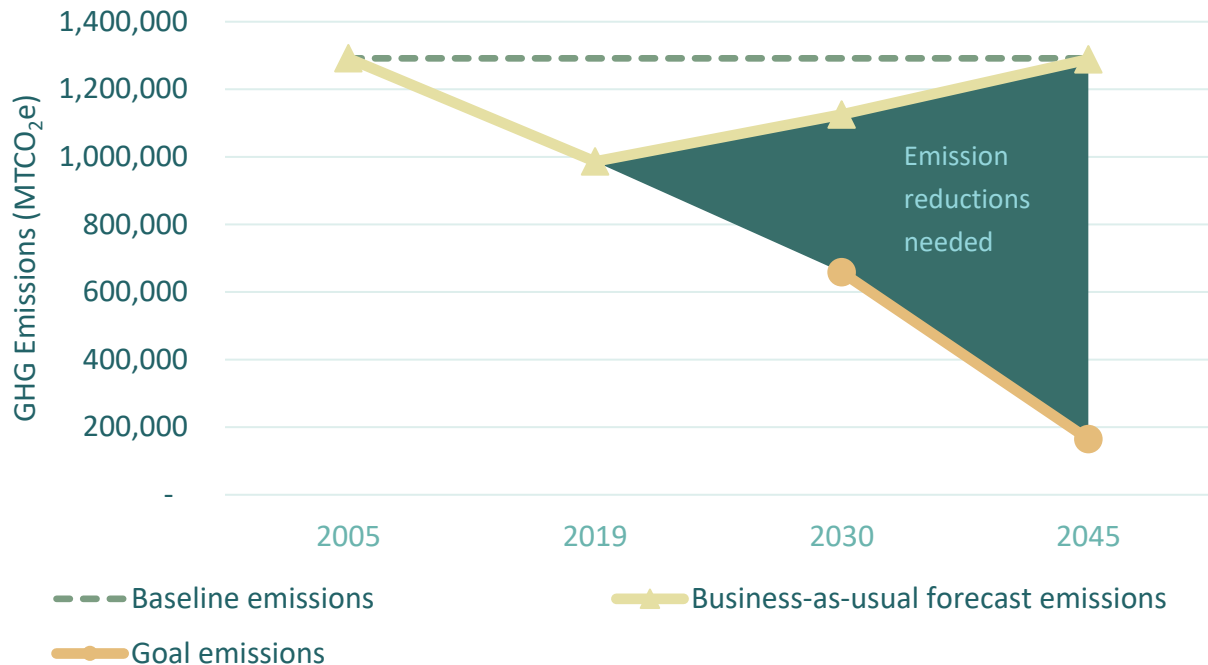
TABLE 8. CONTRA COSTA COUNTY [BUSINESS-AS-USUAL](#) GHG EMISSIONS [FORECAST](#) AND EMISSION GOALS, 2019 TO 2045

| | 2019 | 2030 | 2045 |
|--|--|---|---|
| Business-as-usual forecast GHG emissions | 986,310 MTCO _{2e} | 1,1 25,230 MTCO _{2e} | 1, 288,490 MTCO _{2e} |
| Goal | N/A | 658,700 MTCO _{2e} | 164,680 MTCO _{2e} |
| GHG emissions to be reduced | N/A | 466,530 MTCO _{2e} | 1,1 23,810 MTCO _{2e} |



4. Greenhouse Gas Emission Reduction Strategy

FIGURE 12. BUSINESS-AS-USUAL FORECAST GHG EMISSIONS AND REDUCTION GOALS



Existing and Planned GHG Emissions Reduction Efforts

The County must substantially reduce its GHG emissions to achieve its goals. Fortunately, the State of California and regional and local agencies there are already have several efforts in place or planned at the State and regional level that are expected to reduce GHG emissions in the unincorporated areas of Contra Costa County without the County taking additional action. The County can receive “credit” for the level of GHG emissions reduced locally by these existing and planned efforts.

STATE REDUCTION EFFORTS

California has adopted and committed to implementing policies to decrease GHG emission levels statewide, including from several of the major GHG emission sources in the unincorporated areas of Contra Costa County. Many of these policies are identified in the 2008 Scoping Plan and have been revised and expanded by successive updates.

The [CARB](#) Scoping Plan and related documents lay out several State-led policies to reduce GHG emissions, but six policies have a direct and apparent GHG emission reduction benefit to unincorporated Contra Costa County: [The Renewables Portfolio Standard \(RPS\)](#), [Clean Car Standards](#), [Title 24 building energy efficiency standards](#), [the Low Carbon Fuel Standard \(LCFS\)](#), [the Short-Lived Climate Pollutant Reduction Strategy](#), and [Renewable Natural Gas](#). An in-depth description of these initiatives and their projected GHG emission savings are provided in **Appendix B**. [Because these are State-led programs, Contra Costa County will not be involved in their implementation or regulation.](#)

1. **The Renewables Portfolio Standard** requires increases in renewable and carbon-free electricity supplies.
2. **The Clean Car Standards** require increased fuel efficiency of on-road vehicles and decreased carbon intensity of vehicle fuels.
3. The updated **Title 24 building energy efficiency standards** require new buildings to achieve increased energy-efficiency goals, and in some cases to install rooftop solar panels. The latest version of these standards went into effect January 1, 2023.
4. **The Low Carbon Fuel Standard** mandates reduced carbon intensity of fuels used in off-road equipment.
5. **The Short-Lived Climate Pollutant Reduction Strategy**, also known as SB 1383, requires that jurisdictions provide organic waste collection services, recover edible food, and keep most organic waste out of landfills.
6. **Renewable Natural Gas** assumes that biomethane and renewable hydrogen fuels will be blended into the fossil gas pipeline and that, in the 2030s, dedicated hydrogen pipelines will be constructed to serve certain industrial clusters.

The project team estimated GHG savings from the Clean Car Standards using State modeling tools released in 2021. These models do not consider newer State regulations to accelerate the transition to zero-emission vehicles, and so they do not reflect all the expected GHG reductions from zero-emission vehicles in Contra Costa County. The remaining savings are covered in Strategy TR-2, which is discussed later in this chapter.



4. Greenhouse Gas Emission Reduction Strategy

REGIONAL AND LOCAL REDUCTION EFFORTS

In addition to State actions, the County's default electricity provider, MCE, has also taken action to reduce the GHG emissions from the electricity it supplies to unincorporated Contra Costa County community members, beyond the minimum required by the RPS. In 2019, MCE electricity was approximately 60 percent renewable and 90 percent carbon-free. In future years, MCE will work to source 95 percent of its electricity from carbon-free sources. When quantifying the emissions impacts from electricity procurement policies, GHG emissions reductions from RPS are considered first. The County also enacted an all-electric reach code (suspended in February 2024, as discussed in Chapter 1), which required many types of new buildings to not use natural gas. The reductions from MCE clean energy procurement and the all-electric reach code shown in **Table 9** represent savings obtained after the effects of the RPS have been considered. **Table 9** shows the GHG emissions reduction potential from the State-level efforts, and MCE's energy procurement plans and projected levels of adoption of MCE Deep Green, and the all-electric reach code. as well as This table also shows how unincorporated Contra Costa County's GHG emission levels with these reductions compares to the goals discussed previously.

TABLE 9. GHG EMISSION REDUCTIONS FROM EXISTING AND PLANNED STATE, REGIONAL, AND LOCAL ACTIONS, 2019 TO 2045

| | 2019 MTCO ₂ E | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|---|-----------------------------|-----------------------------|-----------------------------|
| Forecast emissions without existing and planned actions | <u>986,310</u> | <u>1,125,230</u> | <u>1,288,490</u> |
| Reductions from RPS | - | <u>-3,640</u> | <u>-41,270</u> |
| Reductions from Clean Car standards | - | -110,250 | -214,120 |
| Reductions from Title 24 | - | <u>-9,880</u> | <u>-31,600</u> |
| Reductions from LCFS (off-road only) * | - | 740 | 7,430 |
| Reductions from SB 1383 | | -21,880 | -53,870 |
| Reductions from renewable natural gas | - | <u>-18,460</u> | <u>-78,050</u> |
| Reductions from MCE clean energy procurement | - | -1,240 | - |
| <u>Reductions from all-electric reach code (suspended February 2024)</u> | <u>-</u> | <u>-3,150</u> | <u>-2,590</u> |
| Reductions from all <u>existing and planned state, regional, and local</u> actions | | <u>-188,740</u> | <u>-488,200</u> |
| Remaining emissions with existing and planned <u>state, regional, and local</u> actions | <u>986,310</u> | <u>957,470</u> | <u>874,420</u> |
| *Due to how the off-road equipment emissions from LCFS are calculated, the results show a minor increase in emissions from this sector. | | | |

New Reduction Strategies To Achieve Our Goals

The [2024 CAAP](#) uses a process called quantification to determine the amount of GHG emissions reduced by each strategy. The foundation for the quantification calculations is the baseline GHG inventory and forecast. Activity data from the inventory, such as VMT or kilowatt-hours, are combined with participation rates and data about the reduction in activity data from each action to calculate the GHG emissions reduction benefit of each strategy. This approach ensures that the GHG emissions reductions from the [2024 CAAP](#) strategies are tied to current and future community activities. [See Appendix B for additional quantification details for each strategy, including key assumptions and performance targets.](#)

With the 2024 CAAP in place, the following are projected to occur before 2045:

- Average natural gas use per household will decline by 92 percent.
- The average resident will drive 15 percent fewer miles per year.
- The average resident will generate 18 percent less solid waste.

Calculations for reduction in activity data come from tools and reports provided by government agencies; these agencies include the [US Environmental Protection Agency \(USEPA\)](#), [California Energy Commission \(CEC\)](#), [California Air Resources Board \(CARB\)](#), California Air Pollution Control Officers Association, US Department of Energy, and local air districts. If accurate data are not available through these sources, quantification uses case studies from comparable communities and applicable scholarly research.

This [2024 CAAP](#) identifies GHG emissions reductions for most of the strategies. However, there are a few that do not have a specific reduction level due to missing data or the lack of reliable methodology. These efforts are still expected to reduce GHG emissions, but by how much cannot be accurately determined. These strategies are labeled “supportive”.

Strategies that only reduce electricity use or increase renewable electricity supplies will show zero GHG emissions reductions in 2045. This is because the State’s RPS requires all electricity sold in California to be carbon-free by 2045. Because there will already be no emissions from electricity use in 2045, Contra Costa County cannot count additional reductions associated with electricity in this year. This [2024 CAAP](#) already credits reductions from the RPS as an existing State program. [Strategy BE-3 is not expected to result in any GHG savings in 2045 due to the State’s RPS requirements.](#)



4. Greenhouse Gas Emission Reduction Strategy

Local renewable energy systems and energy efficiency strategies will continue to provide several co-benefits to communities, including lower electricity bills and increased resiliency against power disruptions, even if there are no measurable additional GHG emissions reductions. The County recognizes the opportunity for microgrids, if they are found to be technically and economically feasible, both by the private sector and for County facilities.

GHG EMISSIONS REDUCTION STRATEGIES

This section presents the ~~presents 28 11~~ climate action strategies, ~~including 11~~ that make up the County's GHG emissions reduction approach. These strategies include a mix of education and outreach programs to encourage GHG emissions reduction activities, financial subsidies, and other enticements to incentivize GHG emissions reductions and mandates to require GHG emissions reductions. In addition to the 11 climate action strategies presented in this section, The remaining an additional 17 strategies make up the 2024 CAAP's adaptation and resilience approach (discussed in **Chapter 5**) and the implementation approach (discussed in **Chapter 6**). More information on how these strategies were developed is provided in **Appendix B**.

The 11 GHG emissions reduction strategies are organized into five categories, each with a goal:



Each strategy presented in this 2024 CAAP includes a description of the strategy, an estimate of the absolute 2030 and 2045 GHG emissions reductions anticipated from the strategy at the projected performance level, the recommended actions necessary to implement it, and community co-benefits. For additional implementation details for each strategy, see **Table 12**.

Recommended actions represent the County's current understanding of best practices in achieving GHG emissions reductions and community equity, availability of technology, and local regulations as well as the current State and federal regulatory environment. County staff will revisit these recommended actions as conditions change and new opportunities become available. **Figure 13** provides definitions of goals, strategies, and actions, as used in this CAAP.

During the time the CAAP was under development, some of the actions were completed. These actions are included below, to facilitate tracking of the ongoing progress Contra Costa County is making in achieving its climate action goals.

FIGURE 13. DEFINING A CAAP GOAL, STRATEGY, AND ACTION

CAAP Goal: An end statement describing the general result sought by the community. Each goal has associated strategies and actions. Goals are given abbreviations based on their topic (for example, TR for Transportation).

CAAP Strategy: A specific statement to guide decision making as the County works to achieve the GHG reduction targets and climate action goals. Strategies are statements of policy and intent. Each strategy is supported by a series of actions. Strategies are numbered based on the goal they fall under (for example, BE-2 is the second strategy under the Built Environment goal).

CAAP Action: A recommended measure, program, procedure, or technique to implement the associated strategy. Actions are concrete steps for the County to take, in collaboration with community members and key partners. They are not a comprehensive list of everything the County can do to implement the strategy.



4. Greenhouse Gas Emission Reduction Strategy

Community co-benefits are additional advantages of the strategy to communities beyond GHG emissions reduction. The [2024 CAAP](#) highlights 12 co-benefits that a GHG emissions reduction strategy can provide, although strategies may provide additional benefits beyond those identified here:



Cost savings



Enhanced recreation opportunities



Greater community resilience



Greater energy independence



Improved air quality



Improved community equity



Improved public health



Increased economic opportunities



Increased resilience to pests



Reduced disaster effects



Reduced landfill waste



Reduced resource use

General Plan alignment

The goals, strategies, and recommended implementation actions in this CAAP are in sync with the approach to reduce GHG emissions and address climate adaptation contained in the County's 2045 General Plan, which is discussed in greater detail in [Chapter 1](#). Where appropriate, the strategy language in the [2024 CAAP](#) is identical to policy or action language in the General Plan. In other instances, the General Plan language provides a high-level framework for the more specific strategy wording in the [2024 CAAP](#). There are also cross-references in the [2024 CAAP](#) at the end of relevant actions, indicating where the General Plan addresses the same topic.

Each cross-reference is made up of three parts: (1) a General Plan abbreviation, (2) a designation of a policy or action, and (3) the number of the referred policy or action. The cross-references use the following abbreviations for General Plan elements. Note that not all General Plan elements are cross-referenced in the [2024 CAAP](#), and so are not listed here:

- COS: Conservation, Open Space, and Working Lands
- HS: Health and Safety
- SC: Stronger Communities
- PFS: Public Facilities and Services
- GM: Growth Management

A cross-reference containing an element abbreviation followed by "P" refers to a policy, while a cross-reference containing an element abbreviation "A" refers to an action. This designation is then followed by two numbers. The first number is the goal under which the policy or action may be found. The second number is the number of the policy or action under that goal.

For example, a cross-reference to HS-P8.3 refers to the Health and Safety Element, Goal 8, and the third policy under that goal. Similarly, COS-A14.4 refers to the Conservation, Open Space, and Working Lands Element, Goal 14, and the fourth action under that goal.

This approach is intended to help ensure consistency between the General Plan and the [2024 CAAP](#), making it clear that both documents work together to address GHG reductions and improve resilience to climate change.

In addition to policies in the General Plan that provide direction on specific topics that are relevant to the [2024 CAAP](#), there are three policies that address overarching issues in the [2024 CAAP](#). These three policies are contained in the Health and Safety Element of the General Plan. All three fall under Goal HS-3.



4. Greenhouse Gas Emission Reduction Strategy

General Plan Goal HS-3

Communities that reduce existing and anticipated greenhouse gas (GHG) emissions in support of statewide carbon neutrality goals and other GHG reduction targets.

General Plan Policy HS-P3.1

Prioritize implementation of the Contra Costa County Climate Action [and Adaptation](#) Plan to reduce GHG emissions from community-wide sources and adapt to changing climate conditions.

General Plan Policy HS-P3.2

Facilitate carbon-neutral development projects and communities that support a circular economy, ~~net~~-zero-emission modes of transportation, reliable and renewable energy resources, energy-efficient buildings, zero waste, water efficiency and conservation, green infrastructure, soil conservation, and a system of natural and working lands that support [natural](#) carbon sequestration and climate resilience.

General Plan Policy HS-P3.3

Require new development projects using the Contra Costa County Climate Action [and Adaptation](#) Plan to streamline their environmental review of GHG emissions, as permitted by CEQA Guidelines Section 15183.5, to demonstrate consistency with the Climate Action [and Adaptation](#) Plan and incorporate applicable GHG reduction and climate change adaptation measures.

These three policies, along with the more specific General Plan policies cross-referenced in the following sections, support the development and implementation of the [2024 CAAP](#).

CLEAN AND EFFICIENT BUILT ENVIRONMENT (BE)

HOMES, WORKPLACES, AND BUSINESSES IN UNINCORPORATED CONTRA COSTA COUNTY RUN EFFICIENTLY ON CLEAN ENERGY.



Homes and commercial buildings in Contra Costa County.



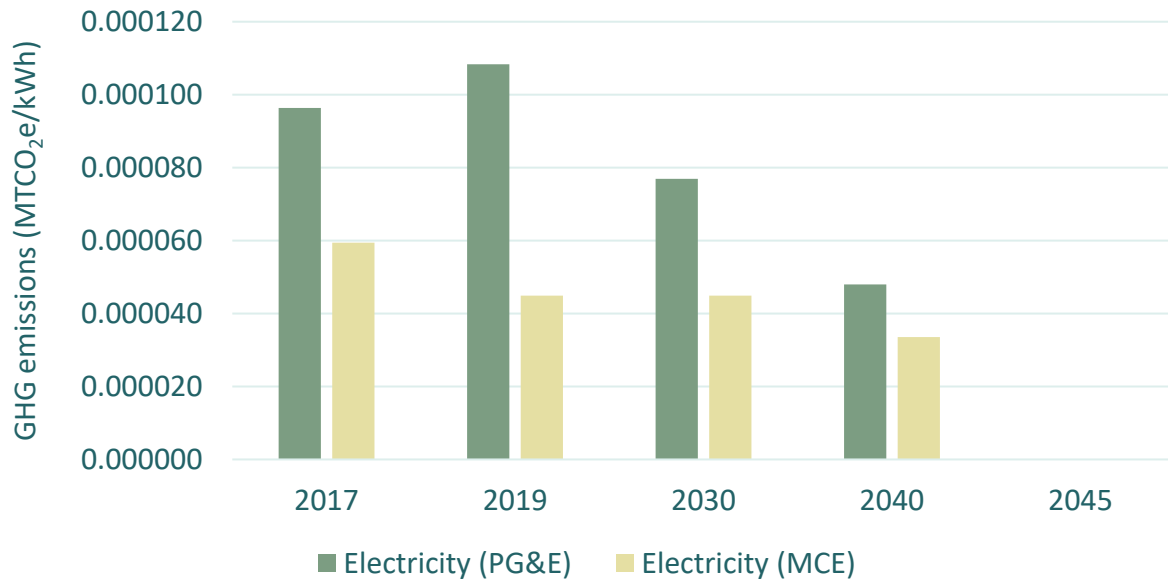
The structure of the built environment plays a significant role in how members of the Contra Costa County community work, play, live, and allocate personal resources. Community decisions about the structure, form, and function of homes, businesses, and other vital community structures represent a significant, long-term investment in a particular way of living life and conducting business.

The built environment uses a significant amount of energy and is responsible for a large share of Contra Costa County's GHG emissions. However, as shown in **Figure 14**, increasing the proportion of communities' energy mix that comes from carbon-free and renewable sources can dramatically reduce emissions resulting from electricity use within buildings. These strategies, combined with investing in energy-efficient buildings and retrofits, and reducing the resource intensity of building materials will reduce GHG emissions and energy use. These efforts can also reduce utility costs, improve local air quality, and make the neighborhoods of Contra Costa County more resilient, comfortable, and habitable in the face of the effects of climate change.



4. Greenhouse Gas Emission Reduction Strategy

FIGURE 14. EMISSIONS PRODUCED PER KWH OF ELECTRICITY, MCE AND PG&E



BE-1: Require and incentivize new buildings and additions built in unincorporated Contra Costa County to be low-carbon or carbon neutral.

Under this strategy, there will be more new carbon-neutral and low-carbon buildings in unincorporated Contra Costa County through efforts to build all-electric new construction and use carbon-neutral/low-carbon building materials. This strategy builds on the County's existing previously adopted All-Electric Building Ordinance, which was suspended in February 2024 because of a federal court ruling in January 2024 that precludes cities and counties from adopting ordinances that prohibit the installation of gas plumbing in buildings. This ordinance which requires required that all new residential (including single-family homes, multifamily buildings, and accessory dwelling units), hotels, office buildings, and retail buildings to be all-electric. These buildings may not were not permitted to have natural gas plumbing, and they must had to use electricity as the sole source of energy for space heating (including indoor and outdoor spaces), water heating (including

Contra Costa County's Administration Building and Jail Demolition and Redevelopment Project is the County's first True Resource Use and Efficiency (TRUE) pre-certified project. The project incorporated used furniture and office supplies and other salvaged materials; over 90 percent of building materials were diverted materials. The project is the first government construction project in the world to achieve TRUE precertification.

heating of indoor or outdoor pools and spas), cooking appliances, and clothes drying appliances. Such buildings may were allowed to use emergency backup power sources that are fossil-fuel operated. This ordinance must needed be updated when the County adopts a new version of the California Energy Code every three years. The County is preparing a new ordinance to replace its suspended all-electric ordinance committed to renewing finding an alternative to this ordinance in future yearsthat will support high levels of energy efficiency and low levels of GHG emissions for new construction. This ordinance is expected to take effect on January 1, 2025, and will be considered for updates during future revisions to the Building Standards Code.

| | 2030 | 2045 |
|--|-------------------------|-----------|
| GHG emissions reduction (Absolute MTCO ₂ e) | 4,340 13,620 | 10,970710 |

Strategy BE-1 Co-benefits:



Strategy BE-1 Actions:

- ~~Continue Consider a~~Adopting new or modified reach codes ~~and consider future updates~~ that exceed the California Building Standards Code ~~as the State updates the Building Code every three years~~, to require the use of lower-carbon intensive energy sources, to achieve higher ~~feasible~~ levels of energy ~~conservation and efficiency~~performance, and to achieve lower ~~feasible~~ levels of GHG emissions. (COS-A14.4)
- ~~Maintain, update, and~~Publicize ~~and enforce the~~ County Ordinances and programs ~~Code Title 7 – Building Regulations amendment~~ requiring new residential buildings, hotels, offices, and retail to be ~~all-electric~~more energy efficient, with low levels of GHG ~~emissions~~. Evaluate the feasibility of including other building types as appropriate. (COS-A14.5)

4. Greenhouse Gas Emission Reduction Strategy

- ~~Partner with community groups and MCE to establish an induction cooktop loaner program for county residents.~~
- ~~Require new water heaters and space heating and cooling systems to be electric or have no nitrogen oxide emissions in accordance with Bay Area Air Quality Management District Regulation 9, Rule 4, and Regulation 9, Rule 6. (COS-P14.10)~~
- Design and construct new County facilities to be zero-net energy to the extent feasible. (COS-P14.8)
- Study the feasibility of establishing a low-carbon concrete requirement for all new construction and retrofit activities and consider additional strategies to reduce embedded carbon in construction materials. The intent is to determine what the County can and should do to support or exceed State requirements for net-zero emissions for cement use by 2045. (HS-A3.2)
- Provide educational materials to encourage project applicants to incorporate passive solar design features into new developments and significant ~~reconstructions~~alterations and additions.
- Promote ~~additional~~ sustainable building strategies and designs, including small and “tiny” homes, to project applicants as site appropriate.
- Consider requiring ~~additional~~ sustainable features as a condition of approval, including reuse of materials to minimize embedded carbon.
- Provide educational and technical resources to advance the adoption of heat pump water heater and heat pump space heating in buildings in support of BAAQMD Regulation 9, Rule 4, and Regulation 9, Rule 6, which will mandate that replacement and new water heaters (2027 and 2031) and space heaters (2029) are zero NOx. (COS-P14.10)



The new Contra Costa County Administration Building, part of the first government project in the world to receive TRUE pre-certification. Photo credit: Contra Costa County staff.

BE-2: Retrofit existing buildings and facilities in the unincorporated county, and County infrastructure, to reduce energy use and convert to low-carbon or carbon-~~neutral~~free fuels.

With implementation of this strategy, the existing built environment in unincorporated Contra Costa County will include more carbon-neutral and low-carbon buildings through all-electric upgrades, energy efficiency, and weatherization retrofits, and upgrades to existing buildings, including County-owned and operated buildings and facilities.

Approximately 56 percent of the county's housing stock was constructed prior to 1980, around the time when modern building codes were first adopted (this includes the 19 cities). Within the unincorporated county, approximately 74 percent of housing stock was constructed prior to 1980.

In March 2023, BAAQMD adopted a regulation to require existing natural-gas-powered space heaters and water heaters be replaced with electrical models when the natural-gas-powered units reach the end of their operational life. This regulation will take effect in 2027 to 2031 for water heaters (depending on the capacity of the unit) and in 2029 for space heaters. This regulation accelerates the transition of natural gas appliances to electric appliances in existing homes and non-residential buildings, resulting in a higher adoption rate of these technologies. Depending on the specific type of equipment, 70 to 90 percent of space heaters and water heaters should be electric by 2045 due to the BAAQMD regulations and local efforts.

| | 2030 | 2045 |
|--|-----------------------------|-------------------------------|
| GHG emissions reduction (Absolute MTCO ₂ e) | <u>55,990</u> <u>81,140</u> | <u>177,830</u> <u>156,150</u> |

Strategy BE-2 Co-benefits:



Cost savings



Improved air quality



Improved community equity



Improved public health



Increased economic opportunities



Reduced resource use



4. Greenhouse Gas Emission Reduction Strategy

Strategy BE-2 Actions:

- Create a County policy or program to facilitate making existing residential and nonresidential buildings more energy-efficient and powered by carbon-free energy. (COS-A14.6)
- Create a detailed County roadmap to convert existing homes and businesses to use low-carbon or carbon-free appliances. The roadmap should include steps to support converting buildings to rely on low-carbon or carbon-free energy using an equitable framework that minimizes the risk of displacement or significant disruptions to existing tenants. (COS-A14.7)
- ~~Require replacement and new water heaters and space heating and cooling systems to be electric or have no nitrogen oxide emissions electric if the building electric panel has sufficient capacity in accordance with BAAQMD Regulation 9, Rule 4, and Regulation 9, Rule 6. (COS-P14.10)~~
- Provide educational and technical resources to advance the adoption of heat pump water heater and heat pump space heating in new buildings.
- Evaluate options for incentivizing and requiring additions and alterations to be energy efficient and to achieve the lowest feasible levels of GHG emissions, including upgrades to the building electric panel as needed. (COS-A14.8)
- Ensure County-led and supported retrofit programs incentivize and prioritize conversion of buildings built before 1980 and emphasize assistance to owners of properties that are home to very low-, low-, and moderate- income residents or located in Impacted Communities, as permitted by available funding. (COS-A14.9)
- Explore opportunities, in collaboration with partner agencies, to create new incentives or publicize existing ones to support updating existing buildings to achieve the lowest feasible levels of GHG emissions.
- Partner with community groups and MCE to establish an induction cooktop education ~~loaner~~ program for county residents. (Initiated in 2024.)

CookSmart

In 2024, the County implemented the BayREN CookSmart pilot program, in partnership with Sustainable Contra Costa. This program provides electric induction cooktops and up to three pieces of induction-compatible cookware to up to 100 County residents, with an emphasis on residents living in Impacted Communities.

- Work to continue to obtain funding with partners such as BayREN and MCE to implement a program or programs to provide reduced-cost or free energy-efficiency and zero-carbon retrofits to local small businesses and households earning less than the area median income, in support of the Contra Costa County Asthma Initiative, Contra Costa County Weatherization Program, similar County programs, other nonprofit partners, and other health equity efforts for Impacted Communities. Support the use of low-emitting materials, including paints and carpeting, in retrofits to improve indoor air quality.
- In partnership with MCE and BayREN, continue to support voluntary home and business energy efficiency retrofits, including all-electric measures.
- Facilitate participation by homes and businesses in demand response programs.
- Continue to conduct energy and water tracking activities, audits, and upgrades of County facilities, including conversion of feasible County facilities to all-electric space and water heating.
- Advocate for modifications to the federal Weatherization Assistance Program that expand eligible measures to include whole building clean energy improvements, such as wall insulation, duct sealing, electric panel upgrades, electric heat pumps, and related measures. Advocate for an increase in the income eligibility limits for the Weatherization Assistance Program.

BayREN

The Bay Area Regional Energy Network (BayREN) is a partnership between communities in the nine-county Bay Area region, including Contra Costa County, which supports energy efficiency, water efficiency, and GHG emissions reduction. BayREN provides financial and technical assistance to property owners, businesses, and local governments to reduce their resource use and GHG emissions. This work includes providing rebates and other incentives for energy efficiency retrofits and the installation of energy-efficient appliances.

Cool roofs and pavement

Cool roofs and pavements help to reduce the amount of sunlight absorbed by these materials, helping to bring down the temperature in buildings and developed areas. Both cool roofs and pavements reflect most sunlight, rather than absorbing it, and efficiently emit the solar energy that they do absorb. In the California Building Standards Code, these materials are formally defined by their level of thermal emittance and solar reflectance.

4. Greenhouse Gas Emission Reduction Strategy

- Implement requirements for cool roofs and light-colored, non-reflective, permeable paving materials as part of retrofit, repair, and replacement activities, using recycled materials or other materials with low embedded carbon as feasible and as established by the Building Standards Code.

BE-3: Increase the amount of electricity used and generated from renewable sources in the county.

This strategy seeks to accelerate the replacement of electricity from fossil fuels with electricity from renewable and other carbon-free sources. Actions include increased local renewable energy generation, support for MCE clean energy programs, including Deep Green and Local Sol tiers, and improved energy independence and resilience through battery storage systems⁹ for renewable electricity. This builds on the 2018 Renewable Resource Potential Study, which describes the opportunities to generate renewable energy in Contra Costa County, on rooftops, parking lots, and other spaces within the urban limit line, and in certain areas outside the urban limit line.



Examples of ground-mounted and rooftop solar arrays. Multifamily buildings can be constructed with solar energy and battery storage systems. This reduces the amount of GHGs from the electricity needed to power the building and increases resilience to power outages. Photo credit: Contra Costa County staff

⁹ The County recommends the installation of small battery energy storage systems because of their energy resilience benefits. Although these systems can help to increase use of carbon-free energy, reputable methods for quantifying energy use and GHG reduction benefits at the building level from use of battery storage are not available at this time.

As all electricity sources in California are expected to be carbon-free by 2045, reducing electricity use or increasing renewable energy supplies in 2045 do not result in GHG reductions beyond those quantified under the State’s RPS program (discussed earlier in this chapter), although they continue to provide cost-saving and resilience benefits.

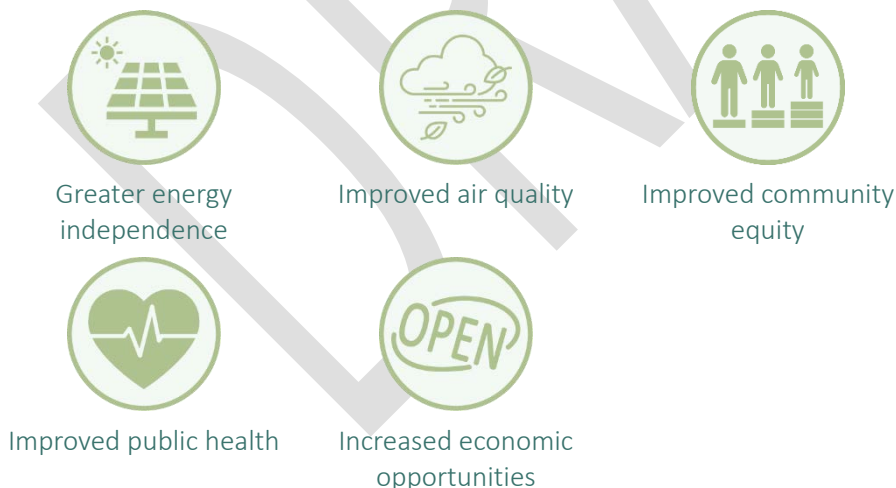
MCE Levels of Service

MCE provides three tiers of electricity service: Light Green 60% Renewable Energy, Deep Green 100% Renewable Energy, and 100% Locally Produced Solar Energy.

Approximately ~~98~~93 percent of MCE accounts participate in the Light Green tier, ~~27~~ percent participate in Deep Green, and less than 1 percent participate in Local Solar. On March 24, 2020, the County Board of Supervisors voted to go Deep Green 100% renewable with MCE for most the County’s accounts.

| | 2030 | 2045 |
|--|---------------------|------|
| GHG emissions reduction (Absolute MTCO ₂ e) | 10,8 320 | 0 |

Strategy BE-3 Co-benefits:





4. Greenhouse Gas Emission Reduction Strategy

Strategy BE-3 Actions:

- Require new commercial parking lots with 50 or more spaces to mitigate heat gain through installation of shade trees, solar arrays, or other emerging cooling technologies. Prioritize the use of solar arrays where feasible and appropriate. (HS-P8.3)
- Encourage property owners to pursue financial incentives for solar energy installations and energy storage technologies, such as battery storage systems, on new and existing buildings.
- Work with MCE to increase enrollment, especially in the Deep Green tier.
- Continue to enroll all eligible, non-solar-equipped County facility electricity accounts in MCE territory in the Deep Green tier.
- Work with the Contra Costa County Fire Protection District and other organizations that provide fire protection services to provide education and promote incentives for battery storage systems that can increase the resilience of homes and businesses to power outages.
- Encourage installation of battery storage systems in new and existing buildings, especially buildings with solar energy systems and buildings that provide essential community services. (COS-P14.7)
- Provide information about battery storage systems with all applications for new home construction and solar panel installations.
- Pursue implementation of recommendations of the 2018 Renewable Resource Potential Study.
- Evaluate the least-conflict feasible locations for stand-alone battery storage systems and modify land use regulations to enable such use in these locations.
- Explore the technical and economic feasibility of developing and operating microgrids in Contra Costa County and for County facilities.
- Explore opportunities to install community solar projects with battery backup to provide clean energy to Impacted Communities.

Renewable energy in Contra Costa County

In 2023, the County issued 1,700 permits for residential and commercial solar projects, totaling approximately 68,500 kilowatts (kW) of capacity, capable of generating enough electricity to meet the needs of over 23,000 houses. The County has installed 7,300 kW of rooftop and parking lot solar projects. The County also issued 110 permits for residential battery energy storage projects.

NO WASTE CONTRA COSTA (NW)

CONTRA COSTA COUNTY DISPOSES OF NO MORE SOLID WASTE THAN 2.2 POUNDS PER PERSON PER DAY (PPD).¹⁰



Waste reduction, reuse, recycling, and composting strategies reduce emissions by reducing the amount of material that decomposes in a landfill. These actions also encourage community-wide creativity, collaboration, and conservation as residents and business owners are inspired to share skills and develop innovative ways to reduce resource use.

Communities across California are already reducing their use of single-use plastics and expanding community compost efforts in

accordance with AB 1276 and SB 1383. Contra Costa County is poised to make further strides in waste management by increasing composting of organic waste, expanding recycling efforts, encouraging the reuse of materials, and reducing the amount of waste arising through County operations.

Efforts to divert waste away from landfills and into composting and recycling programs reduce emissions and help make valuable recycled materials available to the broader community. Expansion of the County's recycling and composting programs helps ensure that residents not only know how to properly manage their waste, but also have a convenient and affordable way to do so. The [2024 CAP/2024 CAAP](#) also looks upstream, identifying strategies for reducing emissions from waste by reducing the amount of waste that results from the purchase of goods used in County operations.

AB 1276

Assembly Bill (AB) 1276, signed into law by Governor Gavin Newsom, changes the Public Resource Code related to single-use food accessories and standard condiments. AB 1276 prohibits restaurants and other food providers from providing single-use utensils and standard condiments unless requested by the customer. Local jurisdictions are required to authorize an enforcement agency to enforce these requirements.

¹⁰ The pounds per person per day (PPD) metric refers to the average amount of solid waste that each person that lives in the unincorporated county disposes in landfills each day. This does not include material that is recycled or composted.

4. Greenhouse Gas Emission Reduction Strategy

Most of the emissions associated with the solid waste sector are not from waste that community members in the unincorporated county are throwing out annually. Instead, 80 to 90 percent of emissions from solid waste are coming from three landfills in the unincorporated county. These landfills accept waste from communities across Northern California. As the waste decomposes over decades, it releases GHG emissions. The County is responsible for permitting activities at these landfills and may affect operations at these activities through its agreements with landfill operators. These landfills are the Acme Landfill outside of Martinez, the Keller Canyon Landfill outside of Pittsburg, and the West Contra Costa Landfill outside of Richmond. Although the West Contra Costa Landfill closed in 2006, the waste that had already been deposited in the landfill continues to decompose and create GHG emissions.

The presence of three landfills within the unincorporated county means that, even if the volume of solid waste generated within the unincorporated county declines significantly, GHGs will be released for decades as waste that is already within landfills continues to decompose. The 2024 CAP 2024 CAAP addresses this source of emissions by including strategies and actions to promote landfill gas capture, expanded use of landfill gases, and decreases in flaring activity.



Three-stream waste management systems with clear instructions about what materials go in each bin, like this, ensure that people are able to properly sort items into the correct bin and divert compostable and recyclable materials from the landfill. Photo credit: Contra Costa County staff.

NW-1: Increase composting of organic waste.

With this strategy in place, organic waste will be diverted from landfills to composting or other opportunities for reuse in accordance with SB 1383 and other applicable requirements. This includes establishing organic waste collection programs for all franchise waste customers in the unincorporated areas of the county, encouraging and supporting wastewater agencies to accept food waste or other acceptable organic materials for processing in on-site anaerobic digesters, and allowing for creative opportunities to reuse or reprocess organic waste material.

| | 2030 | 2045 |
|--|-------|-------|
| GHG emissions reduction (Absolute MTCO ₂ e) | 2,240 | 4,000 |

Strategy NW-1 Co-benefits:



Increased economic opportunities



Increased resilience to pests



Reduced landfill waste



Reduced resource use

Strategy NW-1 Actions:

- Ensure, through franchise agreements and other relationships with waste haulers, a source-separated organics collection service for all residential and commercial customers in County-controlled collection franchise areas.
- Require that new and expanded landfill operations significantly reduce GHG emissions to meet or exceed State targets to the extent feasible, and work toward carbon-neutral landfills. (PFS-P7.12)
- Work with wastewater providers to explore the use of organic waste as feedstock for anaerobic digesters to produce biogas that can generate electricity or fuel.
- Require local restaurants, grocery stores, and other edible food generators that handle large quantities of food to partner with food rescue organizations to divert edible food that would be otherwise disposed in landfills for distribution to those in need, in accordance with SB 1383.
- Collaborate with edible food recovery programs and the Community Wellness & Prevention Program to decrease food waste and address hunger.



4. Greenhouse Gas Emission Reduction Strategy

- Procure compost or other products made from recovered organic waste in accordance with the County's Recovered Organic Waste Product and Recycled Paper Procurement Policy.

NW-2: Reduce waste from County operations.

This strategy reduces waste generated through County operations and the activities of outside organizations with which the County contracts for specific goods and services. Efforts to achieve waste reductions include updating and implementing the County's environmentally preferable purchasing policy, ensuring all County facilities have and use organic waste and recycling collection services, and requiring the use of low-carbon content building and paving materials for all County projects as feasible.

Environmentally Preferable Purchasing

The County's Environmentally Preferable Purchasing (EPP) Policy was updated and approved by the Board of Supervisors in September 2023. The new policy updates the County's 2008 EPP and includes purchasing requirements to minimize environmental impacts, reduce GHG emissions, and advance the goals of the CAAP.

| | 2030 | 2045 |
|--|-------|-------|
| GHG emissions reduction (Absolute MTCO ₂ e) | 1,090 | 1,620 |

Strategy NW-2 Co-Benefits:



Increased economic opportunities



Increased resilience to pests



Reduced resource use

Strategy NW-2 Actions:

- ~~Establish~~ Continue a source-separated organics collection service at all County-owned facilities that includes recovering food waste (scraps) and food-soiled paper.
- Implement three-stream recycling (trash, recycling, and organic waste) at all County-owned facilities.

- Establish requirements for source-separated organics collection and three-stream recycling as conditions in lease agreements for County offices.
- Conduct waste audits of County facilities, including assessing the volume and composition of all waste streams, to identify challenges with waste activities and develop educational or operational changes to address issues and reduce waste generation.
- Obtain material for capital projects from local and low-carbon sources to the greatest extent feasible, including allocating additional funds to allow for such materials, and integrate appropriate standards into the County's Environmentally Preferable Purchasing (EPP) policy.
- Continue to reduce paper use in County operations. Procure recycled paper and janitorial supplies in accordance with the Recovered Organic Waste Product and Recycled Paper Procurement Policy.
- Continue engagement with TRUE zero waste certification for County projects.
- Enact Bay-friendly landscaping practices at County facilities. Develop County policies and practices for Bay-friendly landscaping.
- Explore opportunities to reuse wood from County tree maintenance activities as an alternative to chipping.
- Encourage medical facilities and medical waste recycling companies to upgrade facilities to increase the amount of medical waste recycled or reprocessed.
- Explore the feasibility of transitioning to reusable products in the health sector, where appropriate, and procuring products certified as green or low carbon.

TRUE Certification

TRUE certification is a certification program for facilities and their operations that assesses how well the facility is reducing the amount of waste it produces. The certification requirements include at least a 90 percent diversion rate, compliance with applicable laws and permits, and regular reporting on waste statistics. The new County Administration Building B at 1026 Escobar Street, Martinez, was the first project in the world to receive TRUE certification.

Bay Friendly Landscaping

Bay Friendly Landscaping is a set of best practices for landscaping to minimize impacts to the San Francisco Bay and its watershed. These practices include reducing stormwater runoff, providing wildlife habitat, and reducing fertilizer use.



4. Greenhouse Gas Emission Reduction Strategy

NW-3: Increase community-wide recycling and waste minimization programs.

Under this strategy, the amount of waste sent to landfills from community members is reduced through extensive diversion and waste minimization programs. The County explores and implements all feasible opportunities to minimize landfill waste, including through recycling of additional materials, prohibitions or limitations on materials that cannot be recycled/composted, education around conscious consumption, and opportunities to divert waste materials for reuse.

| | 2030 | 2045 |
|--|------|-------|
| GHG emissions reduction (Absolute MTCO ₂ e) | 520 | 2,530 |

Strategy NW-3 Co-benefits:



Increased economic opportunities



Increased resilience to pests



Reduced resource use

Strategy NW-3 Actions:

- Create a source-reduction program in partnership with regional agencies to promote rethinking, refusing, reducing, reusing, and regenerating of materials.
- Improve educational efforts to promote better waste sorting among community members.
- Work with waste haulers to expand the types of materials accepted by recycling programs as economic conditions allow.

The Five Rs

Recycling and composting are critical steps to decreasing the amount of waste that the County sends to a landfill. However, recycling and composting still should be treated as a last resort. Prior to sending something to a recycling or composting center (or landfill if no alternative exists), community members should try to reduce the amount of waste produced in the first place, by following the five Rs:

Rethink whether it is necessary to buy something.

Refuse to buy something that produces excess waste.

Reduce the amount of waste generated.

Reuse items that would otherwise be treated as waste.

Regenerate waste products into something useful often through recycling.

- Work with waste haulers to continue availability of curbside pickup recycling services.
- Evaluate the feasibility of banning single-use plastics or establishing additional restrictions beyond those created by SB 54.
- Encourage the use of reusable items over disposable materials.
- Promote the Contra Costa County Recycling Market Development Zone low-interest loan program to create incentivizes for the development of businesses that use recycled materials.

NW-4: Reduce emissions from landfill gas.

After it is deposited in landfills, waste gradually decomposes and releases landfill gas. Landfill gas contains both carbon dioxide and methane, making this gas a potent contributor to GHG emissions and regional air pollutants. Most, but not all, of this gas is captured and used to generate energy, produce fuels, or flared. The gas that is not captured escapes into the atmosphere, adding to the county's GHG emissions. Increasing the percentage of captured landfill gas both helps the County meet its GHG emissions reduction goals and improve local air quality. Strategy NW-4 improves the landfill gas capture rate, increases opportunities to use landfill gas as an alternative energy source, and reduces the rate of flaring of landfill gas.

| | 2030 | 2045 |
|--|--------|--------|
| GHG emissions reduction (Absolute MTCO ₂ e) | 57,460 | 61,410 |

Strategy NW-4 Co-benefits:



Greater energy independence



Improved air quality

Strategy NW-4 Actions:

- Encourage efforts at Acme, Keller Canyon, and West Contra Costa landfills to install or enhance existing methane capture technology and associated monitoring systems with a goal of increasing the methane capture rate to the greatest extent feasible.
- Explore opportunities for partnering with agricultural and industrial operations to generate energy from methane gas generated by their ongoing activities.
- Support landfill operators in efforts to transition away from landfill gas flaring.

REDUCE WATER USE AND INCREASE DROUGHT RESILIENCE (DR)

CONTRA COSTA COUNTY USES LESS WATER AND COMMUNITIES ARE PREPARED FOR DROUGHT.



Communities can reduce water use and protect themselves from the effects of drought through implementation of strategies to increase indoor water use efficiency and reduce outdoor water use. Increasing water use efficiency and decreasing outdoor water use reduce GHGs by reducing the amount of energy needed to process, heat, and deliver water. In addition to saving energy, water conservation and efficiency helps protect one of California's most precious resources and helps the county become more resilient to drought and water shortage. In addition, reducing water use in individual homes and businesses can reduce utility costs.

Contra Costa County possesses both surface and groundwater resources. In California, groundwater quality and sustainability are ensured through the Sustainable Groundwater Management Act (SGMA). The SGMA establishes a local management structure for groundwater, led by Groundwater Sustainability Agencies (GSAs). GSAs are responsible for authoring and implementing the local Groundwater Sustainability Plan. GSAs active in Contra Costa County include the City of Antioch GSA, City of Brentwood GSA, Byron-Bethany Irrigation District GSA, Contra Costa County GSA, Diablo Water District GSA, Discovery Bay GSA, East Contra Costa Irrigation District GSA, East Bay Municipal Utilities District GSA, and Zone 7 GSA. [The California Department of Water Resources approved the East Contra Costa Subbasin Groundwater Sustainability Plan in July 2023. The Groundwater Sustainability Plan goals are consistent and complementary with the County's CAAP and focus on groundwater management strategies that protect and maintain safe and reliable groundwater sources in the face of climate change.](#)



Drought-tolerant landscapes and native plants have lower water demands than other plant species.
Photo credit: Envision Contra Costa picture gallery-

DR-1: Reduce indoor and outdoor water use.

This strategy reduces water use in communities and at County facilities. This includes efforts to promote water conservation; increase the acreage of native and drought-tolerant plantslandscaping; encourage graywater/rainwater catchment systems and supportive infrastructure; and provide incentives to reduce water use as appropriate.

The average Contra Costa resident uses 126 gallons of water per day.

| | 2030 | 2045 |
|--|------|-------|
| GHG emissions reduction (Absolute MTCO ₂ e) | 970 | 1,440 |

Strategy DR-1 Co-benefits:



Cost savings



Increased resilience to pests



Reduced resource use

Strategy DR-1 Actions:

- Require new development to reduce ~~potable~~ water consumption through use of water-efficient devices and technology, drought-tolerant landscaping strategies, and treated recycled water, where available. (COS-P7.46)
- Require homes and businesses to install water-efficient fixtures at time of retrofit activities, in accordance with the California Building Standards Code.



4. Greenhouse Gas Emission Reduction Strategy

- Continue to enforce the Model Water Efficient Landscaping Ordinance and encourage the use of native and drought-tolerant landscaping for exempt residential and commercial landscapes through partnership with local and regional water agencies and other organizations.
- Partner with water and wastewater service providers, Groundwater Sustainability Agencies, irrigation districts, and private well owners to increase participation in water conservation programs countywide. (COS-P7.21)
- Facilitate offering of BayREN water bill savings programs through eligible community water providers.
- Encourage the installation of graywater and rainwater catchment systems, particularly for new construction, as feasible for wastewater infrastructure. Reduce regulatory barriers for these systems and explore creating incentives for installing these systems in new and existing buildings.
- Identify Evaluate opportunities for graywater use in public spaces and implement them as feasible.
- Promote the installation of composting toilets at appropriate County facilities in locations without wastewater service.

DR-2: Ensure sustainable and diverse water supplies.

This strategy supports efforts to diversify the sources of Contra Costa County's water supplies and ensure that water supplies are viable for the long-term.

This is a supportive policy that does not create its own GHG emission reductions.

Strategy DR-2 Co-benefits:



Greater community resilience



Reduced resource use

Strategy DR-2 Actions:

- Encourage Contra Costa Health to work with Groundwater Sustainability Agencies to ensure that new well permit applications are in accordance with County ordinances and State construction standards and require a hydrogeological evaluation in areas with known water shortages to ensure that the sustainable yield goals can be met.

- Require new development to demonstrate the availability of a safe, sanitary, and environmentally sound water delivery and wastewater treatment systems with adequate capacity. (PFS-P4.5, PFS-P4.6)
- Discourage new development that may reasonably lead to groundwater overdraft, subsidence, or other negative impacts, or which may reasonably depend on the import of unsustainable quantities of water from outside the county.
- Require the use of permeable surfaces for new or reconstructed hardscaped areas where feasible.
- In coordination with Groundwater Sustainability Agencies, expand opportunities for groundwater recharge.
- Work with water suppliers to expand recycled water systems as feasible, including considering additional treatment to allow for additional recycled water uses.



4. Greenhouse Gas Emission Reduction Strategy

CLEAN TRANSPORTATION NETWORK (TR)

CONTRA COSTA COUNTY'S TRANSPORTATION NETWORK PROVIDES SAFE AND ACCESSIBLE OPTIONS FOR WALKING, BIKING, AND TRANSIT. IF RESIDENTS AND WORKERS ARE DRIVING, THEY ARE IN ZERO-EMISSION VEHICLES.



Transportation is an integral part of living life and conducting business for nearly all members of the Contra Costa County community. The range of transportation options that the County invests in and that are useful for the public has profound impacts on GHG emissions, local environmental quality, public safety, and overall quality of life.

Private vehicle travel is convenient, but releases significant volumes of GHGs, increases the maintenance demand on roads, creates toxic particulates through tire wear and brake dust, increases congestion, requires significant personal investment, hinders active modes of transportation, and is a significant source of death and injury. Increasing the safe, affordable, accessible, active, and reliable transportation options available to communities makes it easier for all residents to participate in public life and gives all community members the freedom to choose transportation modes that promote health, reduce fuel costs and time lost in traffic, and help the County meet its GHG emissions reduction goals. The [2024 CAP/2024 CAAP](#) diversifies the County's transportation landscape by recommending investments in active transportation, micromobility, public transit, complete streets, and roadway safety and ensuring that employers offer alternative commuting options for their employees.

Micromobility is a category of affordable, lightweight transportation ideal for trips of five miles or less and designed for individual use. Micromobility devices can be personally owned bicycles, e-bikes, electric scooters and electric skateboards, or shared bikes, e-bikes, and e-scooters. - [Contra Costa 511.org](#)

The County is committed to enhancing active transportation by promoting access and connectivity for all modes of travel besides automobile travel. Active transportation encompasses any self-propelled, human-powered travel, such as walking and bicycling. The County's Active Transportation Plan¹⁴ serves as a roadmap to enhance active transportation safety and mode share for unincorporated areas in Contra Costa County by providing a comprehensive look at the County's active transportation needs and

opportunities. The plan outlines investments in new bicycle facilities, upgraded crossings, enhanced trail connections, and improved walkways.

While the County works to have a wide suite of transportation options available, passenger and commercial automobile use will continue to be a large part of Contra Costa County's transportation mix. However, different fuels have different levels of carbon intensity.

Gasoline and diesel-fueled vehicles, in particular, release more carbon dioxide into the atmosphere than vehicles that use electricity or hydrogen fuels, even when accounting for how the electricity or hydrogen is generated. Increasing use of cleaner transportation fuels will be a key to help reduce the County's transportation emissions. Ensuring that cleaner fuels are affordable, accessible, and easy to use means helping communities address the up-front costs of acquiring an electric or other clean-fuel vehicle and ensuring that refueling infrastructure, such as EV charging stations, is equitably distributed throughout and across communities. Additionally, the County aims to increase the use of clean fuels in its own vehicle fleet and promote the use of clean fuels among transportation providers such as taxis and ridesharing programs.



County Employees on Bike to Work Day: Karin Deas (left), John Steere and Joe Lawlor (right).
Photo credit: Contra Costa County staff.



4. Greenhouse Gas Emission Reduction Strategy

TR-1: Improve the viability of walking, biking, zero-emission commuting, and using public transit for travel within, to, and from the county.

This strategy, in coordination with the General Plan's policies and actions, reduces vehicle miles traveled (VMT) in Contra Costa County by making it easier for people to bike, walk, roll, and take public transit. This strategy incorporates the County's commitments to implement the Contra Costa Active Transportation Plan, Complete Streets Policy, Vision Zero Action Plan, and other County policies to facilitate location of new development to minimize car dependency.

Contra Costa County's Complete Streets Policy was adopted in 2016. This policy promotes rethinking street design to ensure that streets adequately serve all users and are sensitive to local traffic conditions. All departments and agencies of Contra Costa County are required to work towards making Complete Streets practices a routine part of everyday operations and are considered for all development projects.

Adopted in March 2022, the County's Active Transportation Plan serves as a roadmap to enhance active transportation safety and mode share for unincorporated Contra Costa County by providing a comprehensive look at the county's active transportation needs and opportunities. The plan outlines investments in new bicycle facilities, upgraded crossings, enhanced trail connections, and improved walkways.

In March 2022, the County also adopted the Action Plan from the Vision Zero Final Report.¹⁵ Created by the Public Works Department, this plan commits the County to the Vision Zero goal of reducing vehicle collisions by promoting safe vehicles, safe speeds, safe roads, and post-crash care.

Active Transportation Plan

The Active Transportation Plan aims to:

- Prioritize active transportation investments based on factors such as collision history or systemic risk, location in an impacted community, location near key destinations, and funding opportunities.
- Shift trip modes by Contra Costa County residents and visitors from motor vehicles to active modes such as walking and biking.
- Provide a vision for arterials and collector streets within the unincorporated county roadway network to assist County departments in planning for private development, capital projects, and maintenance efforts.

The County also supports legislation that enhances accessibility to quality transit, protects vulnerable road users, increases transit service, ensures transit is safe and affordable, and identifies strategies and funding to implement recommendations in the 2019 Employee Commute Survey for County employees.

| | 2030 | 2045 |
|--|--------|--------|
| GHG emissions reduction (Absolute MTCO ₂ e) | 17,050 | 40,370 |

Strategy TR-1 Co-benefits:



Cost savings



Greater community resilience



Improved air quality



Improved community equity



Improved public health



Reduced resource use

Strategy TR-1 Actions:

- Prioritize expansion of bicycle, micromobility, and pedestrian infrastructure (e.g., Class IV separated bikeways) to address the significant latent demand for these active transportation modes. (TR-P1.2)
- Develop and promote mobility alternatives to single-occupancy vehicles, including but not limited to public transit, micromobility, carbon-free rideshare strategies, and nonmotorized modes. (TR-A1.1)
- Implement programs to encourage transit use, bicycling, walking, telecommuting, and use of alternative vehicle fuels by County employees. (TR-A1.4)
- Reduce single-occupant vehicle usage and VMT, by significantly enhancing the availability and safety of other travel modes through infrastructure investment, policy support (Vision Zero, and other best practices), and support for public transit. (TR-P1.4)
- Plan, design, construct, and maintain facilities for walking, bicycling, and rolling to serve people of all ages, abilities, and income levels, including children, seniors, families, and people with limited mobility. (TR-P5.1)



4. Greenhouse Gas Emission Reduction Strategy

- Partner with CCTA and neighboring jurisdictions to build out the countywide bicycle and pedestrian network, prioritizing completion of the Low-Stress Countywide Bicycle Network and pedestrian safety improvement projects in the County's Pedestrian Priority Areas, as described in the Countywide Bicycle and Pedestrian Plan. (TR-A5.1)
- Construct innovative bicycle and pedestrian facilities, including Class IV separated and protected bikeways, bicycle superhighways, and other low-stress facility types, as described in the Countywide Bicycle and Pedestrian Plan and in contemporary, best-practice transportation planning and engineering guidance. Use contextually appropriate green infrastructure and landscaping to separate vehicular lanes from bicycle and pedestrian facilities whenever feasible. (TR-A5.2)
- Require transportation infrastructure serving new development to be designed using best practices, contemplating existing and planned land uses, roadways, bicycle and pedestrian facilities, transit facilities, and connections to adjoining areas. (TR-P4.2)
- Create connections between unincorporated communities and neighborhoods in unincorporated areas and adjacent jurisdictions to improve multimodal access to local destinations, such as schools, parks, shopping, health services, and workplaces. (TR-P4.3)
- Maintain in place and enforce a Transportation Demand Management (TDM) Ordinance that reflects best practices and, at a minimum, conforms to Contra Costa Transportation Authority's adopted model TDM ordinance or resolution. (GM-P3.5)
- Track over time projects that add pedestrian and bicycle facilities to document the County's implementation of the County Road Improvement and Preservation Program (CRIPP); Complete Streets checklist; Vision Zero Report and Action Plan; Active Transportation Plan; and equity-focused plans, programs, and policies.
- Improve the safety and comfort of bicycle, pedestrian, and public transit facilities using best practices to encourage more people to use such facilities.

Healthy Building, Healthy Communities Program

In 2023, the Contra Costa Healthy Building Healthy Communities Program won two grants totaling over \$1.7 million to promote active transportation and advance equity in bicycle and pedestrian roadway safety. These grants included a four-year \$1.5 million grant to provide Safe Routes to School programming at up to 90 schools countywide; and a one-year \$200,000 grant to advance Vision Zero, build community capacity to promote bicycle and pedestrian safety, and disseminate bicycle and pedestrian safety campaigns.

- Work with CCTA to fill gaps in the countywide Low-Stress Bike Network, as outlined in the 2018 Countywide Bicycle and Pedestrian Plan. Prioritize providing access for Impacted Communities and constructing protected bicycle facilities. Coordinate with Caltrans, CCTA, the Regional Transportation Planning Committees, and neighboring jurisdictions to plan, design, and implement Complete Streets concepts on Routes of Regional Significance.
- In collaboration with key partners, support efforts to establish or join a shared mobility program that provides access to conventional bicycles, e-bikes, and other micromobility modes, prioritizing access for low-income residents who do not have bicycles. Support efforts to establish and/or maintain bike repair programs.
- Support efforts to expand the service area and frequency of regional transit agencies, and reduced fares for students, seniors, and low-income residents on systems, including AC Transit, BART, Capitol Corridor, County Connection, Tri Delta Transit, the San Francisco Bay Ferry, and WestCAT. Encourage programs that support “last mile” transportation connection and options.
- Maximize development of jobs and affordable housing near high-quality transit service to support a jobs-housing balance.
- Market the county’s Northern Waterfront to attract innovative companies with jobs for residents.
- Improve county-wide safety for cyclists by advocating for the passage of Vulnerable Road User Laws.
- Secure additional funding for the maintenance and expansion of bicycle and pedestrian infrastructure improvements. Support efforts to obtain additional funding to maintain and expand public transit operations and infrastructure improvements.
- Support CCTA to develop and implement methods for tracking EV and e-bike charging and availability across jurisdictions.
- Support CCTA and regional transit agencies in providing “last mile” transportation connections and options.
- Encourage and support increased regional integration of transit systems to promote more equitable fare structures, fare integration, easier transfers, including



*Contra Costa Centre Overcrossing.
Photo credit: Contra Costa County*



4. Greenhouse Gas Emission Reduction Strategy

coordinated transfers between different transit systems and reduced wait times, improved information sharing, and generally a more seamless and modern system.

- Ensure emerging transportation technologies and travel options, such as autonomous and ZEVs and transportation network companies, support the County's goals for reducing emissions, adapting to climate change, improving public safety, and increasing equitable mobility. (TR-P1.3)

TR-2: Increase the use of zero-emission vehicles. Transition to a zero-emission County fleet by 2035 and a community fleet that is at least 50 percent zero-emission by 2030.

Implementation of this strategy will help increase the share of zero-emission vehicles on the road. The County will encourage all residents and businesses (including heavy-duty vehicle operators) to transition to zero-emission vehicles, enforce the County vehicle purchasing policy, promote electric vehicle sharing services, and ensure adequate electric vehicle charging and other zero-emission fueling infrastructure in new and existing development. The State projects that 86 percent of light-duty vehicles and over 70 percent of heavy-duty vehicles will be zero emission by 2045, based on modeling in the State's 2022 Scoping Plan.

There are approximately 33,850 zero-emission or plug-in hybrid vehicles registered in Contra Costa County, or about 3.9 percent of all light-duty vehicles, as of the end of 2021. Statewide, about 2.9 percent of light-duty vehicles are zero-emission or plug-in hybrid. However, this number is growing rapidly. In the first half of 2022, approximately 22.7 percent of light-duty vehicle sales in Contra Costa County were zero-emission or plug-in hybrid, higher than all but five counties in California. Approximately 84 percent of vehicles in Contra Costa County are projected to be electric by 2045.

| | 2030 | 2045 |
|--|---------|---------------------------|
| GHG emissions reduction (Absolute MTCO ₂ e) | 148,000 | 343,890 32,850 |

Strategy TR-2 Co-benefits:



Cost savings



Improved air quality



Improved community equity



Improved public health



Reduced resource use

Advanced Clean Car Standards

California has a set of regulations adopted in recent years to encourage the transition to zero-emission vehicles.

The Innovative Clean Transit regulation, first adopted in 2018, requires that all new buses purchased by transit agencies in California must be zero-emission by 2029. There are earlier milestones for zero-emission bus purchases depending on the size of the agency. The regulation also requires that transit agencies plan to fully transition to zero-emission buses by 2040.

The Advanced Clean Trucks regulation, adopted in 2020, requires an increase in the number of new zero-emission medium- and heavy-duty vehicles sold in California. This regulation covers freight trucks, delivery vans, large pickup trucks, and other large vehicles. The targets vary by vehicle type, but the State expects that 63 percent of new trucks will be zero-emission by 2035.

The Advanced Clean Car II standards, adopted in 2022, requires that all new passenger cars, trucks, and SUVs sold in California be zero-emission by 2035. Beginning in 2026, 35 percent of new passenger vehicles sold in the state must be zero-emission.

The Advanced Clean Fleets regulation, adopted in 2023, applies to government and large private vehicle fleets. It requires that most vehicle types sold to fleet operators be zero-emission. For local governments such as Contra Costa County, at least 50 percent of new vehicle purchases must be zero-emission starting in 2024, increasing to 100 percent in 2027. There are exemptions for some types of vehicles, including emergency vehicles.



4. Greenhouse Gas Emission Reduction Strategy

Strategy TR-2 Actions:

- Require new County vehicles to be zero-emission to the extent a viable vehicle is available on the market, that charging or zero-emission fueling equipment is conveniently located where the vehicle will be stored, and as required by the Advanced Clean Fleet regulations, with the goal that all County vehicles will be zero-emission by 2035.
- Continue adopting new or modified reach codes and consider future updates that exceed the California Building Standards Code as the State updates the Building Code, including the Green Building Code, to require zero-emission charging infrastructure in new multifamily and nonresidential buildings. Explore expanding it to include new single-family homes. (Supported by TR-P1.12 and TR-A.12)
- Install electric vehicle charging equipment and other infrastructure needed to support the transition to a zero-emission County fleet at County facilities. Consider the appropriate locations, number, and capacity of infrastructure to facilitate the transition of the County fleet to zero-emission vehicles.
- Provide incentives for zero-emission vehicles in partnership with MCE, BAAQMD, and other agencies.
- Work with property owners and other potential partners to pursue installation of zero-emission vehicle charging stations in and near multifamily dwelling units.
- Update off-street parking ordinance to include a requirement for zero-emission vehicle charging infrastructure. Consider including incentives for developers to exceed minimum requirements (i.e., density bonus).
- Increase installation of electric vehicle charging stations for all vehicle types, including bicycles and scooters, at public facilities, emphasizing increased installation in Impacted Communities.
- In partnership with regional agencies, explore providing subsidies for households making less than the area median income to purchase or lease zero-emission vehicles and associated infrastructure.
- Pursue fees and regulatory efforts to convert transportation network company (TNC), taxi, and similar car-hire services to zero-emission vehicles.
- Explore opportunities for implementing electric vehicle sharing programs.

On June 1, 2023, the County hosted its first electric vehicle (EV) and E-bike show to educate and empower employees to use EV technology as the County fleet transitions to zero-emission vehicles. Approximately 200 staff from County departments and other public agencies attended to learn about EVs and E-bikes through a showcase that featured a wide range of EVs from public fleets and staff's personal vehicles.

- Work with BAAQMD and other regional agencies to convert off-road equipment to zero-emission clean fuels.
- Work with contractors, fleet operations, logistics companies, and other operators of heavy-duty vehicles to accelerate the transition to zero-emission heavy-duty vehicles.
- In cases where battery-electric, hybrid-electric, and sustainably sourced hydrogen fuel-cell sources are not available, wWork with Public Works to pursue the use of renewable natural gas (sourced from recovered organic waste) for transportation fuel, electricity, or heating applications. in cases where battery-electric, hybrid-electric, and sustainably sourced hydrogen fuel-cell sources are not available.
- Encourage efforts to maximize EV charging during solar peak hours.
- Continue to host events such as the Electric Vehicle and E-Bike Show to educate and empower County staff and community members about zero-emission vehicles.
- Coordinate with CCTA and other local and regional agencies to Support implementation of the Contra Costa County Electric Vehicle Readiness Blueprint and related policies and apply best practices in ZEV charging/fueling infrastructure requirements. (TR-A1.11)



Electric vehicles like this one in the County's fleet help to significantly reduce GHG emissions associated with transportation. Photo credit: Contra Costa County.



4. Greenhouse Gas Emission Reduction Strategy

RESILIENT COMMUNITIES AND NATURAL INFRASTRUCTURE (NI)

CONTRA COSTA COUNTY WILL INCREASE RESILIENCE TO CLIMATE HAZARDS AND FOSTER COMMUNITY HEALTH.



Most of the strategies for Resilient Communities and Natural Infrastructure are not associated with GHG emissions savings. NI-4 is included here because it both contributes significantly to the County's resilience efforts and results in measurable GHG emissions reductions. See Chapter 5 for a detailed description of other strategies that fall under this goal.

NI-4: Sequester carbon on natural and working lands in Contra Costa County.

This strategy increases opportunities to store carbon through natural carbon sequestration on public and private lands, increased tree planting by the County and public and private partners, and installation of green infrastructure. Additional actions pertaining to tree planting are in strategy NI-5 in **Chapter 5**.

| | 2030 | 2045 |
|--|--------|--------|
| GHG emissions reduction (Absolute MTCO ₂ e) | 22,630 | 88,910 |

Strategy NI-4 Co-benefits:



Enhanced recreation opportunities



Greater community resilience



Improved air quality



Improved public health



Increased economic opportunities



Increased resilience to pests

Strategy NI-4 Actions:

- Pursue implementation of recommendations from the carbon sequestration feasibility study, *Healthy Lands, Healthy People*.
- Continue to support and work with key partners to maintain existing and establish new pilot programs for carbon sequestration on agricultural land.
- Promote ~~restorative-regenerative~~ agricultural and landscaping techniques that incorporate cover crops, mulching, compost application, field borders, alley cropping, conservation crop rotation, prescribed grazing, and reduced tillage to promote healthy soil and soil conservation. (Supported by COS-P2.11)
- Support soil conservation and restoration programs. Encourage agricultural landowners to work with agencies such as the USDA's NRCS and Contra Costa RCD to reduce erosion and soil loss. (COS-P2.10)
- Coordinate with farming groups, ranchers, the Contra Costa Resource Conservation District, and the University of California Cooperative Extension to identify and promote varieties of feedstock, livestock, and crops that are resilient to rising temperatures and changing precipitation patterns and that increase carbon sequestration.
- Explore ways to increase carbon sequestration on County-owned ~~facilities~~properties.
- Partner with regional landowners and agencies to establish local carbon sequestration programs and incentives.
- Consider the development of carbon offset protocols and guidance ~~for future use by carbon sequestration program to provide technical support to~~ applicants and County permitting staff to promote appropriate natural sequestration on natural and developed lands.
- -Ensure that any local or regional carbon sequestration program that the County establishes, promotes, supports, or joins demonstrates benefits to unincorporated communities that face environmental justice issues.
- Explore the potential for the public to support tree planting and maintenance of existing trees. (Supported by COS-P6.2)

Healthy Lands, Healthy People

Contra Costa County completed a feasibility study in 2023 to explore how agriculture, parks, gardens, and open space in the county could be used to sequester carbon and support carbon neutrality efforts. The study is funded by a grant from the California Department of Conservation. Its findings have informed quantification assumptions for Strategy NI-4. Implementation of the recommendations in this study will inform future updates of this 2024 CAAP.



4. Greenhouse Gas Emission Reduction Strategy

- Establish a mechanism to support expanded tree planting and maintenance activities, particularly in areas with few trees.
- Support protection, restoration, and enhancement of creeks, wetlands, marshes, sloughs, and tidelands, and emphasize the role of these features in climate change resilience, air and water quality, and wildlife habitat. (COS-P5.1)
- Inventory wetlands, floodplains, marshlands, natural watercourses, riparian corridors, and adjacent lands that could potentially support climate adaptation (e.g., through flood management, filtration, or other beneficial ecosystem services) and mitigation (e.g., carbon sequestration). (COS-A5.1)
- Encourage and support conservation of natural lands outside the urban limit line in the unincorporated county.
- Explore the new funding and financing opportunities for climate adaptation and resilience projects, including the creation of a Climate Resilience District, issuance of bonds—including bonds that can be marketed as “green bonds”—as a potential financing mechanism, and similar opportunities.
- Require that any mitigation of air quality impacts occur on-site to the extent feasible to provide the greatest benefit to ~~local~~ residents in unincorporated communities. For mitigation that relies on offsets, require that the offsets be obtained from sources as near to the project site as possible or from sources that would improve air quality in an Impacted Community. If the project site is within or adjacent to an Impacted Community, require offsets or mitigation within that community unless determined infeasible by the County. (HS-P1.6)

Climate Resilience Districts

Climate resilience districts are special districts that can raise and allocate money to fund projects and operations that address climate change adaptation efforts, such as those to help protect against sea level rise, wildfire, and drought. They have the authority to establish special taxes, assessments, or other charges. Local governments may establish climate resilience districts under Assembly Bill 852, adopted in 2022.

Achieving Our Goals

With the reductions currently projected from the 2024 CAAP strategies, GHG emissions for the unincorporated areas of Contra Costa County are expected to fall to 1.47 MTCO₂e per person. This is 55 percent below GHG emissions without the 2024 CAP.

County staff developed a set of 11 GHG emission reduction strategies and assessed the GHG emission reduction potential of these strategies, given the project team's reasonable understanding of available resources and what seemed appropriate for the unincorporated area. **Appendix B** provides detailed information about the

GHG emission reduction potential of these strategies.

These GHG emission reduction potentials are intended to be a starting point. They are based on the best available information, the experience and expertise of County staff, and known resources and capabilities. It is possible to achieve greater reductions if there is more confidence in higher levels of participation or development of additional programs.

Table 10 shows the expected GHG emission levels with these strategies enacted,

TABLE 10. GHG EMISSIONS WITH 2024 CAAP DRAFT REDUCTION STRATEGIES, 2019 TO 2045

| SECTOR | 2019 | 2030 | 2045 | PERCENTAGE CHANGE, 2019–2045 |
|---------------------------------------|-----------------------|-----------------------|-----------------------|------------------------------|
| Transportation | 464,040 | 277,450 | <u>60,970</u> | -87% |
| Energy - Residential | 191,780 | <u>141,720</u> | <u>24,180</u> | -87% |
| Energy - Nonresidential | <u>85,390</u> | <u>71,500</u> | <u>24,540</u> | -71% |
| Solid Waste | 220,760 | 146,270 | 137,070 | -38% |
| Agriculture | 36,130 | 34,770 | 33,410 | -8% |
| Off-road Equipment | 54,010 | 54,150 | <u>29,270</u> | -46% |
| Water and Wastewater | 4,870 | 3,610 | 1,470 | -70% |
| BART | 190 | 150 | 50 | -74% |
| Land Use and Sequestration | -70,860 | -90,210 | -147,800 | -109% |
| Total Annual MTCO₂e | <u>986,310</u> | <u>639,460</u> | <u>163,130</u> | -83%* |

Note: Due to rounding, totals may not equal the sum of the individual values

* Reductions of 83 percent below 2019 levels are comparable to reductions of 85 percent below 1990 levels.



4. Greenhouse Gas Emission Reduction Strategy

All the strategies discussed in this chapter help Contra Costa County reduce its GHG emissions and allow the County to achieve its GHG reduction goals. Different strategies, along with existing and planned efforts, contribute to the GHG reductions in each of the different sectors as projected in 2045:

- Transportation: The largest share of GHG reductions from transportation-related emissions comes from a significant increase in adoption of electric vehicle and other zero-emission vehicle (ZEV) technologies, as discussed in Strategy TR-2. The State's Clean Car Standards, establishing stricter vehicle fuel efficiency standards and ZEV adoption requirements, accounts for approximately 39 percent of these reductions. Strategy TR-1, which reduces VMT through increases in transit use, active transportation, and micromobility, accounts for the remaining 7 percent of GHG reductions in transportation energy use.
- Residential energy: More than half of GHG reductions in residential energy use comes from energy efficiency and electrification of existing homes, as discussed in Strategy BE-2, and another 24 percent comes from the State's program to partially meet natural gas needs from renewable sources. The State's increase in the Title 24 energy efficiency standards for new buildings and RPS program to convert all electricity to renewable or carbon-free sources each contribute about 10 percent of the GHG reductions in this sector. Smaller but still significant GHG reductions to residential energy use come from the high energy performance standards discussed in Strategy BE-1 and the effects of the County's earlier all-electric reach code.
- Nonresidential energy: Similar to the residential energy sector, the largest share of GHG reductions in nonresidential energy use (44 percent) comes from energy efficiency and electrification of existing building in Strategy BE-2, followed by the State's plan for increased natural gas from renewable sources (28 percent). The State's RPS and Title 24 programs create the next-largest sources of reductions. The County's energy performance standards in BE-1 and the County's earlier all-electric reach code also play a role in reducing emissions from this sector.
- Solid waste: The largest contributor to solid waste GHG emission reductions in the CAAP is the increased capture rate of methane from landfills in Strategy NW-4, which is responsible for about 50 percent of these reductions. The State's organics recycling requirements, SB 1383, is responsible for another 44 percent of GHG emission reductions from solid waste. Local efforts to increase recycling and minimize waste generation, as discussed in Strategies NW-1, NW-2, and NW-3, collectively achieve the remaining GHG emission reductions.

- Agriculture: The State and CAAP strategies do not directly reduce agricultural emissions in a measurable manner, although Strategy TR-2 reduces emissions from agricultural equipment (part of the off-road equipment sector) and Strategy NI-4 may affect agricultural emissions by supporting increased carbon farming and sequestration on the County's natural and working lands.
- Off-road equipment: The CAAP achieves reductions in off-road equipment GHG emissions by promoting replacing gasoline and diesel-fueled equipment with electric models, as discussed in Strategy TR-2.
- Water and wastewater: The primary contributor to GHG emission reductions from water and wastewater is the State's RPS program. Water-efficiency standards in Strategy DR-1 account for the remaining GHG emission reductions.
- BART: The State's RPS program reduces GHG emissions from BART operations.
- ◆ Land use and sequestration: Strategy NI-4 in the CAAP, which increases carbon farming and sequestration on the County's natural and working lands, drives the GHG reductions in the land use and sequestration sector.

With the reductions currently projected from the 2024 GHG emissions reduction strategies, GHG emissions for the unincorporated county are expected to be reduced to 85~~6~~ percent below 1990 levels, equal to 87~~8~~ percent below baseline 2005 levels ~~and/or 85-83~~ percent below 2019 levels. These reductions are predicted to occur across most GHG emission sectors, though emissions within the Solid Waste sector will continue to be affected by previously deposited waste continuing to decompose in landfills. As noted previously, there is the potential for these strategies to yield additional GHG emission reductions as County staff and decision makers develop and institute implementation actions and monitor the results.

With these reductions as currently assessed, unincorporated Contra Costa County achieves the GHG emissions reduction goals for 2030 and 2045, as shown in **Table 11**. The County may reduce emissions faster than expected as it implements the CAAP, and it will report on this progress as part of the CAAP monitoring activities.



4. Greenhouse Gas Emission Reduction Strategy

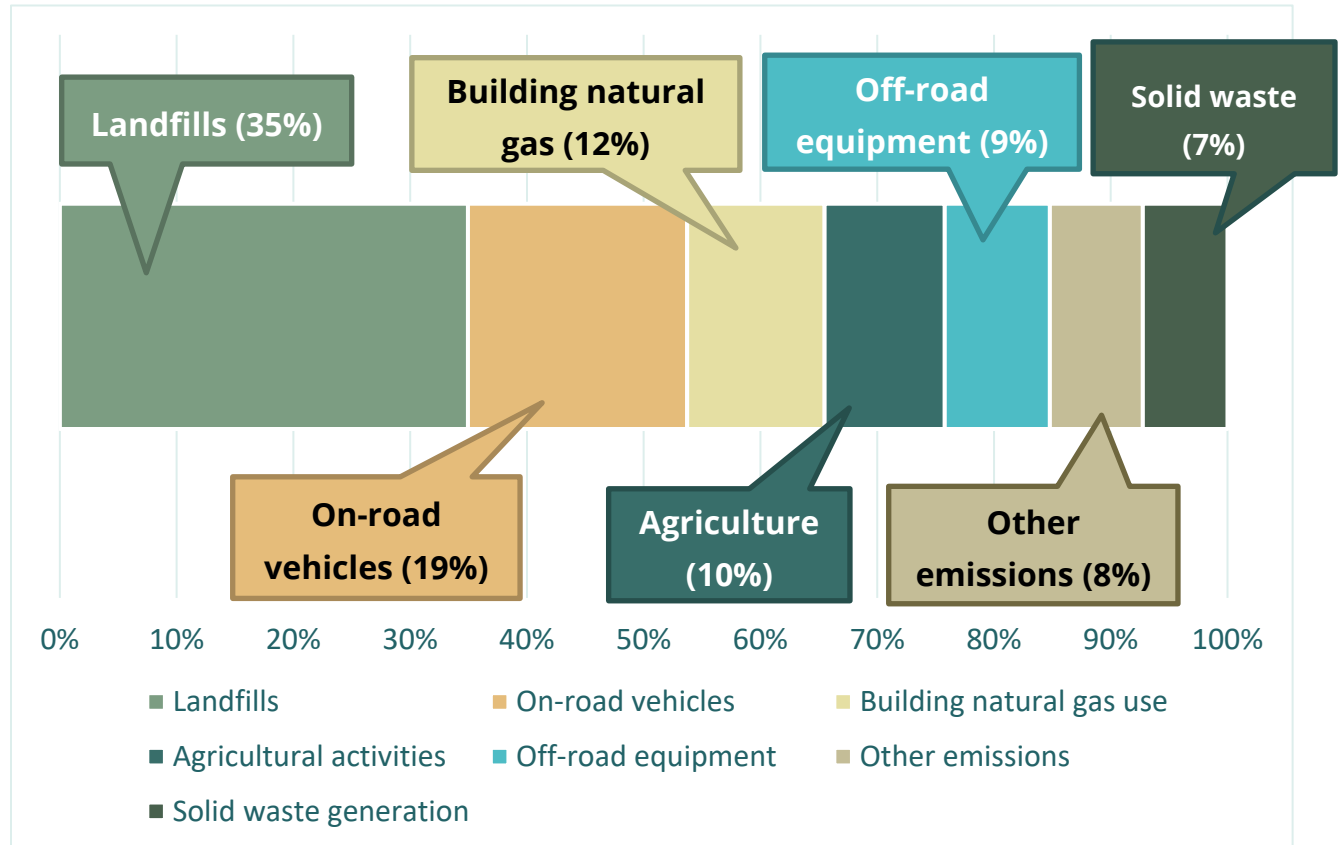
TABLE 11. 2024 GHG EMISSION REDUCTIONS AND REGULATORY GOALS

| | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|---|-----------------------------|-----------------------------|
| GHG emissions goals | 658,700 | 164,680 |
| GHG emissions with CAAP strategies | <u>639,460</u> | <u>163,130</u> |
| Gap to GHG emission reduction goal* | <u>-19,240</u> | <u>-1,550</u> |
| Note: Due to rounding, totals may not equal the sum of the individual values. * Negative values mean that the strategies reduce GHG emissions to below the goal. | | |

THE 2024 CAAP AND NET CARBON NEUTRALITY

Achieving net carbon neutrality in Contra Costa County will require implementation of GHG reduction efforts that meet the County's regulatory goals, in combination with carbon sequestration and potentially other methods to "zero out" the remaining emissions. The 2024 CAAP achieves significant reductions in GHG emissions, consistent with the County's emission reduction goals, and places Contra Costa County on a path to support statewide net carbon neutrality by 2045. Currently, there is insufficient guidance and certainty around local carbon sequestration, storage, and potential carbon offset strategies to mathematically demonstrate with certainty that the 2024 CAAP will achieve carbon neutrality by 2045. However, the County believes that such guidance and certainty will emerge in future years as the County, regional agencies, and the State further explore the opportunities, develop guidance and methods, and validate new technology. When available, guidance on quantifying how to achieve carbon neutrality will be integrated into future updates of this 2024 CAAP.

For the foreseeable future, achieving net the County's GHG emissions reductions goals, including carbon neutrality, will likely not be feasible without the use of local carbon sequestration, notably on natural and working lands. Although GHG emissions can be eliminated from many of the County's GHG emissions sources, this is not practical for every source given technical, economic, or political considerations. Assuming implementation of the strategies in this 2024 CAAP, **Figure 15** shows the major sources of Contra Costa County's remaining GHG emissions in 2045.

FIGURE 15. CONTRA COSTA COUNTY 2045 GHG EMISSIONS WITH IMPLEMENTATION OF 2024 CAAP

Note: Percentage totals in this chart do not account for emissions in the land use and sequestration sector (natural and working lands, urban trees, and developed land). With implementation of the 2024 CAAP, the land use and sequestration sector is projected to sequester 147,800 MTCO₂e in 2045. Not including emissions associated with land use and sequestration. The “Other emissions” category is composed of emissions from BART; water and wastewater sectors; land development activities; and propane, kerosene, and wood used as heating fuels.

The County should take advantage of future opportunities to reduce the GHG emissions from these sources as much as possible, ideally to zero. However, for GHG emissions that cannot be feasibly reduced in the short and near term, carbon sequestration on natural and working lands is the preferred strategy to “cancel out” these emissions so that the County’s net GHG emissions from remaining sources are zero. Should the County find that there continue to be GHG emissions, the County may want to consider and-related strategies to remove carbon from the atmosphere may be able to “cancel out” these emissions so that the County’s net GHG emissions from remaining sources are zero. if equity and GHG emissions and other potential pollution concerns can be addressed.

5. CLIMATE ADAPTATION STRATEGY



Photo credit: Envision Contra Costa picture gallery.

Vulnerability Assessment Summary

Contra Costa County prepared a vulnerability assessment that examines how people and assets in the county may be affected by the hazards related to climate change discussed in Chapter 3. This vulnerability assessment considers how severe the effects of these hazards are likely to be and identifies the groups of people and assets who face the greatest potential for harm. It considers both the current and future climate conditions in the unincorporated area of the county following the methods recommended by the *California Adaptation Planning Guide* prepared by the California Governor's Office of Emergency Services. An abridged version of the key vulnerability assessment results is presented here. **Appendix C** provides detailed information on the vulnerability assessment methods and results.

Some hazards can occur virtually anywhere in Contra Costa County or may affect the entire county. This includes drought, human health hazards, and air quality impacts. Other hazards are much more likely in specific locations, such as landslides and flooding. However, people and assets outside of affected areas may still be harmed if the hazard creates a series of cascading impacts that ripple beyond the immediate hazard zone. For example, a fire near Orinda may close Highway 24 and the BART tracks in that area, interrupting BART service in the central and east parts of Contra Costa County and causing traffic congestion on alternate routes. The vulnerability assessment considers these indirect impacts and reflects them in its scores.

EFFECTS ON POPULATIONS

Although climate change will affect everyone, some populations in the unincorporated county are likely to be affected more than others. This can include the risk of injury, death, or property damage or destruction, and can also include economic impacts and loss of income, behavioral and mental health impacts, and an overall decrease in quality of life. Impacted Communities, who have been historically under-resourced and are already more likely to face constraints such as limited financial resources, reduced access to education and job opportunities, and increased exposure to environmental hazards, are likely to be further affected as climate change-related hazards increase in frequency and severity. Other groups of people are also likely to be disproportionately affected, including senior citizens, renters, and persons with chronic health conditions.

People with limited financial means, such as low-income persons and cost-burdened households (those who must spend more than 30 percent of their income on housing) are often vulnerable because they may lack the resources to retrofit their home against hazardous conditions or to move to an area with less risk. For example, low-income persons are less likely to live in homes that have reliable air

Due to the high cost of living in Contra Costa County, “low-income households” include some households who might be considered financially well off in other places. In 2022, a family of four in Contra Costa County is considered “low-income” if its annual income is lower than \$109,600.

conditioning and may not be able to afford to install these systems themselves, which puts them at greater risk of harm from extreme temperatures. They also face greater vulnerabilities because they may be less able to withstand a temporary loss of income if their work is affected by climate change-related hazards. People who work in outdoor activities, such as construction, agriculture, and recreation, are usually more susceptible.

Lack of access to resources not only includes financial resources, but also communication, transportation, education, and other community services. Even people who are relatively well-off financially can be disproportionately affected by climate change-related hazards if they are physically or socially isolated. For example, persons with limited English proficiency may not be able to interact with officials, and persons without lifelines such as transportation, or broadband internet or other forms of reliable communication, may not be able to get accurate information about hazardous situations. This often makes it harder for them to get the resources needed to prepare for or respond to an emergency. Renters



face similar threats because even if they have the financial resources to adapt to changing conditions, they have limited control over their home.

Physical constraints can also make people more susceptible to climate change. Persons with disabilities may find it harder to prepare for hazardous events, and some hazards can exacerbate chronic health conditions and create a greater threat for persons with these conditions. Young children and senior citizens are disproportionately affected by some hazards, such as extreme heat and air pollution, even if they are entirely healthy. Senior citizens living alone are often at greater risk since they are more likely to be socially isolated. Persons with physical constraints are also more likely to need assistance during evacuations.

The health equity of populations is also closely associated with racism, historic discrimination, and a wide range of socioeconomic conditions. The [2024 CAAP](#) includes “place-based strategies”, such as efforts to enhance availability and access to resources and physical infrastructure. These strategies advance the County’s efforts to address GHG emissions as well as offer enhanced resilience in Impacted Communities.

EFFECTS ON BUILDINGS AND INFRASTRUCTURE

The vulnerability assessment considers the effects of climate change–related hazards on buildings and infrastructure, including private homes and businesses, public facilities such as government offices and libraries, and important institutions such as schools and hospitals. This category also includes infrastructure networks such as the electrical grid, roadways, rail lines, and water and wastewater systems. Buildings and infrastructure in hazard-prone areas are naturally vulnerable to damage or destruction from hazards that occur in those areas, such as floods, landslides, sea level rise, and wildfires. Designing new structures to be more resilient against these hazards or hardening existing ones to better resist them can help reduce the threat.

The loss of key buildings and infrastructure systems can create potentially severe effects throughout the county. The loss of homes in a natural disaster means that a potentially large group of people must be temporarily housed while their homes go through the lengthy reconstruction process. Some people may choose not to return to their former community. Damages to businesses can cause economic harm to business owners and employees as well as members of various communities. For example, sea level rise and coastal flooding can interrupt many of the industrial and manufacturing centers located along the Contra Costa County shoreline, creating temporary or permanent loss of income for their employees, with possible cascading impacts such as harming the tax base and well-being of various communities.

Infrastructure networks, despite their county-spanning size, are also vulnerable to disruption from hazards related to climate change. Damage to just one or a few key nodes or components of an infrastructure system can cause a chain reaction that restricts or shuts down the network across a much wider area. For example, 26 bridges in Contra Costa County are in areas at risk of a 100-year flood or dam inundation. Even though these bridges make up a very small portion of the overall roadway network in the county, damage to them can force travelers to take potentially long and congested detours or may render some areas completely inaccessible.

Loss of key buildings or parts of infrastructure networks can also harm important community services that rely on these networks. This is particularly true for transportation infrastructure, such as roads and railways. If these systems are damaged or blocked, this can also block access by emergency response and public transit services vehicles. Even if alternate buildings and infrastructure networks are available, the alternatives may not be able to accommodate the change in demand. For example, 10 schools in Contra Costa County are in high and very high fire hazard severity zones. Although this is a relatively small proportion of the overall number of schools in the county, if some of these schools are damaged by wildfires, there may not be capacity at other, unharmed schools to take in all the displaced students.

Contra Costa County's infrastructure networks are connected to much larger regional, State, and national systems. These systems are vulnerable to disruption from outside of Contra Costa County, resulting in a loss of service to community members. For example, most of the water used in the unincorporated areas of the county is imported from the Sierra Nevada through a complex system of pumps, aqueducts, and reservoirs. Damage at any point along this system can affect Contra Costa County's water supply, causing restricted water service. Many components of this system pass through eastern Contra Costa County and other low-lying areas of the Delta region, where they are particularly vulnerable to sea level rise.

Buildings and infrastructure do not need to be physically damaged to trigger a loss of service. For example, extreme heat makes the machinery of the power grid run less efficiently and simultaneously increases demand to meet greater cooling needs. This combination raises the risk of the grid overloading and causing brownouts or blackouts. Similarly, drought conditions harm water delivery services but do not cause physical damage to pipes or water treatment plants. Economic drivers can also be affected without experiencing physical damage, such as when businesses are forced to close because of a public health emergency.



EFFECTS ON ECOSYSTEMS AND NATURAL RESOURCES

Many of the ecosystems and other natural resources in California are unique to the state and have evolved under local conditions, including climate patterns. However, the unprecedented rate of change in the climate system can rapidly create local conditions unfavorable to ecosystems, killing them or forcing them out of the area before they have the chance to adapt. Damage or loss of local ecosystems and natural resources is harmful for its own sake, but it also affects the people and



Meadow environments such as this are highly susceptible to several climate change-related hazards. [Photo credit: Deidra Dingman.](#)

economy of Contra Costa County. Many ecosystems provide important services for communities, such as protection against floods and high winds, groundwater recharge and filtration, and home for pollinators and beneficial species. The natural environment provides recreational and tourism opportunities, contributes to the valued character of Contra Costa County, and helps maintain a high quality of life.

Climate change often results in species and even entire ecosystems being forced out of their historical range and moving to areas that provide their preferred living conditions. In some cases, there may no longer be places in Contra Costa County that can support these ecosystems, and they disappear from the area. For example, the conifer forests in the hills of west county depend on fog and its cooling benefit in summer temperatures. As temperatures increase and coastal fog is expected to decrease, these trees may not survive. Habitat loss can also exacerbate this problem. For example, in a natural system, wetlands will migrate inland as sea levels rise. However, if the inland areas are blocked by development or other barriers, the wetlands cannot migrate and could disappear.

Even if overall temperature and precipitation patterns remain favorable to key ecosystems and natural resources, the increased frequency and severity of some climate change-related hazards can harm these important community assets. Wildfires are a prime example of this. Many ecosystems in California, especially forests, rely on naturally

occurring wildfires to remove dead vegetation and return nutrients to the soil, and some species rely on fires for reproduction. However, increases in the intensity of wildfires mean that trees that could survive relatively low-level fires may not be able to survive much more severe blazes. Similarly, though occasional fires may be beneficial, too-frequent fires can kill young trees before they establish themselves, creating a risk that trees will be replaced by more rapidly growing grasses and brushlands.

In some cases, climate change leads to cumulative impacts that can weaken or kill ecosystems. Species that have adapted to be relatively resistant to one or a small number of hazards may still be vulnerable to multiple hazards that happen at the same time or one after another in close succession. For example, forestry pests have long been a presence in California, and though they may kill individual trees or stands of trees, forests and woodlands are generally not significantly affected. However, drought and extreme temperatures weaken trees, making them more vulnerable to pests that could not do serious damage under normal conditions. At the same time, warmer temperatures can increase pest numbers and keep them active for more of the year, so they can do more damage than they could previously. This and similar cumulative effects mean that species and ecosystems that could resist hazardous events under normal conditions may be much more susceptible to them because of climate change.

Adaptation Strategies

A key goal of the [2024 CAAP](#) is to reduce Contra Costa County's GHG emissions. Combined with other global GHG emissions reduction efforts, the [2024 CAAP](#) will help to prevent more severe effects of climate change. However, some degree of climate change is inevitable. Climate conditions in recent years in Contra Costa County are already different from historical conditions, and community members have already observed more frequent and intense climate change-related hazards. Contra Costa County will have to adapt to future climate conditions; acting now or in the short term will help communities be more resilient to climate change-related hazards expected decades in the future.

This [2024 CAAP](#) includes a set of adaptation strategies. These strategies respond to the key vulnerabilities identified by the vulnerability assessment; concerns about current and future conditions raised by community members and County officials; and best practices in the region and across California to help promote a more unified climate adaptation response. While these climate adaptation strategies do not directly result in measurable GHG emissions reductions, they do support the GHG emissions reduction strategies and contribute to a comprehensive climate change response.

The adaptation strategies are organized into two categories, each with its own goal:



Climate Equity (CE)



Resilient Communities and Natural Infrastructure (NI)

As with the GHG emissions reduction strategies, the adaptation strategies support co-benefits, that is, benefits that the strategy provides to communities beyond increased resilience.



Cost savings



Enhanced recreation opportunities



Greater community resilience



Greater energy independence



Improved air quality



Improved community equity



Improved public health



Increased economic opportunities



Increased resilience to pests



Reduced disaster effects



Reduced landfill waste



Reduced resource use

General Plan alignment

As with the GHG reduction efforts in [Chapter 4](#), the adaptation goals, strategies, and recommended implementation actions discussed in this chapter align with climate adaptation goals, policies, and actions in the County's General Plan, as discussed in [Chapter 1](#). When the [2024 CAAP](#) and General Plan address similar topics, the language used in both documents is identical or at least consistent, ensuring that both are in sync and provide a unified approach to addressing climate adaptation.

RESILIENT COMMUNITIES AND NATURAL INFRASTRUCTURE (NI)

CONTRA COSTA COUNTY WILL INCREASE RESILIENCE TO CLIMATE HAZARDS AND FOSTER COMMUNITY HEALTH.



The [2024 CAAP](#) takes steps to improve the resilience of Contra Costa County's unincorporated communities by ensuring that structures and infrastructure are responsive to flooding, sea level rise, fire, heat, and other climate change hazards. Natural features such as trees, soils, and water can help make the county more resilient by absorbing carbon and modulating the effects of heat, sea level rise, and flooding. Community resilience hubs can serve as centralized locations for electricity access, cooling and clean air centers, and emergency preparedness and response resources.

In addition to the General Plan, the strategies and actions in this goal integrate with the Contra Costa County Local Hazard Mitigation Plan and the Community Wildfire Protection Plan. The Local Hazard Mitigation Plan assesses risk to people and facilities from hazardous conditions and includes mitigation actions to reduce or eliminate risks, particularly in the short term. The Community Wildfire Protection Plan provides a snapshot of current wildfire protection challenges and capabilities, identifies and prioritizes areas for hazardous fuel reduction, and recommends types and methods of vegetation management that may help protect the affiliated communities from wildfire losses.



Hercules waterfront. Photo credit: Emily Groth.

The Contra Costa County Emergency Operations Plan describes the structures and processes the County follows to respond to and recover from emergency events. The County's Extreme Weather Working Group collaborated in 2024 to create a series of hazard-specific plans or annexes that support the Emergency Operations Plan. These annexes identify County departments' roles and responsibilities and create a framework for cities to follow during extreme heat, extreme cold, or poor air quality events. These annexes guide emergency planning and response to these events and bolster the County's "whole community" approach to improve resilience today.



5. Climate Adaptation Strategy

NI-1: Protect against and adapt to changes in sea levels and other shoreline flooding conditions.

This strategy aims to protect communities against permanent and temporary inundation from rising sea levels and shoreline flooding through green infrastructure, effective building siting and retrofits, and informed land use decisions.



Sea level rise and other coastal flooding hazards threaten structures built near the shoreline.

Strategy NI-1 Co-benefits:



Enhanced recreation opportunities



Greater community resilience



Reduced disaster impacts

Strategy NI-1 Actions:

- Require new development to locate habitable areas of buildings above the highest water level expected, accounting for sea level rise and other changes in flood conditions, or construct natural and nature-based features, or a levee, if necessary, adequately designed to protect the project for its expected life. (HS-P6.1)
- Support the use of natural infrastructure, including ecosystem restoration and green infrastructure, to protect against sea level rise and associated shoreline flooding.
- Coordinate with State and regional agencies, neighboring jurisdictions, property owners, utilities, and others to prepare a sea level rise adaptation plan.
- Seek funding and pursue implementation of wetland restoration and other adaptation efforts for sea level rise.

As of December 2023, 28.3 acres of County right-of-way had been converted to green infrastructure, with another 11.1 acres planned. The County continues to incorporate pervious paving in some projects, including projects at the El Sobrante Library and Rio Vista Elementary School in Bay Point.

- Convene a working group that includes local jurisdictions, local shoreline communities, community-based organizations, property owners, businesses, and other stakeholders to collaborate on shoreline flooding adaptation strategies.
- Identify opportunities for employing natural areas as buffers against rising sea levels.

Contra Costa Resilient Shoreline Ad Hoc Committee

The Board of Supervisors established the Contra Costa Resilient Shoreline Ad Hoc Committee at the May 16, 2023, Board of Supervisors meeting. The committee makes recommendations to the Board on work the County can do to plan for sea level rise and improve shoreline resiliency. The committee also provides a dedicated space for Contra Costa County to consider how local sea level rise resilience and adaptation efforts can complement regional efforts happening across the San Francisco Bay Area. The committee has been meeting regularly since October 12, 2023.

NI-2: Protect against and adapt to increases in the frequency and intensity of wildfire events.

This strategy aims to increase community resilience to the direct and indirect effects of wildfires, both locally and regionally. Public and private property shall be designed and maintained to minimize the risk of damage from wildfires; infrastructure systems will be hardened and designed to include redundancy; and emergency management plans and practices for wildfires will be responsive to the needs of Impacted Communities.

Strategy NI-2 Co-benefits:



Greater community
resilience



Improved community
equity



Improved public health



Reduced disaster
impacts



Strategy NI-2 Actions:

- ~~Prohibit new residential subdivisions in Very High Fire Hazard Severity Zones and discourage residential subdivisions in High Fire Hazard Severity Zones~~Deny entitlements for projects creating additional residential units in Very High Fire Hazard Severity Zones in the LRA or SRA. Discourage such projects in High Fire Hazard Severity Zones in the SRA and discourage them in such zones in the LRA unless adequate fire protection services are provided.¹¹ (HS-P7.1)
- Require any construction of buildings or infrastructure within a High or Very High Fire Hazard Severity Zone in the Local or State Responsibility Areas, or in areas that may be designated as the Wildland-Urban Interface, to incorporate fire-safe design features that meet the applicable State Fire Safe Regulations and Hazard Reduction Around Buildings and Structures Regulation for road ingress and egress, fire equipment access, and adequate water supply. (HS-P7.2)
- Require subdivisions in the High Fire Hazard Severity Zone in the Local or State Responsibility Areas, or projects requiring a land use permit in the High or Very High Fire Hazard Severity Zone in the Local or State Responsibility Areas, to complete a site-specific fire protection plan. ~~Collaborate~~Work with the appropriate fire protection district to review and revise the fire protection plans. (HS-P7.34)
- Work with property owners in ~~mapped~~ High or Very High Fire Hazard Severity Zones or in areas that may be designated as the Wildland-Urban Interface, to establish and maintain fire breaks and defensible space, vegetation clearance, and

Fire Protection Plans

According to General Plan Policy HS-P7.3, a fire protection plan shall include measures for fire-resistant construction materials and modifying fuel loading, as well as a plan to maintain that protection over time. The fire protection plan shall include:

- a) A risk analysis
- b) Fire response capabilities
- c) Defensible space requirements
- d) Fire safety requirements for infrastructure
- e) Building ignition resistance
- f) Mitigation measures and design for non-conforming fuel modification
- g) Wildfire education
- h) Maintenance and limitations
- i) A plan for emergency preparedness, response, and evacuation

¹¹ High and Very High Fire Hazard Severity Zones are mapped by CAL FIRE. Designations are based on factors that influence fire likelihood and fire behavior. Many factors are considered, such as fire history, existing and potential fuel (natural vegetation), predicted flame length, blowing embers, terrain, and typical fire weather for the area.

firefighting infrastructure that meets adopted State, County, or community fire safety standards. (HS-P7.45)

- Support undergrounding of Coordinate with energy service providers to underground power-utility lines, especially in the Wildland-Urban Interface and Fire Hazard Severity Zones. (HS-P7.810)
- Review indoor air filtration standards and consider whether filtration requirements can and should be strengthened for projects permitted by the County.
- Work with community organizations to help Impacted Communities have access to financing and other resources to reduce the fire risk on their property, prepare for wildfire events, and allow for a safe and speedy recovery.

NI-3: Establish and maintain community resilience hubs.

The intent of this strategy is to establish and maintain community resilience hubs with microgrids, education, training opportunities, and other community-focused resources. Under this strategy, the County develops a feasibility analysis and implementation plan for siting community resilience hubs across the county, with attention to Impacted Communities, and identifies opportunities for battery storage projects at County facilities. County emergency planners help enact this strategy by ensuring emergency response plans include climate change disasters such as wildfires, sea level rise, flooding, extreme heat, and drought. These efforts emphasize equitable recovery for Impacted Communities and those affected by environmental justice issues.

Strategy NI-3 Co-benefits:



Greater community resilience



Improved community equity



Increased resilience to pests

Strategy NI-3 Actions:

- Pursue funding to develop a resilience hub master plan that identifies existing community facilities that can serve as resilience hubs and support affected populations during hazard events. This process should start with an assessment of community needs. Such facilities should be distributed equitably throughout the county, with an emphasis on easy access for Impacted Communities. Where appropriate facilities do not exist, develop plans to create new resilience hubs. (Supported by HS-P8.1)



- Pursue funding to implement the resilience hub master plan, including retrofitting selected facilities to function as resilience hubs. These retrofits should involve adding solar panels, battery backup systems, water resources, air filtration, supplies to meet basic community and emergency medical needs, and other needs as identified by the resilience hub master plan.
- Create a virtual resilience hub that connects County resources to communities through virtual community networks to provide detailed, up-to-date information about preparing for natural disasters, public safety notifications and alerts, space for virtual gathering and information-sharing, and other appropriate uses. Materials shall be accessible in multiple languages.
- Coordinate resilience hub activities with planning efforts around public safety power shutoffs and wildfire smoke resiliency.

NI-4: Sequester carbon on natural and working lands in Contra Costa County.

NI-4 contributes significantly to the County's resilience efforts, but because it results in measurable GHG emissions reductions, it is part of the County's GHG emissions reduction approach and is included in [Chapter 4](#).

NI-5: Minimize heat island effects through the use of cool roofs, ~~and~~ green infrastructure, tree canopy, cool paint and pavement, and other emerging strategies.

With this strategy, impacts of heat islands are addressed and minimized through construction practices for buildings and structures, including through ample shading opportunity and other green infrastructure improvements, including green stormwater infrastructure.

Strategy NI-5 Co-benefits:



Improved air quality



Improved community equity



Improved public health



Increased economic opportunities



Reduced disaster impacts



Reduced resource use

Strategy NI-5 Actions:

- Require landscaping for new development to ~~be drought tolerant,~~ filter and retain runoff and support flood management and groundwater recharge. (COS-P-7.7)
- Promote installation of drought-tolerant green infrastructure, including street trees, in landscaped public areas. (COS-P7.8)
- Increase tree planting in urbanized areas and open spaces, where ecologically appropriate, emphasizing areas with limited existing tree cover, using low-maintenance native tree species that are low fire risk, and ensuring water supply resources are not compromised. (Supported by COS-P6.2)
- Consider preparing and implementing an Urban Forest Management Plan, or Tree Master-Plan for the unincorporated county.
- Provide shade trees or shade structures at parks, plazas, and other outdoor spaces where feasible.
- Update-When updating the County ~~tree-~~ordinances that relate to trees and green infrastructure, to consider whether ~~factors for approval of~~ tree removal and/or replanting requirements ~~are~~ adequately promote expansion of the tree canopy and green infrastructure in considering Impacted Communities ~~(e.g., tree cover, replanting standard)~~. (Supported by TR-A2.2, HS-P2.2, and HS-A2.5)
- Support efforts to develop incentive programs for home and business owners, school districts, and other local and regional property owners to increase the adoption of cool roofs, ~~and~~ green infrastructure, and other cooling strategies on private property.



Urban Heat Islands: Tree Cover and Impervious Surfaces

The urban heat island effect is one of the most important aspects of how neighborhood conditions can exacerbate extreme heat. Urban heat islands are areas with little tree cover and significant portions of land covered by impervious surfaces or artificial structures covered with impenetrable materials, such as pavement and rooftops. Temperatures in these areas may be significantly hotter than in surrounding areas, especially at night, because impervious surfaces retain heat absorbed throughout the day. Addressing heat islands may also be an important lever for health equity, as researchers have found that low-income people and people of color are more likely to live in areas with land cover characteristics conducive to urban heat islands. Additionally, research has identified a correlation between home values and tree cover, meaning that addressing urban heat islands carries implications for financial equity. Actions to reduce the heat island effect also offer mitigation co-benefits, as increased tree cover can store carbon dioxide, as well as provide shade that reduces energy consumption needed for cooling buildings.

Many cities in Contra Costa County contain areas with very little contiguous tree cover, including most of the cities in East and West County, along with significant parts of Martinez, Concord, Danville, and San Ramon. Areas with very high percentages of impervious surfaces exist in many of the same urban areas with little tree cover. Areas with a high percentage of impervious surfaces are concentrated in North Richmond, San Pablo, Richmond, and El Cerrito, and in some tracts in cities in Central and East County.

NI-6: Protect communities against additional hazards created or exacerbated by climate change.

The goal of this strategy is to reduce impacts from other climate-related hazards, including drought, flooding, landslides, and severe weather. In accordance with this strategy, development projects are sited and designed to reduce exposure to hazardous conditions, and community members receive the support and assistance needed to prepare for and recover from natural disasters.

Strategy NI-6 Co-benefits:



Strategy NI-6 Actions:

- Discourage new below-market-rate housing in High and Very High Wildfire Hazard Severity Zones, the Wildland-Urban Interface, and Alquist-Priolo Fault Zones. If below-market-rate housing must be constructed within these zones, require it to be hardened or make use of nature-based solutions to remain habitable to the greatest extent possible. (HS-P4.32)
- Treat susceptibility to hazards and threats to human health and life as primary considerations when reviewing all development proposals and changes to land uses.
- Partner with community-based organizations to provide information to community members about how to prepare for projected climate change hazards.
- Promote, and develop as necessary, available funding sources to create incentives for residents and businesses to prepare for natural disasters, particularly members of Impacted Communities.



5. Climate Adaptation Strategy

- Consider projected impacts of climate change when siting, designing, and identifying the construction and maintenance costs of capital projects.
- Actively promote and expand participation in local and regional community emergency preparedness and response programs.
- Support and fund efforts to enhance ongoing community and cross-sector engagement in community-level resilience and cohesion. Support non-governmental organizations to actively engage in developing a network of community-level actions that enhance resiliency.
- Work with energy service providers to promote programs encouraging reduced energy use during extreme heat events. (HS-P8.2)
- Support efforts by East Bay Regional Park District and other local recreation agencies to provide outdoor recreation facilities with adequate shading and refillable water stations where appropriate. (HS-P8.4)

CLIMATE EQUITY (CE)

CONTRA COSTA COUNTY WILL ADDRESS ENVIRONMENTAL FACTORS LEADING TO HEALTH DISPARITIES, PROMOTE SAFE AND LIVABLE COMMUNITIES, AND PROMOTE INVESTMENTS THAT IMPROVE NEIGHBORHOOD ACCESSIBILITY.



Ensuring that Contra Costa County's unincorporated communities are a welcoming and resilient home to diverse families, individuals, and businesses as the effects of climate change intensify around the world means ensuring that the County's climate action strategies are built on a foundation of justice and equity. Equity, justice, and the climate resilience they engender can take many forms across different sectors and include such strategies as supporting family-sustaining jobs in sustainable industries, providing equitably distributed green space, facilitating access to fresh and healthy food, and ensuring that all Contra Costa County departments and citizens are actively engaged in climate action planning. An important aspect of Climate Equity will be using culturally and linguistically appropriate methods. Climate action planning entails mobilizing the entire community to adopt a way of life and way of doing business that will not only weather the disruptions caused by climate change but will continue to thrive far into the future.

CE-1: Provide access to affordable, clean, safe, and healthy housing and jobs.

Strategy CE-1 aims to ensure that all residents live in clean, healthy homes and neighborhoods; have access to parks, open space, and fresh food; have easy access to safe and affordable mobility options; and are trained for and have access to living wage jobs. The County commits to implementing the 2024 CAAP strategies for equitable benefits to Impacted Communities, ensures every County department integrates climate issues and climate-related effects in services to residents, and meaningfully and continuously engages the communities most affected by climate change with developing and implementing appropriate solutions.

Strategy CE-1 Co-benefits:



Enhanced recreation opportunities



Greater community resilience



Improved community equity



Increased economic opportunities



Increased resilience to pests

Strategy CE-1 Actions:

- In partnership with community-based organizations, reverse community deterioration and blight and improve personal and property safety in neighborhoods throughout Contra Costa County.
- Ensure that new housing for households making less than the area median income and housing for other Impacted Communities are outside of hazard-prone areas, including for wildfires, landslides, floods, and sea level rise, or that they are hardened or make use of nature-based solutions to remain habitable to the greatest extent possible. ([Supported by HS-P4.32](#))
- In partnership with community-based organizations, secure funding to create a program to provide low-cost or free air conditioning and filtration, improved insulation, low-emitting materials, energy solar and storage systems, energy efficiency, and indoor ventilation in homes, emphasizing buildings that are home to Impacted Community members. (SC-A6.2, [SC-A6.3](#))
- Track development of local micro-grid battery storage policies and systems in other jurisdictions and identify potential opportunities for Contra Costa County.
- Encourage companies and entrepreneurs from local universities and national labs to create jobs in such industries as renewable energy, transportation technology, diverse forms of manufacturing, biotech/biomedical, and clean tech.
- Partner with local schools, the community college district, community-based organizations, labor unions, Workforce Development Boards, and other appropriate groups to provide training for residents for family-sustaining jobs in sustainable industries. Prioritize training for people currently or recently working in polluting or extractive activities. (SC-P1.1)

- Provide support for State and federal programs that support family-sustaining jobs in sustainable industries, efforts to support organized labor, and living wage labor standards.
- Adopt an ordinance at least as stringent as the State's maximum idling law, and coordinate with CARB and law enforcement to achieve compliance. (HS-A1.5)

CE-2: Invest in solutions to support climate equity.

With this strategy in place, County investments support climate equity. The County implements best practices in environmental, social, and governance considerations as the [2024 CAAP](#) is implemented.

Strategy CE-2 Co-benefits:



Improved community equity



Increased economic opportunities

Strategy CE-2 Actions:

- Evaluate and adjust County planning and expenditures for infrastructure and services as needed to ensure equitable investment in Impacted Communities, consistent with SB 1000.
- Work with County departments to incorporate addressing climate change, providing climate solutions, and enhancing community equity more fully into County operations and the broad range of services the County provides.
- As part of the [2024 CAP](#) [2024 CAAP](#) and General Plan implementation, consider whether the strategy being implemented provides equitable benefits for Impacted Communities as a criterion for prioritization.
- Continually engage communities most affected by climate change in developing and implementing climate solutions and ensure that such solutions provide benefits to Impacted Communities.
- Advocate for the Contra Costa Employees Retirement Association to include use of Environmental, Social, and Governance criteria in its investment policies.
- Require that the County's Deferred Compensation Plan provider make available Environmental, Social, and Governance investment options for employees participating in the County's 457 deferred compensation program. [\(In Progress\)](#)



5. Climate Adaptation Strategy

- Amend the County investment policy to consider the use of Environmental, Social, and Governance criteria and to continue and improve efforts to divest from fossil fuels. (Completed)
- Work with schools, the Contra Costa County Library, business groups, and community-based organizations to educate and inform community members about climate change and related sustainability topics, and the County's climate goals and the actions the County is taking to achieve them.
- Evaluate the issuance of Labeled Bonds, such as "Green", "Sustainable", or "Social" bonds, during the planning stage of a bond issuance by the County. It is the County's preference to issue Labeled Bonds if the evaluation demonstrates a financial or policy benefit to the County. (Completed)

The County submitted a signed Agreement with the U.S. Department of Housing and Urban Development in July 2023 for a \$750,000 Community Project Funding grant to fund the development of a Just Transition Economic Revitalization Plan (JTERP). The JTERP is a plan for transitioning away from an economy that is dependent on fossil fuels to a zero-emission and clean and green economy and for improving the health, safety, infrastructure, and job opportunities of residents in communities most impacted by the environmental burdens of the climate crisis.

On June 13, 2023, the Board of Supervisors approved the County's Investment Policy for Fiscal Year 2023-2024. The policy includes a new provision regarding the prohibition of investment in securities issued by fossil fuel companies and the consideration of Environmental, Social, and Governance (ESG) criteria.

CE-3: Increase access to parks and open space.

All County residents have easy access to parks and open space under this strategy. The County has an easily accessible and integrated system of high-quality, safe, and well-maintained parks and trails for all residents of the unincorporated county, including Impacted Communities.

Strategy CE-3 Co-benefits:



Enhanced recreation opportunities



Greater community resilience



Improved air quality



Improved community equity



Improved public health



Increased economic opportunities



Reduced disaster effects

Strategy CE-3 Actions:

- Establish a goal for all residents to live within a half-mile of a park or other green space.
- Support land acquisition for new parks and open space areas and protect such lands through fee title acquisition or through deed restrictions like conservation easements.
- Continue to construct and develop opportunities for new trails.
- Support investment in existing park facilities, in partnership with regional agencies.
- Increase the tree canopy on public property, especially in Impacted Communities and areas with a high heat index, by prioritizing funding for new street tree planting and maintenance. (HS-P2.2)



*El Cerrito playground.
Photo credit: Amalia Cunningham.*



5. Climate Adaptation Strategy

CE-4: Ensure residents have equitable, year-round access to affordable, local fresh food.

With this strategy in place, county residents will have increased access to local fresh food. The County facilitates the creation of more Certified Farmers' Markets, supports urban gardens, and ensures that healthy food is affordable and accessible to Impacted Communities and those in food desert areas.

Strategy CE-4 Co-benefits:



Improved community
equity



Improved public health



Increased economic
opportunities

Strategy CE-4 Actions:

- Support establishment of year-round Certified Farmers' Markets in all communities, prioritizing Impacted Communities.
- Work with community groups to establish and maintain urban gardens, particularly on vacant lots and park land in Impacted Communities. (SC-P4.1)
- Encourage major supermarkets to locate in Impacted Communities.
- Support co-operative grocery markets in Impacted Communities.



Little Sprouts Farm in Bay Point.

CE-5: Ensure that large industrial facilities act as good neighbors.

This strategy helps to make sure that large industrial facilities are good neighbors. The County makes recommendations to responsible permitting agencies regarding permits for fossil-fuel based industries and/or point sources, tracks data on fossil fuel products produced and/or transported in and through Contra Costa County and allows for a Just Transition away from polluting and extractive industries.

Strategy CE-5 Co-benefits:



Improved air quality



Improved community equity



Improved public health



Increased economic opportunities

Strategy CE-5 Actions:

- ~~Provide recommendations to responsible permit agencies regarding permits for fossil fuel-based industries and point sources~~ Provide comments to responsible permit agencies on permit applications for large industrial facilities with significant emissions on potential measures to reduce impacts on and provide benefits to neighboring unincorporated communities.
- Regularly track data on fossil fuel production and transportation in Contra Costa County.
- Encourage the economic development of industries and supply chains that emphasize a reduction in GHG emissions.
- Encourage economic development and job creation in industries that advance the County's sustainability goals, using the County's policy on enhanced infrastructure financing districts.
- As economic conditions change, support efforts to phase out heavily polluting and extractive industries and replace them with businesses that contribute to a regenerative and circular economy.
- Require new or expanded commercial and industrial projects ~~exceeding~~ resulting in 25,000 square feet or more of gross habitable floor area to be near zero-emission operations, including the facilities themselves and the associated fleets, except for uses with fewer than five vehicles domiciled on-site. Require all necessary measures to achieve near ~~-zero-~~emissions. (HS-P1.8)

Near-Zero Operations for Large Commercial or Industrial Facilities

According to General Plan Policy HS-P1.8, measures to achieve near-zero emissions for large commercial or industrial projects may include:

- a) Reduce on-site energy consumption and increase on-site energy generation and energy storage.
- b) Provide adequate on-site zero-emission vehicle-capable parking for all anticipated truck traffic to prevent idling and off-site queuing.
- c) Provide electrified loading docks with receptacles allowing plug-in of refrigerated trailers.
- d) Use heavy-duty trucks that are model year 2014 or later and expedite a transition to zero-emission trucks by establishing a clear timeline for electrification of trucks as they become commercially available. Ensure contracts with motor carriers include air quality incentives or requirements, such as providing incentives to fleets that meet United States Environmental Protection Agency SmartWay standards or requiring use of zero-emission or near zero-emission trucks.
- e) Use a “clean fleet” of delivery vehicles as they become commercially available, but no later than 2025.
- f) Use zero-emission yard equipment, such as forklifts, pallet trucks and jacks, and stackers.
- g) Implement practices to control and remove fugitive dust and other contaminants from paved areas.

Collectively, the strategies in this section will help community members and assets adapt to changing climate conditions and improve resilience to climate change–related hazards as well as confer many relevant co-benefits. Unlike the GHG emissions reduction strategies in **Chapter 4**, adaptation strategies do not have quantitative goals. However, these strategies can contribute to quantified benefits, including reductions in property damage, decreases in the number or severity of hazard events, and preservation of key community standards. These quantified benefits also support performance standards discussed in the General Plan elements.



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6. REALIZING THE 2024 CAAP



Photo credit: Envision Contra Costa photo gallery

Enacting the Climate Action and Adaptation Plan

To ensure the success of the 2024 CAAP, Contra Costa County will integrate the goals and strategies of this plan into other local and regional plans and prioritize and implement the programs and activities identified herein. As the County updates other planning documents, such as the Municipal and Zoning Codes, or Specific Plans, staff will ensure that these documents support and are consistent with the 2024 CAAP.

Implementing the 2024 CAAP will require County staff and leadership to enact these strategies and report progress. This plan CAAP identifies a work plan that includes responsible departments/divisions, time frames, and relative costs associated with each strategy. Staff will monitor progress using an implementation and monitoring tool on an annual basis and will provide an annual update to County decision-makers. The Contra Costa County Sustainability Group, part of the County's Department of Conservation and Development, is responsible for leading overall implementation of the CAAP, and working with other County departments and community partners to implement specific CAAP strategies and actions.

The following strategies and associated actions are designed to guide Contra Costa County in successfully implementing the 2024 CAAP.

LEADERSHIP STRATEGIES (L)

CONTRA COSTA COUNTY IS A MODEL FOR HOW LOCAL GOVERNMENT CAN TAKE ACTION ON CLIMATE ISSUES.



Advancing meaningful action on climate change requires sustained commitment and active involvement from Contra Costa County government officials, community members, local organizations, regional agencies, and more. The [2024 CAAP's](#) leadership strategies are designed to facilitate the long-range and creative planning that will ensure that Contra Costa County is on the forefront of climate change mitigation and adaptation.

These efforts include ensuring that climate action is a priority across County departments and that County staff are equipped to address climate change as part of their work; supporting the development of climate action funding mechanisms; and incorporating analysis of climate change and equity in budgeting decisions. [While GHG emissions from County operations are a very small percentage of emissions countywide, it is important for the County to demonstrate in its day-to-day business its commitment to climate action. New programs being introduced by BayREN should provide additional resources for County operations to reduce GHG emissions.](#)

L-1: Establish Contra Costa County as a leader among local governments for addressing climate issues.

Strategy L-1 Actions:

- Continue to publicize and support the operations of the County's Interdepartmental Climate Action Task Force and Green Government Group (G3) Champions.
- Work with all County departments to encourage adoption of best practices from the County's Green Business Program and other practices that support the County's climate goals.
- Encourage development of new policies and initiatives that support the County's climate goals.
- Explore the creation of funding mechanisms, including a carbon impact fee, to support the County's Sustainability Fund for investments in County facilities if additional financial resources are needed.

- Support legislative efforts to establish a green bank able to equitably finance sustainability projects, including renewable energy, energy efficiency, and green infrastructure, for residential and commercial customers. (COS-A14.910)
- Ensure that funding mechanisms to address climate change minimize or avoid disproportionate financial impacts to Impacted Communities and do not exacerbate economic inequities, to the extent feasible.
- Facilitate trainings for County staff on climate change (including the results of the Vulnerability Assessment and 2024 CAP2024 CAAP technical work) and how they can support climate action through their work with the County and at home.
- Encourage County employees to explore innovative technologies and programs that address climate change.
- Incorporate integrated pest management into new construction and retrofit programs on County properties.
- Ensure County departments follow the County's Environmentally Preferable Purchasing Policy and policy requirements are included in the contracting process.
- Regularly review and revise the County's purchasing and contracting programs as necessary to ensure consistency with the County's sustainability and GHG reduction goals. (HS-A3.23)



*County Green Government Group Champions at a planting day with Friends of Alhambra Creek.
Photo credit: Jody London.*

L-2: Continue to recognize the climate crisis as an emergency for Contra Costa County and make addressing climate change a top County priority.

Strategy L-2 Actions:

- Continue to implement the 2020 Climate Emergency Resolution approved by the Board of Supervisors, including conducting periodic reviews and updates to the Resolution.
- Consider climate vulnerabilities and associated equity effects as factors in the County's planning and expenditures for infrastructure and services to increase resilience and reduce GHG emissions countywide.
- Consider developing standards for the disclosure of climate and equity effects and vulnerabilities in staff reports for all decisions by the Board of Supervisors when such disclosures are helpful and necessary. Explore modifying County processes and forms to include questions to ensure the proposed action is consistent with the [2024 CAP](#) [2024 CAAP](#) and equity goals.
- Assess County programs, policies, operations, and projects (excluding stationary sources) for their contribution to achieving the County's GHG emissions reduction goals and consistency with the [2024 CAP](#) [2024 CAAP](#).
- Disclose GHG emissions to a registry such as the Carbon Disclosure Project (CDP).



Climate change is a priority for Contra Costa County residents, who support continued County leadership on this topic.

IMPLEMENTATION STRATEGIES (IS)

CONTRA COSTA COUNTY WILL ENSURE IT FOLLOWS THROUGH TO ACHIEVE THE GOALS AND ACTIONS IN THIS CLIMATE ACTION [AND ADAPTATION](#) PLAN.



Successfully reducing GHG emissions, addressing climate change vulnerabilities, and building community resilience require active, organized, and ongoing collaboration between County government, local businesses and community-based organizations, regional governments, and the public. Implementation strategies in this [2024 CAAP](#) are intended to ensure the continued provision of resources for the implementation, revision, and monitoring of the [2024 CAAP](#) as well as the continued cultivation of government and community partnerships.

IS-1: Monitor and report progress toward achieving Climate Action [and Adaptation](#) Plan goals on an annual basis.

Strategy IS-1 Actions:

- Assign responsibility for facilitating and supporting [2024 CAAP](#) implementation to the County's Department of Conservation and Development.
- Identify key staff from each department responsible for supporting [2024 CAAP](#) implementation and updates for annual reporting and monitoring.
- Continue to involve community-based organizations and other key stakeholders in reviewing and recommending [2024 CAAP](#) action items.
- Continue to prepare an annual progress report on implementation of the recommended GHG emissions reduction strategies and progress toward the [2024 CAAP](#) goals. When information is available, provide updates on estimated GHG emissions reductions and current GHG emissions levels.
- Monitor implementation of the Sustainability Fund for projects in County facilities.
- Use the [2024 CAAP](#) implementation and monitoring tool to track GHG benefits from [2024 CAAP](#) implementation and identify progress toward the [2024 CAAP](#) reduction goals.
- Pursue refinements to the County permitting system and other systems as needed to support collection of [2024 CAAP](#) implementation data.

- Work with Contra Costa Health on exploring and, if appropriate, developing health indicators related to climate change to help inform progress on current actions and effectiveness of adaptation strategies.

IS-2: Continue collaborative partnerships with agencies and community groups that support Climate Action and Adaptation Plan implementation, with an emphasis on residents and community-based organizations from Impacted Communities.

Strategy IS-2 Actions:

- Participate in local and regional organizations that provide tools and support for energy efficiency, energy conservation, GHG emissions reductions, sustainable infrastructure development, adaptation, public information, and implementation of this 2024 CAAP.
- Enable effective partnerships to implement high-priority strategies from the 2024 CAAP by working through established interagency collaborations and joint exercise of powers authorities and forming new arrangements of various types where necessary to be effective.
- Provide input to partner agencies on policy barriers that need to be addressed at the State level.
- Continue collaboration with other local governments in Contra Costa County on climate action and related subjects, including an annual Sustainability Exchange meeting of all local government staff in Contra Costa County that focus on climate action and adaptation planning and implementation.

The Sustainability Exchange is a regular gathering for local government staff in Contra Costa County who work on sustainability issues to network and learn from one another. The Sustainability Exchange launched in January 2017. Every meeting includes time for networking and learning about the work of others in Contra Costa County, as well as a topical presentation and opportunity to reflect in small groups.



[Members of the Sustainability Exchange tour the Antioch Dunes National Wildlife Refuge.](#) Photo credit: [Contra Costa County staff](#)

IS-3: Secure necessary funding to implement the Climate Action [and Adaptation](#) Plan.

Strategy IS-3 Actions:

- Identify funding sources and levels for reduction strategies as part of annual reporting.
 - Include GHG emissions reduction strategies in the capital improvement programs for County-owned and managed facilities and infrastructure, and other plans as appropriate.
 - Pursue local, regional, state, and federal grants to support implementation.
- Explore dedicated funding sources for [2024 CAAP](#) implementation, including from the Sustainability Fund or other revenue sources as needed.
- Explore opportunities to allocate a portion of revenues from revenue-generating strategies in the [2024 CAAP](#) to its implementation.

CAAP Updates

Per HS-A3.1 in the County's General Plan, future updates to the 2023 CAAP must include:

- a) Inventories of GHG emissions in the unincorporated county.
- b) GHG reduction goals for 2030 and 2045 at a minimum.
- c) Forecasts of GHG emissions for the unincorporated county consistent with the growth assumptions of the General Plan.
- d) GHG reduction measures and strategies with quantifiable outcomes.
- e) Climate adaptation and resilience strategies to ensure the county's communities can respond to changing climate conditions.
- f) An implementation and monitoring program to track the County's progress toward achievement of the GHG reduction targets.
- g) A community and stakeholder engagement program for CAP preparation and implementation.

IS-4: Continue to update the baseline emissions inventory and Climate Action and Adaptation Plan every five years.

Strategy IS-4 Actions:

- ~~Prepare a GHG emissions inventory that shows GHG emissions after emergency conditions created by the COVID-19 pandemic are expected to have ended.~~ Update the community-wide GHG emissions inventory every five5 years at a minimum and more frequently as resources are available. Prepare an inventory for the 2024 calendar year within a year of adoption of the 2024 CAAP.
- Update the 2024 CAAP to incorporate new technologies, practices, and other options to further reduce emissions. (HS-A3.1)

IS-5: Maintain and update the Climate Action and Adaptation Plan to allow for greater resilience.

Strategy IS-5 Actions:

- Coordinate, where possible, updates of the Climate Action and Adaptation Plan, General Plan Safety Element, and Local Hazard Mitigation Plan cycles to ensure plan alignment and coordination of climate mitigation and adaptation efforts.
- Assess the implementation status and effectiveness of adaptation strategies.



Work Plan

Table 12 contains information to support staff and community implementation of the strategies and to effectively integrate them into budgets, the capital improvement program, and other programs and projects. These implementation details are:

CAAP Strategy and Implementation Actions: The strategy language and the specific actions needed for reductions and increased resilience.

Potential Strategies of Effectiveness: Metrics that County staff and others could use to track the success of the strategy.

Lead Department(s): The lead County department(s) tasked with implementing the strategy.

Potential Partners: Example local organizations that the County will partner with to implement the given strategy. Additional community partners will be welcome.

Although significant GHG emissions reduction policies and initiatives are already in place, the actions proposed in this plan, by necessity, far surpass the scale of existing efforts. Implementing the plan and ensuring that it results in real, additional GHG emissions reductions will require increased coordination across sectors and institutionalized climate protection efforts across communities. The number of actions recommended in this plan will take many years to implement, given limitations in both staff time and funding.

Time Frame: The year by which a strategy should be effective by fiscal year's end. The exact status of a strategy will vary based on its actions, and many strategies will be ongoing through and beyond 2030. An effective strategy will be one that is actively on track to achieve its GHG emissions reductions, support adaptation to climate change effects, or achieve long-term resilience. For a strategy to be effective, the necessary programs and efforts should be active, and any infrastructure or other capital improvements should be in place. The effective year is not the end year—many of the strategies are intended to remain in effect for the foreseeable future, so they do not have end dates. Time frames for effectively setting up the strategies are:

- Near Term (by 2026)
- Mid-term (by 2028)
- Long Term (by 2030)

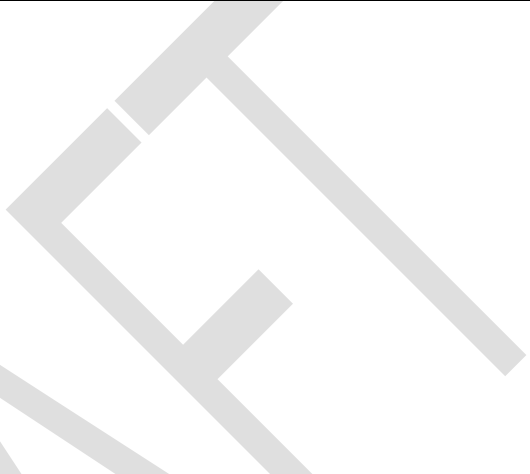
Applicability: The people, development, land uses, activities, and other aspects of communities that the strategy applies to.

Though near term priorities are identified, please note that priorities can and do shift based on funding availability, advances in technology, new and better ideas, etc. The [2024 CAAP](#) and this implementation section should be considered a living document.

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TABLE 12. [2024 CAAP](#) IMPLEMENTATION MATRIX

| CAP STRATEGY AND IMPLEMENTATION ACTIONS | POTENTIAL IMPLEMENTATION PERFORMANCE METRICS AND LEAD DEPARTMENTS | POTENTIAL PARTNERS, APPLICABILITY, AND TIME FRAME |
|--|---|--|
| Clean and Efficient Built Environment: Homes, workplaces, and businesses in unincorporated Contra Costa County run efficiently on clean energy. | | |
| <p>BE-1: Require and incentivize new buildings and additions built in unincorporated Contra Costa County to be low-carbon or carbon neutral.</p> <ul style="list-style-type: none"> – Consider-Continue adopting new or modified reach codes <u>and consider future updates</u> that exceed the California Building Standards Code, <u>as the State updates the Building Code every three years</u>, to require the use of lower-carbon intensive energy sources, to achieve higher feasible levels of energy <u>conservation and efficiencyperformance</u>, and to achieve lower feasible levels of GHG emissions. (COS-A14.4) – Maintain, update, and publicize, <u>and enforce the</u> County Ordinances and programs Code Title 7 – Building Regulations amendment requiring new residential buildings, hotels, offices, and retail to be <u>more energy efficient, with low levels of greenhouse gas emissions, all-electric</u>. Evaluate the feasibility of including other building types as appropriate. (COS-A14.5) – Partner with community groups and MCE to establish an induction cooktop loaner program for county residents. – Design and construct new County facilities to be zero-net energy to the extent feasible. (COS-P14.8) – Study the feasibility of establishing a low-carbon concrete requirement for all new construction and retrofit activities and consider additional strategies to reduce embedded carbon in construction materials. The intent is to determine what the County can and should do to support or exceed State requirements for net-zero emissions for cement use by 2045. (HS-A3.2) | <p>Key Performance Metric(s):</p> <ul style="list-style-type: none"> – Implement the reach code. (Conservation and Development) <p>Supportive Performance Metric(s):</p> <ul style="list-style-type: none"> – Participation in energy efficiency and weatherization programs by new residential and commercial buildings (including County facilities), with attention to participation in Impacted Communities. (Conservation and Development – community; Public Works – County facilities) – Energy efficient lighting and other appliances and mechanical systems in new County buildings. (Public Works) – Completed report exploring requirements for low-carbon concrete in new construction. (Conservation and Development) | <p>Potential Partners</p> <ul style="list-style-type: none"> – BayREN – Local contractors, developers, architects, and Contra Costa County Building Trades Council – MCE – PG&E – Building Industry Association – BAAQMD <p>Applicability</p> <ul style="list-style-type: none"> – County operations – New development – Residents in unincorporated areas. <p>Time Frame</p> <p>Near term (by 2026)</p> |

| CAP STRATEGY AND IMPLEMENTATION ACTIONS | POTENTIAL IMPLEMENTATION PERFORMANCE METRICS AND LEAD DEPARTMENTS | POTENTIAL PARTNERS, APPLICABILITY, AND TIME FRAME |
|--|---|--|
| <ul style="list-style-type: none"> – Provide educational materials to encourage project applicants to incorporate passive solar design features into new developments and significant reconstructions <u>alterations and additions</u>. – Promote additional sustainable building strategies and designs, including small and “tiny” homes, to project applicants as site appropriate. Consider requiring additional sustainable features as a condition of approval, including reuse of materials to minimize embedded carbon. – <u>Provide educational and technical resources to advance the adoption of heat pump water heater and heat pump space heating in buildings in support of BAAQMD Regulation 9, Rule 4, and Regulation 9, Rule 6, which will mandate that replacement and new water heaters (2027 and 2031) and space heaters (2029) are zero NOx. (COS-P14.10)</u> |  | |
| <p>BE-2: Retrofit existing buildings and facilities in the unincorporated county, and County infrastructure, to reduce energy use and convert to low-carbon or carbon-neutral <u>free</u> fuels.</p> <ul style="list-style-type: none"> – Create a County policy or program to facilitate making existing residential and nonresidential buildings more energy-efficient and powered by carbon-free energy. (COS-A14.6) – Create a detailed <u>County</u> roadmap to convert existing homes and businesses to use low-<u>carbon</u> or <u>zero-carbon-free</u> appliances. The roadmap should include steps to support converting buildings to rely on low-<u>carbon</u> or <u>zero-carbon-free</u> energy using an equitable framework that minimizes the risk of displacement or significant disruptions to existing tenants. (COS-A14.7) – Require replacement and new water heaters and space heating and cooling systems to be electric or have no nitrogen oxide emissions if the building electric panel has sufficient capacity in | <p>Key Performance Metric(s):</p> <ul style="list-style-type: none"> – Participation in energy efficiency and weatherization programs, including retrofits and site rehabilitation, by existing residential and commercial buildings (including County facilities), with attention to participation in Impacted Communities. (Conservation and Development) – Roadmap to convert existing buildings to all-electric (Conservation and Development) <p>Supportive Performance Metric(s):</p> <ul style="list-style-type: none"> – Energy efficient lighting and other appliances and mechanical systems. (Conservation and Development) – Expanded or created retrofit programs to complement weatherization programs that serve low-income county residents. (Conservation and Development) | <p>Potential Partners</p> <ul style="list-style-type: none"> – BayREN – Local contractors, architects, and Contra Costa County Buildings Trades Council – MCE – Neighborhood Preservation Program – Contra Costa County Asthma Initiative <p>Applicability</p> <ul style="list-style-type: none"> – County operations – Existing development – Residents in unincorporated areas. – Businesses in unincorporated areas. |



6. Realizing the [2024 CAAP](#)

| CAP STRATEGY AND IMPLEMENTATION ACTIONS | POTENTIAL IMPLEMENTATION PERFORMANCE METRICS AND LEAD DEPARTMENTS | POTENTIAL PARTNERS, APPLICABILITY, AND TIME FRAME |
|--|---|---|
| <p>accordance with BAAQMD Regulation 9, Rule 4, and Regulation 9, Rule 6. (COS-P14.10)</p> <p>– Provide educational and technical resources to advance the adoption of heat pump water heater and heat pump space heating in new buildings.</p> <p>– Evaluate options for incentivizing and requiring additions and alterations to be energy efficient and to achieve the lowest feasible levels of GHG emissions, including upgrades to the building electric panel, as needed. (COS-P14.8)</p> <p>– Ensure County-led and supported retrofit programs incentivize and prioritize conversion of buildings built before 1980 and emphasize assistance to owners of properties that are home to very low-, low-, and moderate- income residents and/or located in Impacted Communities, as permitted by available funding. (COS-A14.9)</p> <p>– Explore opportunities, in collaboration with partner agencies, to create new incentives or publicize existing ones to support updating existing buildings to achieve the lowest feasible levels of GHG emissions.</p> <p>– Work to continue to obtain funding with partners such as BayREN and MCE to implement a program or programs to provide reduced-cost or free energy-efficiency and zero-carbon retrofits to local small businesses and households earning less than the area median income, in support of the Contra Costa County Asthma Initiative, Contra Costa County Weatherization Program, similar County programs, other nonprofit partners, and other health equity efforts for Impacted Communities. Support the use of low-emitting materials, including paints and carpeting, in retrofits to improve indoor air quality.</p> <p>– In partnership with MCE and BayREN, continue to support voluntary home and business energy efficiency retrofits, including all-electric measures.</p> | | <p>Time Frame</p> <p>Near term (by 2026)</p> |

| CAP STRATEGY AND IMPLEMENTATION ACTIONS | POTENTIAL IMPLEMENTATION PERFORMANCE METRICS AND LEAD DEPARTMENTS | POTENTIAL PARTNERS, APPLICABILITY, AND TIME FRAME |
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| <ul style="list-style-type: none"> – Partner with community groups and MCE to establish an induction cooktop loaner <u>education</u> program for county residents. (<u>Initiated in 2024.</u>) – Facilitate participation by homes and businesses in demand response programs. – Continue to conduct energy and water tracking activities, audits, and upgrades of County facilities, including conversion of feasible County facilities to all-electric space and water heating. – Advocate for modifications to the federal Weatherization Assistance Program that expand eligible measures to include whole building clean energy improvements, such as wall insulation, duct sealing, electric panel upgrades, electric heat pumps, and related measures. Advocate for an increase in the income eligibility limits for the Weatherization Assistance Program. – Implement requirements for cool roofs and light-colored, nonreflective permeable paving materials as part of retrofit, repair, and replacement activities, using recycled materials or other materials with low embedded carbon as feasible and as established by the Building Standards Code. | | |
| <p>BE-3: Increase the amount of electricity used and generated from renewable sources in the county.</p> <ul style="list-style-type: none"> – Require new commercial parking lots with 50 or more spaces to mitigate heat gain through installation of shade trees, solar arrays, or other emerging cooling technologies. Prioritize the use of solar arrays where feasible and appropriate. (HS-P8.3) – Encourage property owners to pursue financial incentives for solar installations and energy storage technologies, such as battery storage systems, on new and existing buildings. | <p>Key Performance Metric(s):</p> <ul style="list-style-type: none"> – Number and percent of County and community accounts enrolled in MCE Deep Green (Conservation and Development) – Total megawatts of installed renewable energy capacity, by type, in the unincorporated county. (Conservation and Development) <p>Supportive Performance Metric(s):</p> | <p>Potential Partners</p> <ul style="list-style-type: none"> – BayREN – Fire protection districts in Contra Costa County – Local contractors, architects, and Contra Costa County Building Trades Council – MCE – PG&E – BAAQMD |



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| <ul style="list-style-type: none"> – Work with MCE to increase enrollment, especially in the Deep Green tier. – Continue to enroll all eligible, non-solar-equipped County facility electricity accounts in MCE territory in the Deep Green tier. – Work with the Contra Costa County Fire Protection District and other organizations that provide fire protection services to provide education and promote incentives for battery storage systems that can increase the resilience of homes and businesses to power outages. – Encourage installation of battery storage systems in new and existing buildings, especially buildings with solar energy systems and buildings that provide essential community services. (COS-P14.7) – Provide information about battery storage systems with all applications for new home construction and solar panel installations. – Pursue implementation of recommendations of the 2018 Renewable Resource Potential Study. – <u>Evaluate the least-conflict feasible locations for stand-alone battery storage systems and modify land use regulations to enable such use in these locations.</u> – <u>Explore the technical and economic feasibility of developing and operating microgrids in Contra Costa County, and for County facilities.</u> – <u>Explore opportunities to install community solar projects with battery backup to provide clean energy to Impacted Communities.</u> | <ul style="list-style-type: none"> – Megawatts of rooftop and parking lot solar installed in unincorporated county, including County facilities and Impacted Communities. (Conservation and Development – community; Public Works – County facilities) – Megawatt-hours of installed battery storage capacity at public and private buildings. (Conservation and Development – community; Public Works – County facilities) – Percent of electricity supplied by PG&E and MCE from renewable sources. (Conservation and Development) – <u>Number of new and existing buildings with energy storage systems, including County facilities. (Conservation and Development – community; Public Works – County facilities)</u> – <u>Progress in meeting recommendations from the 2018 Renewable Resource Potential Study. (Conservation and Development)</u> | <p>Applicability</p> <ul style="list-style-type: none"> – County operations – Existing development – New development – Residents in unincorporated areas. – Businesses in unincorporated areas. <p>Time Frame</p> <p>Mid-term (by 2028)</p> |

| CAP STRATEGY AND IMPLEMENTATION ACTIONS | POTENTIAL IMPLEMENTATION PERFORMANCE METRICS AND LEAD DEPARTMENTS | POTENTIAL PARTNERS, APPLICABILITY, AND TIME FRAME |
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| No Waste Contra Costa: Contra Costa County disposes no more solid waste than 2.2 pounds per person per day. | | |
| NW-1: Increase composting of organic waste. <ul style="list-style-type: none"> – Ensure, through franchise agreements and other relationships with waste haulers, a source-separated organics collection service for all residential and commercial customers in County-controlled collection franchise areas. – Require that new and expanded landfill operations significantly reduce GHG emissions to meet or exceed State targets to the extent feasible, and work toward carbon-neutral landfills. (PFS-7.12) – Work with wastewater providers to explore the use of organic waste as feedstock for anaerobic digesters to produce biogas that can generate electricity or fuel. – Require local restaurants, grocery stores, and other edible food generators that handle large quantities of food to partner with food rescue organizations to divert edible food that would be otherwise disposed in landfills for distribution to those in need, in accordance with SB 1383. – Collaborate with edible food recovery programs and the Community Wellness & Prevention Program to decrease food waste and address hunger. – Procure compost or other products made from recovered organic waste in accordance with the County's Recovered Organic Waste Product and Recycled Paper Procurement Policy. | Key Performance Metric(s): <ul style="list-style-type: none"> – Percentage of County-controlled franchise areas with source separated organics collection for residential customers. (Conservation and Development) Supportive Performance Metric(s): <ul style="list-style-type: none"> – Number of commercial edible food generators in County-controlled franchise areas participating in edible food recovery program. (Conservation and Development) – Number of projects complying with the Model Water Efficient Landscaping Ordinance (MWELO) required to use compost. (Conservation and Development) | Potential Partners <ul style="list-style-type: none"> – Residents in unincorporated areas. – Businesses in unincorporated areas. Applicability <ul style="list-style-type: none"> – Environmental justice organizations – Food rescue organizations – Major generators of organic waste (schools, restaurants, event spaces, grocery stores, etc.) – Waste haulers – Wastewater service providers – Contra Costa Health, CWPP – County Jail meal service – Schools – Hospitals Time Frame Mid-term (by 2028) |
| NW-2: Reduce waste from County operations. <ul style="list-style-type: none"> – Establish a <u>Continue</u> source-separated organics collection service at all County-owned facilities that includes recovering food waste (scraps) and food-soiled paper. | Key Performance Metric(s): <ul style="list-style-type: none"> – Recycling, composting at County facilities. (Public Works) | Potential Partners <ul style="list-style-type: none"> – County operations Applicability <ul style="list-style-type: none"> – Waste haulers |



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| <ul style="list-style-type: none">– Implement three-stream recycling (trash, recycling, and organic waste) at all County-owned facilities.– Establish requirements for source-separated organics collection and three-stream recycling as conditions in lease agreements for County offices.– Conduct waste audits of County facilities, including assessing the volume and composition of all waste streams, to identify challenges with waste activities and develop educational or operational changes to address issues and reduce waste generation.– Obtain material for capital projects from local and low-carbon sources to the greatest extent feasible, including allocating additional funds to allow for such materials, and integrate appropriate standards into the County's Environmentally Preferable Purchasing (EPP) policy.– Continue to reduce paper use in County operations. Procure recycled paper and janitorial supplies in accordance with the Recovered Organic Waste Product and Recycled Paper Procurement Policy.– Continue engagement with TRUE zero-waste certification for County projects.– Enact Bay-friendly landscaping practices at County facilities. Develop County policies and practices for Bay-friendly landscaping.– Explore opportunities to reuse wood from County tree maintenance activities as an alternative to chipping.– Encourage medical facilities and medical waste recycling companies to upgrade facilities to increase the amount of medical waste recycled or reprocessed.– Explore the feasibility of transitioning to reusable products in the health sector, where appropriate, and procuring products certified as green or low carbon. | <ul style="list-style-type: none">– Volume of waste disposed at County facilities. (Conservation and Development) <p>Supportive Performance Metric(s):</p> <ul style="list-style-type: none">– Recycled content of County purchases consistent with applicable requirements of SB 1383. (Public Works)– Enforcement of requirements for County vendors and contractors to adopt and implement the Environmentally Preferable Purchasing Policy. (Public Works)– Number of County facilities with Bay-friendly landscaping practices. (Public Works)– Tonnage of recycled and composted materials, by type, collected at County facilities. (Public Works)– Number of County facilities with three-stream recycling. (Public Works) | <p>Time Frame</p> <p>Mid-term (by 2028)</p> |

| CAP STRATEGY AND IMPLEMENTATION ACTIONS | POTENTIAL IMPLEMENTATION PERFORMANCE METRICS AND LEAD DEPARTMENTS | POTENTIAL PARTNERS, APPLICABILITY, AND TIME FRAME |
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| NW-3: Increase community-wide recycling and waste minimization programs. <ul style="list-style-type: none"> – Create a source-reduction program in partnership with regional agencies to promote rethinking, refusing, reducing, reusing, and regenerating of materials. – Improve educational efforts to promote better waste sorting among community members. – Work with waste haulers to expand the types of materials accepted by recycling programs as economic conditions allow. – Work with waste haulers to continue availability of curbside pickup recycling services. – Evaluate the feasibility of banning single-use plastics or establishing additional restrictions beyond those created by SB 54. – Encourage the use of reusable items over disposable materials. – Promote the Contra Costa County Recycling Market Development Zone low-interest loan program to <u>create</u> incentives <u>size for</u> the development of businesses that use recycled materials. | Key Performance Metric(s): <ul style="list-style-type: none"> – Actual disposed pounds per person per day (PPD) numbers year over year. (Conservation and Development) – <u>Number of households and businesses subscribing to recycling and organics service.</u> (Conservation and Development) Supportive Performance Metric(s): <ul style="list-style-type: none"> – <u>Number of businesses participating in Recycling Market Development Zone program (Conservation and Development)</u> | Potential Partners <ul style="list-style-type: none"> – New development – Residents in unincorporated areas. – Businesses in unincorporated areas. Applicability <ul style="list-style-type: none"> – Major waste generators – Waste haulers – Recycling centers Time Frame Mid-term (by 2028) |
| NW-4: Reduce emissions from landfill gas. <ul style="list-style-type: none"> – Encourage efforts at Acme, Keller Canyon, and West Contra Costa landfills to install or enhance existing methane capture technology and associated monitoring systems with a goal of increasing the methane capture rate to the greatest extent feasible. – Explore opportunities for partnering with agricultural and industrial operations to generate energy from methane gas generated by their ongoing activities. – Support landfill operators in efforts to transition away from landfill gas flaring. (COS-P14.5) | Key Performance Metric(s): <ul style="list-style-type: none"> – Methane capture rate Supportive Performance Metric(s): <ul style="list-style-type: none"> – Tons of flared landfill gas | Potential Partners <ul style="list-style-type: none"> – Landfill operators Applicability <ul style="list-style-type: none"> – Landfill operators Time Frame Mid-term (by 2028) |



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| Reduce Water Use and Increase Drought Resilience: Contra Costa County uses less water and communities are prepared for drought. | | |
| DR-1: Reduce indoor and outdoor water use. <ul style="list-style-type: none"> – Require new development to reduce potable water consumption through use of water-efficient devices and technology, drought-tolerant landscaping strategies, and treated recycled water, where available. (COS-P7.64) – Require homes and businesses to install water-efficient fixtures at time of retrofit activities, in accordance with the California Building Standards Code. – Continue to enforce the Model Water Efficient Landscaping Ordinance and encourage the use of native and drought-tolerant landscaping for exempt residential and commercial landscapes through partnership with local and regional water agencies and other organizations. – Partner with water and wastewater service providers, Groundwater Sustainability Agencies, irrigation districts, and private well owners to increase participation in water conservation programs countywide. (COS-P7.12) – Facilitate offering of BayREN water bill savings programs through eligible community water providers. – Encourage the installation of graywater and rainwater catchment systems, particularly for new construction, as feasible for wastewater infrastructure. Reduce regulatory barriers for these systems and explore creating incentives for installing these systems in new and existing buildings. – Identify-Evaluate opportunities for graywater use in public spaces and implement them as feasible. – Promote the installation of composting toilets at appropriate County facilities in locations without wastewater service. | Key Performance Metric(s): <ul style="list-style-type: none"> – Water use, specifically reduction in overall water use in the unincorporated county as reported by water companies. (Conservation and Development) – Water use, specifically reduction in water use at County facilities. (Public Works) Supportive Performance Metric(s): <ul style="list-style-type: none"> – Square footage of native and drought-tolerant landscaping projects at County facilities. (Public Works) – Number of participants in Contra Costa Water District Lawn to Garden program. (Conservation and Development) – Number of participants in East Bay Municipal Utility District Lawn Conversion program. (Conservation and Development) – Number of water districts participating in BayREN water savings program. (Conservation and Development) – Number of customers participating in water conservation programs sponsored by water companies. (Conservation and Development) | Potential Partners <ul style="list-style-type: none"> – Water providers – Green Business Program Applicability <ul style="list-style-type: none"> – Central Contra Costa Sanitary District – Contra Costa Water District – East Bay Municipal Utility District – West County Wastewater District – Other water and wastewater service providers – Contra Costa Health – UC Master Gardeners – Nurseries – Property managers Time Frame <p>Near term (by 2026)</p> |

| CAP STRATEGY AND IMPLEMENTATION ACTIONS | POTENTIAL IMPLEMENTATION PERFORMANCE METRICS AND LEAD DEPARTMENTS | POTENTIAL PARTNERS, APPLICABILITY, AND TIME FRAME |
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| <p>DR-2: Ensure sustainable and diverse water supplies.</p> <ul style="list-style-type: none"> – Encourage Contra Costa Health to work with Groundwater Sustainability Agencies to ensure that new well permit applications are in accordance with County ordinances and State construction standards and require a hydrogeological evaluation in areas with known water shortages to ensure that the sustainable yield goals can be met. – Require new development to demonstrate the availability of a safe, sanitary, and environmentally sound water delivery and wastewater treatment systems with adequate capacity. (PFS-P4.5, PFS-P4.6) – Discourage new development that may reasonably lead to groundwater overdraft, subsidence, or other negative impacts, or which may reasonably depend on the import of unsustainable quantities of water from outside the county. – Require the use of permeable surfaces for new or reconstructed hardscaped areas <u>where feasible</u>. – In coordination with Groundwater Sustainability Agencies, expand opportunities for groundwater recharge. – Work with water suppliers to expand recycled water systems as feasible, including considering additional treatment to allow for additional recycled water uses. | <p>Key Performance Metric(s):</p> <ul style="list-style-type: none"> – Amount of recycled water used. (Conservation and Development) <p>Supportive Performance Metric(s):</p> <ul style="list-style-type: none"> – Groundwater sustainability indicators: chronic lowering of groundwater levels; reduction in storage; seawater intrusion; degraded quality; land subsidence; surface water depletion. (Conservation and Development) | <p>Potential Partners</p> <ul style="list-style-type: none"> – Existing development – New development – Residents in unincorporated areas. – Businesses in unincorporated areas. <p>Applicability</p> <ul style="list-style-type: none"> – Contra Costa Health – Central Contra Costa Sanitary District – Contra Costa Water District – East Bay Municipal Utility District – Groundwater Sustainability Agencies (GSAs): <ul style="list-style-type: none"> – City of Antioch GSA – City of Brentwood GSA – Byron-Bethany Irrigation District GSA – Contra Costa County GSA – Diablo Water District GSA – Discovery Bay GSA – East Contra Costa Irrigation District GSA – EBMUD GSA – Zone 7 GSA – West County Wastewater District – Other water and wastewater service providers |



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| CAP STRATEGY AND IMPLEMENTATION ACTIONS | POTENTIAL IMPLEMENTATION PERFORMANCE METRICS AND LEAD DEPARTMENTS | POTENTIAL PARTNERS, APPLICABILITY, AND TIME FRAME |
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| | | Time Frame Mid-term (by 2028) |
| Clean Transportation Network: Contra Costa County's transportation network provides safe and accessible options for walking, biking, and transit. If residents and workers are driving, they are in zero-emission vehicles. | | |
| TR-1: Improve the viability of walking, biking, zero-emission commuting, and using public transit for travel within, to, and from the county. <u>– Prioritize expansion of bicycle, micromobility, and pedestrian infrastructure (e.g., Class IV separated bikeways) to address the significant latent demand for these active transportation modes. (TR-P1.2)</u> <u>– Develop and promote mobility alternatives to single-occupancy vehicles, including but not limited to public transit, micromobility, carbon-free rideshare strategies, and nonmotorized modes. (TR-A1.1)</u> <u>– Implement programs to encourage transit use, bicycling, walking, telecommuting, and use of alternative vehicle fuels by County employees. (TR-A1.4)</u> <u>– Reduce single-occupant vehicle usage and VMT, by significantly enhancing the availability and safety of other travel modes through infrastructure investment, policy support (Vision Zero, and other best practices), and support for public transit. (TR-P1.4)</u> <u>– Plan, design, construct, and maintain facilities for walking, bicycling, and rolling to serve people of all ages, abilities, and income levels, including children, seniors, families, and people with limited mobility. (TR-P5.1)</u> <u>– Partner with CCTA and neighboring jurisdictions to build out the countywide bicycle and pedestrian network, prioritizing completion of the Low-Stress Countywide Bicycle Network and pedestrian safety improvement projects in the County's Pedestrian Priority</u> | Key Performance Metric(s): <ul style="list-style-type: none"> – Percentage complete and under construction of unincorporated bicycle network. (Public Works) – Linear feet of pedestrian facilities constructed. (Public Works) – Number of bicycle and pedestrian network gaps closed. (Public Works) – Measure progress on the County Road Improvement and Preservation Program (CRIPP); Complete Streets; Vision Zero; Active Transportation; and equity-focused plans, programs, and policies. (Public Works) – Number of new units (residential and commercial) located in transit priority areas. (Conservation and Development) – Number of new units of affordable housing, particularly in areas with high-quality transit. (Conservation and Development) – Transit ridership in County service areas. (Conservation and Development) – Number of employers operating transportation demand programs. (Conservation and Development) Supportive Performance Metric(s): For County Operations: <ul style="list-style-type: none"> – Number of employees participating in the County remote work policy. (Human Resources) – Number and percentage of County employees using the pre-tax commute benefit. (Human Resources) | Potential Partners <ul style="list-style-type: none"> – 511 Contra Costa – BAAQMD – CCTA – Environmental justice groups – MTC/ABAG – Transit providers – Local communities – California State Association of Counties – Advocacy organizations – East Bay Leadership Council – Safe Routes to School programs Applicability <ul style="list-style-type: none"> – County operations – Existing development – New development – Residents in unincorporated areas. – Businesses in unincorporated areas. Time Frame Long term (by 2030) |

Chapter 6

| CAP STRATEGY AND IMPLEMENTATION ACTIONS | POTENTIAL IMPLEMENTATION PERFORMANCE METRICS AND LEAD DEPARTMENTS | POTENTIAL PARTNERS, APPLICABILITY, AND TIME FRAME |
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| <p><u>Areas, as described in the Countywide Bicycle and Pedestrian Plan. (TR-A5.1)</u></p> <ul style="list-style-type: none"> – <u>Construct innovative bicycle and pedestrian facilities, including Class IV separated and protected bikeways, bicycle superhighways, and other low-stress facility types, as described in the Countywide Bicycle and Pedestrian Plan and in contemporary, best-practice transportation planning and engineering guidance. Use contextually appropriate green infrastructure and landscaping to separate vehicular lanes from bicycle and pedestrian facilities whenever feasible. (TR-A5.2)</u> – <u>Require transportation infrastructure serving new development to be designed using best practices, contemplating existing and planned land uses, roadways, bicycle and pedestrian facilities, transit facilities, and connections to adjoining areas. (TR-P4.2)</u> – <u>Create connections between unincorporated communities and neighborhoods in unincorporated areas and adjacent jurisdictions to improve multimodal access to local destinations, such as schools, parks, shopping, health services, and workplaces. (TR-P4.3)</u> – Track over time projects that add pedestrian and bicycle facilities to document the County's implementation of the County Road Improvement and Preservation Program (CRIPP); Complete Streets checklist; Vision Zero Report and Action Plan; Active Transportation Plan; and equity-focused plans, programs, and policies. – Improve the safety and comfort of bicycle, pedestrian, and public transit facilities using best practices to encourage more people to use such facilities. – <u>Work with CCTA to fill gaps in the countywide Low-Stress Bike Network, as outlined in the 2018 Countywide Bicycle and Pedestrian Plan. Prioritize providing access for Impacted Communities and constructing protected bicycle facilities. Coordinate with Caltrans, CCTA, the Regional Transportation Planning Committees, and neighboring jurisdictions to plan, design,</u> | <ul style="list-style-type: none"> – Administrative Bulletin supporting videoconference and conference calls, where appropriate. (County Administrator) – Updated CRIPP Project list. (Public Works) – Grant awards for transportation projects that support <u>2024 CAP</u><u>2024 CAAP</u> goals (number and amount). (Public Works, Conservation and Development) | |



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| <p>and implement Complete Street concepts on Routes of Regional Significance.</p> <ul style="list-style-type: none">– In collaboration with key partners, support efforts to establish or join a shared mobility program that provides access to conventional bicycle, e-bikes, and other micromobility modes, prioritizing access for low-income residents who do not have bicycles. Support efforts to establish and/or maintain bike repair programs.– Support efforts to expand the service area and frequency of regional transit agencies, and reduced fares for students, seniors, and low-income residents on systems, including AC Transit, BART, Capitol Corridor, County Connection, Tri Delta Transit, the San Francisco Bay Ferry, and WestCAT. Encourage programs that support "last mile" transportation connection and options.– Maximize development of jobs and affordable housing near high-quality transit service to support a jobs-housing balance.– Market the county's Northern Waterfront to attract innovative companies with jobs for residents.– Maintain in place and enforce a Transportation Demand Management (TDM) Ordinance that reflects best practices, and, at a minimum, conforms to Contra Costa Transportation Authority's adopted model TDM ordinance or resolution. (GM-P3.5)– Improve county-wide safety for bicyclists by advocating for the passage of Vulnerable Road User Laws.– Secure additional funding for the maintenance and expansion of bicycle and pedestrian infrastructure improvements. Support efforts to obtain additional funding to maintain and expand public transit operations and infrastructure improvements.– Support CCTA to develop and implement methods for tracking EV and e-bike charging and availability across jurisdictions.– Support CCTA and regional transit agencies in providing "last mile" transportation connections and options. | | |

| CAP STRATEGY AND IMPLEMENTATION ACTIONS | POTENTIAL IMPLEMENTATION PERFORMANCE METRICS AND LEAD DEPARTMENTS | POTENTIAL PARTNERS, APPLICABILITY, AND TIME FRAME |
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| <ul style="list-style-type: none"> – Encourage and support increased regional integration of transit systems to promote more equitable fare structures, fare integration, easier transfers, including coordinated transfers between different transit systems and reduced wait times, improved information sharing, and generally a more seamless and modern system. – <u>Ensure emerging transportation technologies and travel options, such as autonomous and ZEVs and transportation network companies, support the County's goals for reducing emissions, adapting to climate change, improving public safety, and increasing equitable mobility. (TR-P1.3)</u> | | |
| <p>TR-2: Increase the use of zero-emissions vehicles. Transition to a zero-emission County fleet by 2035 and a community fleet that is at least 50 percent zero-emission by 2030.</p> <ul style="list-style-type: none"> – Require new County vehicles to be zero emission to the extent a viable vehicle is available on the market, that charging or zero-emission fueling equipment is conveniently located where the vehicle will be stored, and as required by the Advanced Clean Fleet regulations, with the goal that all County vehicles will be zero-emission by 2035. – <u>Continue adopting new or modified reach codes and consider future updates that exceed the California Building Code as the State updates the Building Code, including the Green Building Code, to require zero-emission charging infrastructure in new multifamily and nonresidential buildings. Explore expanding it to include new single-family homes (Supported by TR-P1.12 and TR-A1.12).</u> – Install electric vehicle charging equipment and other infrastructure needed to support the transition to a zero-emission County fleet at | | <p>Potential Partners</p> <ul style="list-style-type: none"> – BAAQMD – Contra Costa Transportation Authority – Environmental justice groups – MCE – Multifamily and rental property owners – TNC and taxi providers – BART – Caltrans – East Bay Leadership Council <p>Applicability</p> <ul style="list-style-type: none"> – County operations – Existing development – New development – Residents in unincorporated areas. – Businesses in unincorporated areas. |



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| <p>County facilities. Consider the appropriate locations, number, and capacity of infrastructure to facilitate the transition of the County fleet to zero-emission vehicles.</p> <ul style="list-style-type: none"> – Provide incentives for zero-emission vehicles in partnership with MCE, BAAQMD, and other agencies. – Work with property owners and other potential partners to pursue installation of zero-emission vehicle charging stations in and near multifamily dwelling units. – Update off-street parking ordinance to include a requirement for zero-emission vehicle charging infrastructure. Consider including incentives for developers to exceed minimum requirements (i.e., density bonus). – Increase installation of electric vehicle charging stations for all vehicle types, including bicycles and scooters, at public facilities, emphasizing increased installation in Impacted Communities. – In partnership with regional agencies, explore providing subsidies for households making less than the area median income to purchase or lease zero-emission vehicles and associated infrastructure. – Pursue fees and regulatory efforts to convert transportation network company (TNC), taxi, and similar car-hire services to zero-emission vehicles. – Explore opportunities for implementing electric vehicle sharing programs. – Work with BAAQMD and other regional agencies to convert off-road equipment to zero-emission clean fuels. – Work with contractors, fleet operations, logistics companies, and other operators of heavy-duty vehicles to accelerate the transition to zero-emission heavy-duty vehicles. – <u>In cases where battery electric, hybrid, electric, and sustainable sourced hydrogen fuel cells are not available, work with Public Works to pursue the use of renewable natural gas (sourced from recovered organic waste) for transportation fuel, electricity, or</u> | <p>Key Performance Metric(s):</p> <ul style="list-style-type: none"> – Number of zero-emission vehicles registered in unincorporated county. (Conservation and Development) – Percentage of County fleet that is zero-emission. (Public Works) – <u>Implementation of an EV sharing program (Conservation and Development)</u> – <u>Number of electric vehicle charging ports installed at County facilities for County fleet and public use. (Public Works)</u> – <u>Number of EV ready parking spaces and EV charging stations installed with new development. (Conservation and Development)</u> <p>Supportive Performance Metric(s):</p> <ul style="list-style-type: none"> – Number of zero-emission vehicles purchased annually for County fleet. (Public Works) – <u>Number of EV chargers installed at County facilities, both for County fleet and public use. (Public Works)</u> – Number of publicly accessible EV chargers installed throughout the unincorporated county. (Conservation and Development) | <p>Time Frame</p> <p>Ongoing</p> |

| CAP STRATEGY AND IMPLEMENTATION ACTIONS | POTENTIAL IMPLEMENTATION PERFORMANCE METRICS AND LEAD DEPARTMENTS | POTENTIAL PARTNERS, APPLICABILITY, AND TIME FRAME |
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| <p>heating applications in cases where battery-electric, hybrid-electric, and sustainably sourced hydrogen fuel-cell sources are not available.</p> <ul style="list-style-type: none"> – Encourage efforts to maximize EV charging during solar peak hours. – <u>Continue to host events such as the Electric Vehicle and E-Bike Show to educate and empower County staff and community members about zero-emission vehicles.</u> – <u>Coordinate with CCTA and other local and regional agencies to support implementation of the Contra Costa County Electric Vehicle Readiness Blueprint and related policies and apply best practices in ZEV charging/fueling infrastructure requirements. (TR-A1.11).</u> |  | |
| Resilient Communities and Natural Infrastructure: Contra Costa County will increase resilience to climate hazards and foster community health. | | |
| <p>NI-1: Protect against and adapt to changes in sea levels and other shoreline flooding conditions.</p> <ul style="list-style-type: none"> – Require new development to locate habitable areas of buildings above the highest water level expected accounting for sea level rise and other changes in flood conditions, or construct natural and nature-based features, or a levee, if necessary, adequately designed to protect the project for its expected life. (HS-P6.1) – Support the use of natural infrastructure, including ecosystem restoration and green infrastructure, to protect against sea level rise and associated shoreline flooding. – Coordinate with State and regional agencies, neighboring jurisdictions, property owners, utilities, and others to prepare a sea level rise adaptation plan. – Seek funding and pursue implementation of wetland restoration and other adaptation efforts for sea level rise. | <p>Key Performance Metric(s):</p> <ul style="list-style-type: none"> – Establish a shoreline flooding working group. (Conservation and Development) <p>Supportive Performance Metric(s):</p> <ul style="list-style-type: none"> – Develop effective tracking metrics. (Conservation and Development) | <p>Potential Partners</p> <ul style="list-style-type: none"> – Existing development – New development <p>Applicability</p> <ul style="list-style-type: none"> – San Francisco Bay Conservation and Development Commission – Delta Stewardship Council – Shoreline communities – Irrigation districts – Community-based organizations – Land Trusts <p>Time Frame</p> <p>Long term (by 2030)</p> |



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| <ul style="list-style-type: none"> – Convene a working group that includes local jurisdictions, local shoreline communities, community-based organizations, property owners, businesses, and other stakeholders to collaborate on shoreline flooding adaptation strategies. – Identify opportunities for employing natural areas as buffers against rising sea levels. | | |
| <p>NI-2: Protect against and adapt to increases in the frequency and intensity of wildfire events.</p> <ul style="list-style-type: none"> – Deny applications for subdivisions creating additional residential lots in Very High Fire Hazard Severity Zones. Discourage such subdivisions in High Fire Hazard Severity Zones unless adequate fire protection services are provided Prohibit new residential subdivisions in Very High Fire Hazard Severity Zones and discourage residential subdivisions in High Fire Hazard Severity Zones. (HS-P7.1) – Require any construction of buildings or infrastructure within a High or Very High Fire Hazard Severity Zone in the Local or State Responsibility Areas, or in <u>areas that may be designated as</u> the Wildland-Urban Interface, to incorporate fire-safe design features that meet the applicable State Fire Safe Regulations and Hazard Reduction Around Buildings and Structures Regulations for road ingress and egress, fire equipment access, and adequate water supply. (HS-P7.2) – Require subdivisions in the High Fire Hazard Severity Zones in the Local or State Responsibility Areas, or projects requiring a land use permit in the High or Very High Fire Hazard Severity Zones in the Local or State Responsibility Areas, to complete a site-specific fire protection plan. Collaborate-Work with the appropriate fire protection district to review and revise the fire protection plans. (HS-P7.34) | <p>Key Performance Measure(s):</p> <ul style="list-style-type: none"> – Amount of funds distributed for wildfire mitigation efforts. (Contra Costa Fire Protection District and other fire protection entities) – Miles of power lines undergrounded. (Conservation and Development) | <p>Potential Partners</p> <ul style="list-style-type: none"> – Residents in unincorporated areas. – Businesses in unincorporated areas. – County operations – Existing development – New development – Sheriff's Office of Emergency Services <p>Applicability</p> <ul style="list-style-type: none"> – Community-based organizations – Contra Costa County Fire Protection District – Facility operators (school districts, libraries, community centers, etc.) – Kensington Fire Protection District – Rodeo-Hercules Fire Protection District – Moraga-Orinda Fire District – San Ramon Valley Fire Protection District – Medical service providers |

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| <ul style="list-style-type: none"> – Work with property owners in mapped High or Very High Fire Hazard Severity Zones or in <u>areas that may be designated as</u> the Wildland-Urban Interface, to establish and maintain fire breaks and defensible space, vegetation clearance, and firefighting infrastructure <u>that meets adopted State, County, or community fire safety standards</u>. (HS-P7.45) – Support undergrounding of utility lines, Coordinate <u>with energy service providers to underground power lines</u>, especially in the WUI and High and Very High Fire Hazard Severity Zones. (HS-P7.108) – Review indoor air filtration standards and consider whether filtration requirements can and should be strengthened for projects permitted by the County. – Work with community organizations to help Impacted Communities have access to financing and other resources to reduce the fire risk on their property, prepare for wildfire events, and allow for a safe and speedy recovery. |  | <ul style="list-style-type: none"> – 211 – Red Cross <p>Time Frame Long term (by 2030)</p> |
| <p>NI-3: Establish and maintain community resilience hubs.</p> <ul style="list-style-type: none"> – Pursue funding to develop a resilience hub master plan that identifies existing community facilities that can serve as resilience hubs and support affected populations during hazard events. This process should start with an assessment of community needs. Such facilities should be distributed equitably throughout the county, with an emphasis on easy access for Impacted Communities. Where appropriate facilities do not exist, develop plans to create new resilience hubs. <u>(Supported by HS-P8.1)</u> – Pursue funding to implement the resilience hub master plan, including retrofitting selected facilities to function as resilience hubs. These retrofits should involve adding solar panels, battery backup systems, water resources, <u>air filtration</u>, supplies to meet | <p>Key Performance Measure(s):</p> <ul style="list-style-type: none"> – Adopted plan for community resilience hubs. (Conservation and Development) – Number of community resilience hubs. (Conservation and Development) – Number of permits issued for battery storage projects. (Conservation and Development) | <p>Potential Partners</p> <ul style="list-style-type: none"> – Community-based organizations – Contra Costa County Fire Protection District – Contra Costa County Sheriff's Office of Emergency Services – Employment and Human Services – Environmental justice organizations – Facility operators (school districts, libraries, community centers, <u>childcare facilities</u>, etc.) |



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| <p>basic community and emergency medical needs, and other needs as identified by the resilience hub master plan.</p> <ul style="list-style-type: none"> – Create a virtual resilience hub that connects County resources to communities through virtual community networks to provide detailed, up-to-date information about preparing for natural disasters, public safety notifications and alerts, space for virtual gathering and information-sharing, and other appropriate uses. Materials shall be accessible in multiple languages. – Coordinate resilience hub activities with planning efforts around public safety power shutoffs and wildfire smoke resiliency. | | <ul style="list-style-type: none"> – Jurisdictional fire departments – Homeless service providers – Medical service providers – 211 – Contra Costa County Office of Education – Local school districts – Red Cross <p>Applicability</p> <ul style="list-style-type: none"> – County operations – Residents in unincorporated areas. <p>Time Frame</p> <p>Mid-term (by 2028)</p> |
| <p>NI-4: Sequester carbon on natural and working lands in Contra Costa County.</p> <ul style="list-style-type: none"> – Pursue implementation of recommendations from carbon sequestration feasibility study, <i>Healthy Lands, Healthy People</i>. – Continue to support and work with key partners to maintain existing and establish new pilot programs for carbon sequestration on agricultural land. – Promote restorative/regenerative agricultural and landscaping techniques that incorporate cover crops, mulching, compost application, field borders, alley cropping, conservation crop rotation, prescribed grazing, and reduced tillage to promote healthy soil and soil conservation. (Supported by COS-P2.11) – Support soil conservation and restoration programs. Encourage agricultural landowners to work with agencies such as the USDA's | <p>Key Performance Metric(s):</p> <ul style="list-style-type: none"> – Completed feasibility study for carbon sequestration in Contra Costa County. (Conservation and Development) Completed 2023 <p>Supportive Performance Metric(s):</p> <ul style="list-style-type: none"> – Number of completed pilot carbon farming project(s). – Progress report on implementation of County's Green Infrastructure Plan for County facilities. (Public Works) – Quantity of SB 1383-compliant compost procured and utilized by the County directly or on the County's behalf. (Public Works, Conservation and Development) | <p>Potential Partners</p> <ul style="list-style-type: none"> – Contra Costa County Integrated Pest Management Advisory Committee – Agricultural groups – Community gardening groups – Community-based organizations – Contra Costa Resource Conservation District – East Bay Regional Park District – Save Mount Diablo, John Muir Land Trust, and other |

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| <p>NRCS and Contra Costa RCD to reduce erosion and soil loss. (COS-P2.10)</p> <ul style="list-style-type: none"> – Coordinate with farming groups, ranchers, the Contra Costa Resource Conservation District, and the University of California Cooperative Extension to identify and promote varieties of feedstock, livestock, and crops that are resilient to rising temperatures and changing precipitation patterns and that increase carbon sequestration. – Explore ways to increase carbon sequestration on County-owned facilities<u>properties</u>. – Partner with regional landowners and agencies to establish carbon sequestration programs and incentives. – Consider the development of carbon offset protocols and guidance for future use by to provide technical support to carbon sequestration program applicants and County permitting staff to promote appropriate <u>natural</u> sequestration on natural and developed lands. – Ensure that any local or regional carbon sequestration program that the County establishes, promotes, supports, or joins must provide benefits to unincorporated communities that face environmental justice issues. – Explore the potential for the public to support tree planting and maintenance of existing trees. <u>(Supported by COS-P6.2)</u> – Establish a mechanism to support expanded tree planting and maintenance activities, particularly in areas with few trees. – Support protection, restoration, and enhancement of creeks, wetlands, marshes, sloughs, and tidelands, and emphasize the role of these features in climate change resilience, air and water quality, and wildlife habitat. (COS-P5.1) – Inventory wetlands, floodplains, marshlands, <u>natural watercourses, riparian corridors</u>, and adjacent lands that could potentially support climate adaptation (e.g., through flood management, | <ul style="list-style-type: none"> – <u>Progress in meeting recommendations from the 2023 Healthy Lands, Healthy People carbon sequestration feasibility study. (Conservation and Development)</u> | <p>land conservation organizations.</p> <ul style="list-style-type: none"> – Environmental justice organizations – Organizations that support regenerative landscaping and agriculture. – Regional landowners – UC Cooperative Extension – Contra Costa Health <p>Applicability</p> <ul style="list-style-type: none"> – County operations – East Contra Costa County Habitat Conservancy – Natural and working lands – Residents in unincorporated areas. – Businesses in unincorporated areas. <p>Time Frame</p> <p>Long term (by 2030)</p> |



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| <p>filtration, or other beneficial ecosystem services) and mitigation (e.g., carbon sequestration). (COS-A5.1)</p> <ul style="list-style-type: none"> – Encourage and support conservation of natural lands outside the urban limit line in the unincorporated county. – Explore the <u>new funding and financing opportunities for climate adaptation and resilience projects, including the creation of a Climate Resilience District, issuance of green bonds as a potential financing mechanism, and similar opportunities.</u> – Require that any mitigation of air quality impacts occur on-site to the extent feasible to provide the greatest benefit to local residents <u>in unincorporated communities</u>. For mitigation that relies on offsets, require that the offsets be obtained from sources as near to the project site as possible <u>or from sources that would improve air quality in an Impacted Community</u>. If the project site is within or adjacent to an Impacted Community, require offsets or mitigation within that community unless determined infeasible by the County (HS-P1.6). | | |
| <p>NI-5: Minimize heat island effects through the use of cool roofs, <u>and green infrastructure, tree canopy, cool paint and pavement, and other emerging strategies.</u></p> <ul style="list-style-type: none"> – Require landscaping for new development to be drought-tolerant, filter and retain runoff and support flood management and groundwater recharge. (COS-P7.7) – Promote installation of drought-tolerant green infrastructure, including street trees, in landscaped public areas. (COS-P7.8) – Increase tree planting in urbanized areas, and open spaces where ecologically appropriate, emphasizing areas with limited existing tree cover, using low-maintenance native tree species that are low | <p>Key Performance Metric(s):</p> <ul style="list-style-type: none"> – Number of permits for cool roofs, both private and County facilities. (Conservation and Development) – Adoption of a<u>n Urban Forest Management Plan, or Tree Master</u> Plan. (<u>Conservation and Development, Public Works</u>) – Percent of heat-vulnerable communities with tree cover / number of new tree plantings. (Public Works) – Square feet of pervious pavers installed. (Public Works) <p>Supportive Performance Metric(s):</p> <ul style="list-style-type: none"> – Number of ER visits, deaths, and associated clinical care related to extreme heat events. (Health) | <p>Potential Partners</p> <ul style="list-style-type: none"> – Community-based organizations – Community gardening groups – Environmental justice organizations – Organizations that support regenerative landscaping and agriculture. – Water and wastewater service providers – Contra Costa Health and related partners |

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| <p>fire risk and ensuring water supply resources are not compromised. (<u>Supported by</u> COS-P6.2)</p> <ul style="list-style-type: none"> – Consider preparing and implementing an <u>Urban Forest Management Plan, or -Tree Master Plan</u> for the unincorporated county. – Provide shade trees or shade structures at parks, plazas, and other outdoor spaces. – <u>Update When updating the County-tree ordinances that relate to trees and green infrastructure, to consider whether factors for approval of tree removal, planting, and/or replanting requirements are adequately considering promote expansion of the tree canopy and green infrastructure in Impacted Communities (e.g., tree cover, replanting standard). (Supported by TR-A2.2, HS-P2.2, and HS-A2.5)</u> – Support efforts to develop incentive programs for home and business owners, school districts, and other local and regional property owners to increase the adoption of cool roofs, <u>and green infrastructure, and other cooling strategies</u> on private property. | <ul style="list-style-type: none"> – Equity measure rankings on the Healthy Places Index. (Health) – Acres treated by green stormwater infrastructure. (Public Works) | <ul style="list-style-type: none"> – East Bay Regional Park District <p>Applicability</p> <ul style="list-style-type: none"> – County operations – Existing development – New development – Residents in unincorporated areas. – Businesses in unincorporated areas. <p>Time Frame</p> <p>Midterm (by 2028)</p> |



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| <p>NI-6: Protect communities against additional hazards created or exacerbated by climate change.</p> <ul style="list-style-type: none"> – Discourage new below-market-rate housing in High and Very High Wildfire Hazard Severity zones, the Wildland-Urban Interface, and Alquist-Priolo Fault Zones. If below-market-rate housing must be constructed within these zones, require it to be hardened or make use of nature-based solutions to remain habitable to the greatest extent possible. (HS-P3.42) – Treat susceptibility to hazards and threats to human health and life as primary considerations when reviewing all development proposals and changes to land uses. – Partner with community-based organizations to provide information to community members about how to prepare for projected climate change hazards. – Promote, and develop as necessary, available funding sources to create incentives for residents and businesses to prepare for natural disasters, particularly members of Impacted Communities. – Consider projected impacts of climate change when siting, designing, and identifying the construction and maintenance costs of capital projects. – Actively promote and expand participation in local and regional community emergency preparedness and response programs. – <u>Support and fund efforts to enhance ongoing community and cross-sector engagement in community-level resilience and cohesion. Support non-government organizations to actively engage in developing a network of community-level actions that enhance resiliency.</u> – <u>Work with energy service providers to promote programs encouraging reduced energy use during extreme heat events. (HS-P8.2)</u> | <p>Key Performance Metric(s):</p> <ul style="list-style-type: none"> – Health outcomes of residents in Impacted Communities relative to the prior performance review. (Health) – Number of substandard homes that pose a health risk to residents in Impacted Communities relative to the prior performance review. (Conservation and Development) – Amount of support provided to businesses in Impacted Communities through the County's small business assistance programs relative to the prior performance review. (Conservation and Development) – The rate of poverty in Impacted Communities relative to the prior performance review. (Conservation and Development) – Development and use of climate change vulnerability and resilience screening criteria for County capital investment projects. (Conservation and Development) <p>Supportive Performance Metric(s):</p> <ul style="list-style-type: none"> – Number of County-led or -supported outreach and engagement activities in support of emergency preparedness and hazard mitigation. | <p>Potential Partners</p> <ul style="list-style-type: none"> – Community-based organizations – Contra Costa County Fire Protection District – Facility operators (school districts, libraries, community centers, etc.) – Kensington Fire Protection District – Rodeo-Hercules Fire Protection District – Moraga-Orinda Fire District – San Ramon Valley Fire Protection District – Medical service providers – Contra Costa Health and related partners – 211 – Red Cross – Sheriff's Office of Emergency Services <p>Applicability</p> <ul style="list-style-type: none"> – County operations – Existing development – New development – Residents in unincorporated areas. – Businesses in unincorporated areas. |

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| <ul style="list-style-type: none"> – <u>Support efforts by East Bay Regional Park District and other local recreation agencies to provide outdoor recreation facilities with adequate shading and refillable water stations where appropriate. (HS-P8.4)</u> | | Time Frame Near term (by 2026) |
| Climate Equity: Contra Costa County will address environmental factors leading to health disparities, promote safe and livable communities, and promote investments that improve neighborhood accessibility. | | |
| CE-1: Provide access to affordable, clean, safe, and healthy housing and jobs. <ul style="list-style-type: none"> – In partnership with community-based organizations, reverse community deterioration and blight and improve personal and property safety in neighborhoods throughout Contra Costa County. – Ensure that new housing for households making less than the area median income and housing for other Impacted Communities are outside of hazard-prone areas, including for wildfires, landslides, floods, and sea level rise, or that they are hardened or make use of nature-based solutions to remain habitable to the greatest extent possible. (HS-P4.3) – In partnership with community-based organizations, secure funding to establish a program to provide low-cost or free air conditioning and filtration, improved insulation, low-emitting materials, energy solar and storage systems, energy efficiency, and indoor ventilation in homes, emphasizing buildings that are home to Impacted Community members. (SC-A6.2, <u>SC-A6.3</u>) – Track development of local micro-grid battery storage policies and systems in other jurisdictions and identify potential opportunities for Contra Costa County. – Encourage companies and entrepreneurs from local universities and national labs to create jobs in such industries as renewable | Key Performance Metric(s): <ul style="list-style-type: none"> – Funds spent by County departments on energy efficiency and other services that support the Climate Action <u>and Adaptation</u> Plan goals in Impacted Communities compared to non-Impacted Communities. (Conservation and Development, Public Works) Supportive Performance Metric(s): <ul style="list-style-type: none"> – Measures of health and social impacts of climate change that can reveal significant disparities and inequities across groups. (Health) | Potential Partners <ul style="list-style-type: none"> – Community-based organizations – Environmental justice groups – Local grocery stores and food banks – Housing developers and contractors – Community colleges, schools, labor unions, and local career skills training programs – Workforce development programs – Workforce Development Boards Applicability <ul style="list-style-type: none"> – County operations – Existing development – New development – Residents in unincorporated areas. – Businesses in unincorporated areas. |



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| <p>energy, transportation technology, diverse forms of manufacturing, biotech/biomedical, and clean tech.</p> <ul style="list-style-type: none"> – Partner with local schools, the community college district, community-based organizations, labor unions, Workforce Development Boards, and other appropriate groups to provide training for residents for family-sustaining jobs in sustainable industries. Prioritize training for people currently or recently working in polluting or extractive activities. (SC-P1.1) – Provide support for State and federal programs that support family-sustaining jobs in sustainable industries, efforts to support organized labor, and living wage labor standards. – Adopt an ordinance at least as stringent as the State’s maximum idling laws, and coordinate with CARB and law enforcement to achieve compliance. (HS-A1.5) | | <p>Time Frame</p> <p>Mid-term (by 2028)</p> |
| <p>CE-2: Invest in solutions to support climate equity.</p> <ul style="list-style-type: none"> – Evaluate and adjust County planning and expenditures for infrastructure and services as needed to ensure equitable investment in Impacted Communities, consistent with SB 1000. – Work with County departments to incorporate addressing climate change, providing climate solutions, and enhancing community equity more fully into County operations and the broad range of services the County provides. – As part of the 2024 CAP and General Plan implementation, consider whether the strategy being implemented provides equitable benefits for Impacted Communities as a criterion for prioritization. – Continually engage communities most affected by climate change in developing and implementing climate solutions and ensure that such solutions provide benefits to Impacted Communities. – Advocate for the Contra Costa Employees Retirement Association to include use of Environmental, Social, and Governance criteria in its investment policies. | <p>Key Performance Metric(s):</p> <ul style="list-style-type: none"> – Modified County investment policy to use ESG and to continue to prohibit investment in all securities issued by fossil fuel companies. (County Administrator, Treasurer/Tax Collector) <p>Supportive Performance Metric(s):</p> <ul style="list-style-type: none"> – Number of community engagement opportunities in which County staff participate, including presentations to community groups. – Advocacy for Contra Costa Employees Retirement Association to use ESG in its investment priorities and to offer environmentally and socially responsible investment choices for members. (Board of Supervisors) | <p>Potential Partners</p> <ul style="list-style-type: none"> – Community-based organizations – Contra Costa Employees Retirement Association – Environmental justice groups – School and community college districts – Contra Costa County Library – Business groups – Youth groups <p>Applicability</p> <ul style="list-style-type: none"> – Impacted Communities – Residents in unincorporated areas. <p>Time Frame</p> <p>Mid-term (by 2028)</p> |

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| <ul style="list-style-type: none">– Require that the County's Deferred Compensation Plan provider make available Environmental, Social, and Governance investment options for employees participating in the County's 457 deferred compensation plan.– Amend the County investment policy to consider the use of Environmental, Social, and Governance criteria and to continue and improve efforts to divest from fossil fuels.– Work with schools, Contra Costa County Library, business groups, and community-based organizations to educate and inform community members about climate change and related sustainability topics, <u>and the County's climate goals and the actions the County is taking to achieve them.</u>– Evaluate the issuance of Labeled Bonds, such as "Green", "Sustainable", or "Social" bonds, during the planning stage of a bond issuance by the County. It is the County's preference to issue Labeled Bonds if the evaluation demonstrates a financial or policy benefit to the County. | | |



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| CE-3: Increase access to parks and open space. <ul style="list-style-type: none"> – Establish a goal for all residents to live within a half-mile of a park or other green space. – Support land acquisition for new parks and open space areas and protect such lands through fee title acquisition or through deed restrictions like conservation easements. – Continue to construct and develop opportunities for new trails. – Support investment in existing park facilities, in partnership with regional agencies. – Increase the tree canopy on public property, especially in Impacted Communities and areas with a high heat index, by prioritizing funding for new street tree planting and maintenance. (HS-P2.2) | Key Performance Metric(s): <ul style="list-style-type: none"> – Number of residents in unincorporated county, including those in Impacted Communities, within a half-mile of a park or other green space. (Conservation and Development) – Total acres of parks and green space by type. (Conservation and Development) | Potential Partners <ul style="list-style-type: none"> – Agricultural groups – Contra Costa Resource Conservation District – East Bay Regional Park District – Environmental justice groups – Local land trusts and land conservation groups – Housing developers |
| | | Applicability <ul style="list-style-type: none"> – New development – Residents in unincorporated areas. |
| | | Time Frame Near term (by 2026) |
| CE-4: Ensure residents have equitable, year-round access to affordable, local fresh food. <ul style="list-style-type: none"> – Support establishment of year-round Certified Farmers' Markets in all communities, prioritizing Impacted Communities. – Work with community groups to establish and maintain urban gardens, particularly on vacant lots and park land in Impacted Communities. (SC-P4.1) – Encourage major supermarkets to locate in Impacted Communities. – Support co-operative grocery markets in Impacted Communities. | Key Performance Metric(s): <ul style="list-style-type: none"> – Number of regular Certified Farmers' Markets in all communities and in Impacted Communities. (Agriculture) – Number of permits issued for urban gardens in all communities (if permits are required by policy). (Agriculture) Supportive Performance Metric(s): <ul style="list-style-type: none"> – Number of residents participating in In Lieu of Services (ILOS) food benefits. (Health) | Potential Partners <ul style="list-style-type: none"> – Agricultural groups – Community gardening groups – Environmental justice groups – Farmers markets – Local grocery stores and food banks |
| | | Applicability <ul style="list-style-type: none"> – Residents in unincorporated areas. – Businesses in unincorporated areas. |

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| | | Time Frame Long term (by 2030) |
| CE-5: Ensure that large industrial facilities act as good neighbors. <ul style="list-style-type: none"> – Provide recommendations to responsible permit agencies regarding permits for fossil fuel-based industries and point sources <u>Provide comments to responsible permit agencies on permit applications for large industrial facilities with significant emissions on potential measures to reduce impacts on and provide benefits to neighboring unincorporated communities.</u> – Regularly track data on fossil fuel production and transportation in Contra Costa County. – Encourage the economic development of industries and supply chains that emphasize a reduction in GHG emissions. – Encourage economic development and job creation in industries that advance the County's sustainability goals, using the County's policy on enhanced infrastructure financing districts. – As economic conditions change, support efforts to phase out heavily polluting and extractive industries and replace them with businesses that contribute to a regenerative and circular economy. – Require new or expanded commercial and industrial projects <u>exceeding resulting in</u> 25,000 square feet <u>or more</u> of gross <u>habitable</u> floor area to be near zero-emission operations, including the facilities themselves and the associated fleets, except for uses with fewer than five vehicles domiciled on-site. Require all necessary measures to achieve near-zero emissions. (HS-P1.8) | Key Performance Metric(s): <ul style="list-style-type: none"> – Quantity and type of fossil fuels produced, refined, stored in, and distributed in the unincorporated county, to the extent data are available. (Conservation and Development) Supportive Performance Metric(s): <ul style="list-style-type: none"> – Information on specific fossil fuel facilities in Contra Costa County, including changes of ownership, mergers and acquisitions, investor presentations and reports, or any other public information that may indicate a facility's interest or intent to expand in the future, considering broader market trends in oil and gas refining and export in the Bay Area. (Conservation and Development) – Local air quality metrics. (Conservation and Development) | Potential Partners <ul style="list-style-type: none"> – BAAQMD – CARB – Chambers of Commerce – East Bay Leadership Council – Community-based organizations – Environmental justice groups – Industry groups – Labor unions Applicability <ul style="list-style-type: none"> – Industrial operations – Residents in unincorporated areas. – Businesses in unincorporated areas. Time Frame Ongoing and near term (by 2026) |



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|---|---|---|
| Leadership Strategies: Contra Costa County is a model for how local government can take action on climate issues. | | |
| <p>L-1: Establish Contra Costa County as a leader among local governments for addressing climate issues.</p> <ul style="list-style-type: none"> – Continue to publicize and support the operations of the County's Interdepartmental Climate Action Task Force and Green Government Group (G3) Champions. – Work with all County departments to encourage adoption of best practices from the County's Green Business Program and other practices that support the County's climate goals. – Encourage development of new policies and initiatives that support the County's climate goals. – Explore the creation of funding mechanisms, including a carbon impact fee, to support the County's Sustainability Fund for investments in County facilities if additional financial resources are needed. – Support legislative efforts to establish a green bank able to equitably finance sustainability projects, including renewable energy, energy efficiency, and green infrastructure, for residential and commercial customers. (COS-A14.910) – Ensure that funding mechanisms to address climate change minimize or avoid disproportionate financial impacts to Impacted Communities and do not exacerbate economic inequities to the extent feasible. – Facilitate trainings for County staff on climate change (including the results of the Vulnerability Assessment and the 2024 CAP2024 | <p>Key Performance Metric(s):</p> <ul style="list-style-type: none"> – Ongoing work products and semi-annual reports from Interdepartmental Climate Action Task Force. (Conservation and Development) – Annual report on conditions placed on discretionary projects to ensure support of Climate Action and Adaptation Plan goals. (Conservation and Development) – Number of County departments that have adopted their own Climate Action Plan, or adopted practices that support the CAAP. (Conservation and Development) <p>Supportive Performance Metric(s):</p> <ul style="list-style-type: none"> – Number of County departments adopting best practices of the Green Business Program. (Conservation and Development) – Trainings and other information for County staff on climate change. (Conservation and Development) – Amount of pesticides applied to County properties. (Public Works, Health (IPM)) – Number of County facilities with an active integrated pest management plan. (Public Works, Health (IPM)) | <p>Potential Partners</p> <ul style="list-style-type: none"> – All County departments – Interdepartmental Climate Action Task Force – Community-based organizations – Green Business Program – Contra Costa County Library <p>Applicability</p> <ul style="list-style-type: none"> – County operations – Businesses in unincorporated areas. <p>Time Frame</p> <p>Ongoing and midterm (by 2028)</p> |

| CAP STRATEGY AND IMPLEMENTATION ACTIONS | POTENTIAL IMPLEMENTATION PERFORMANCE METRICS AND LEAD DEPARTMENTS | POTENTIAL PARTNERS, APPLICABILITY, AND TIME FRAME |
|---|--|--|
| <p>CAAP technical work) and how they can support climate action through their work with the County and at home.</p> <ul style="list-style-type: none"> – Encourage County employees to explore innovative technologies and programs that address climate change. – Incorporate integrated pest management into new construction and retrofit programs on County properties. – Ensure County departments follow the County's Environmentally Preferable Purchasing Policy and policy requirements are included in the contracting process. – Regularly review and revise the County's purchasing and contracting programs as necessary to ensure consistency with the County's sustainability and GHG reduction goals. (HS-A3.23) | | |
| <p>L-2: Continue to recognize the climate crisis as an emergency for Contra Costa County and make addressing climate change a top County priority.</p> <ul style="list-style-type: none"> – Continue to implement the 2020 Climate Emergency Resolution approved by the Board of Supervisors, including conducting periodic reviews and updates to the Resolution. – Consider climate vulnerabilities and associated equity effects as factors in the County's planning and expenditures for infrastructure and services to increase resilience and reduce GHG emissions countywide. – Consider development standards for the disclosure of climate and equity effects and vulnerabilities in staff reports for all decisions by the Board of Supervisors when such disclosures are helpful and necessary. Explore modifying County processes and forms to include questions to ensure the proposed action is consistent with the 2024 CAP 2024 CAAP and equity goals. – Assess County programs, policies, operations, and projects (excluding stationary sources) for their contribution to achieving the County's GHG emissions reduction goals and consistency with the 2024 CAP 2024 CAAP. | <p>Key Performance Metric(s):</p> <ul style="list-style-type: none"> – Actions taken to implement Climate Emergency Resolution. (Conservation and Development) | <p>Potential Partners</p> <ul style="list-style-type: none"> – All County departments – Interdepartmental Climate Action Task Force – Community-based organizations – Local environmental groups <p>Applicability</p> <ul style="list-style-type: none"> – County operations <p>Time Frame</p> <p>Mid-term (by 2028)</p> |



6. Realizing the [2024 CAAP](#)

| CAP STRATEGY AND IMPLEMENTATION ACTIONS | POTENTIAL IMPLEMENTATION PERFORMANCE METRICS AND LEAD DEPARTMENTS | POTENTIAL PARTNERS, APPLICABILITY, AND TIME FRAME |
|--|--|--|
| <ul style="list-style-type: none"> – Disclose GHG emissions to a registry such as the Carbon Disclosure Project (CDP). | | |
| Implementation Strategies: Contra Costa County will ensure it follows through to achieve the goals and actions in this Climate Action and Adaptation Plan. | | |
| <p>IS-1: Monitor and report progress toward achieving Climate Action and Adaptation Plan goals on an annual basis.</p> <ul style="list-style-type: none"> – Assign responsibility for facilitating and supporting 2024 CAAP implementation to the County's Department of Conservation and Development. – Identify key staff from each department responsible for supporting 2024 CAAP implementation and updates for annual reporting and monitoring. – Continue to involve community-based organizations and other key stakeholders in reviewing and recommending 2024 CAAP action items. – Continue to prepare an annual progress report on implementation of the recommended GHG emissions reduction strategies and progress toward the 2024 CAAP goals. When information is available, provide updates on estimated GHG emissions reductions and current GHG emissions levels. – Monitor implementation of the Sustainability Fund for projects in County facilities – Use the 2024 CAAP implementation and monitoring tool to track GHG benefits from 2024 CAAP implementation and identify progress toward the 2024 CAAP reduction goals. – Pursue refinements to improve the County permitting system and other systems as needed to support collection of 2024 CAAP implementation data. – Work with Contra Costa Health on exploring, and if appropriate, developing health indicators related to climate change to help | <p>Key Performance Metric(s):</p> <ul style="list-style-type: none"> – Preparation of Annual Report and presentation to Sustainability Commission and Board of Supervisors. (Conservation and Development) – Dedicated funding in annual budget for implementation of the 2024 CAAP. (County Administrator) – Regularly maintained 2024 CAAP tracking tool. (Conservation and Development) – Updates to County permitting system to support tracking of 2024 CAAP implementation. (Conservation and Development) – Sustainability Fund progress report. (Public Works) | <p>Potential Partners</p> <ul style="list-style-type: none"> – All County departments – Interdepartmental Climate Action Task Force – Sustainability Commission <p>Applicability</p> <ul style="list-style-type: none"> – County operations – Residents in unincorporated areas. – Businesses in unincorporated areas. <p>Time Frame</p> <p>Ongoing and near term (by 2026)</p> |

| CAP STRATEGY AND IMPLEMENTATION ACTIONS | POTENTIAL IMPLEMENTATION PERFORMANCE METRICS AND LEAD DEPARTMENTS | POTENTIAL PARTNERS, APPLICABILITY, AND TIME FRAME |
|--|--|--|
| inform progress on current actions and effectiveness of adaptation strategies. | | |
| <p>IS-2: Continue collaborative partnerships with agencies and community groups that support Climate Action <u>and Adaptation</u> Plan implementation, with an emphasis on residents and community-based organizations from Impacted Communities.</p> <ul style="list-style-type: none"> – Participate in local and regional organizations that provide tools and support for energy efficiency, energy conservation, GHG emissions reductions, sustainable infrastructure development, adaptation, public information, and implementation of this 2024 <u>CAAP</u>. – Enable effective partnerships to implement high-priority strategies from the 2024 <u>CAAP</u> by working through established interagency collaborations and joint exercise of powers authorities and forming new arrangements of various types where necessary to be effective. – Provide input to partner agencies on policy barriers that need to be addressed at the State level. – <u>Continue collaboration with other local governments in Contra Costa County on climate action and related subjects, including an annual Sustainability Exchange meeting of all local government staff in Contra Costa County that focus on climate action and adaptation planning and implementation.</u> | <p>Key Performance Metric(s):</p> <ul style="list-style-type: none"> – Partnerships maintained. (Conservation and Development) | <p>Potential Partners</p> <ul style="list-style-type: none"> – All County departments – Interdepartmental Climate Action Task Force – Sustainability Commission – Agency partners – Community-based organizations <p>Applicability</p> <ul style="list-style-type: none"> – County operations – Residents in unincorporated areas. – Businesses in unincorporated areas. <p>Time Frame</p> <p>Near term (by 2026)</p> |



6. Realizing the [2024 CAAP](#)

| CAP STRATEGY AND IMPLEMENTATION ACTIONS | POTENTIAL IMPLEMENTATION PERFORMANCE METRICS AND LEAD DEPARTMENTS | POTENTIAL PARTNERS, APPLICABILITY, AND TIME FRAME |
|--|---|---|
| IS-3: Secure necessary funding to implement the Climate Action and Adaptation Plan. <ul style="list-style-type: none"> Identify funding sources and levels for reduction strategies as part of annual reporting. Include GHG emissions reduction strategies in the capital improvement programs for County-owned and managed facilities and infrastructure, and other plans as appropriate. Pursue local, regional, state, and federal grants to support implementation. Explore dedicated funding sources for 2024 CAAP implementation, including from the Sustainability Fund or other revenue sources as needed. Explore opportunities to allocate a portion of revenues from revenue-generating strategies in the 2024 CAAP to its implementation. | Key Performance Metric(s): <ul style="list-style-type: none"> Climate action integration into all department work plans and capital improvement program. (County Administrator, Public Works) Number of grants and amount of funding being pursued, awarded, and managed. (Conservation and Development) Funding provided for the Sustainability Fund. (County Administrator) | Potential Partners <ul style="list-style-type: none"> All County departments Interdepartmental Climate Action Task Force Agency partners Applicability <ul style="list-style-type: none"> County operations Residents in unincorporated areas. Businesses in unincorporated areas. Time Frame Ongoing and near term (by 2026) |
| IS-4: Continue to update the baseline emissions inventory and Climate Action and Adaptation Plan every five years. <ul style="list-style-type: none"> Prepare a GHG emissions inventory that shows GHG emissions after emergency conditions created by the COVID-19 pandemic are expected to have ended. Update the community-wide GHG emissions inventory every five years at a minimum and more frequently as resources are available. Prepare an inventory for the 2024 calendar year within a year of adoption of the 2024 CAAP. Update the 2024 CAAP to incorporate new technologies, practices, and other options to further reduce emissions. (HS-A3.1) | Key Performance Metric(s): <ul style="list-style-type: none"> Updated GHG inventories every five years. (Conservation and Development) | Potential Partners <ul style="list-style-type: none"> All County departments Interdepartmental Climate Action Task Force Applicability <ul style="list-style-type: none"> County operations Residents in unincorporated areas. Businesses in unincorporated areas. Timeframe Mid-term (by 2028) |

| CAP STRATEGY AND IMPLEMENTATION ACTIONS | POTENTIAL IMPLEMENTATION PERFORMANCE METRICS AND LEAD DEPARTMENTS | POTENTIAL PARTNERS, APPLICABILITY, AND TIME FRAME |
|---|--|---|
| <p>IS-5: Maintain and update the Climate Action <u>and Adaptation</u> Plan to allow for greater resilience.</p> <ul style="list-style-type: none"> – Coordinate, where possible, updates of the Climate Action <u>and Adaptation</u> Plan, General Plan Safety Element, and Local Hazard Mitigation Plan cycles to ensure plan alignment and coordination of climate mitigation and adaptation efforts. – Assess the implementation status and effectiveness of adaptation strategies. | <p>Key Performance Metric(s):</p> <ul style="list-style-type: none"> – Progress on implementing GHG emissions reduction strategies, climate adaptation strategies, and general sustainability strategies. (Conservation and Development) | <p>Potential Partners</p> <ul style="list-style-type: none"> – All County departments – Interdepartmental Climate Action Task Force <p>Applicability</p> <ul style="list-style-type: none"> – County operations – Residents in unincorporated areas. – Businesses in unincorporated areas. <p>Time Frame</p> <p>Near term (by 2026)</p> |

7. GLOSSARY

Adaptation. Making changes in response to current or future conditions (such as the increased frequency and intensity of climate-related hazards), usually to reduce harm and to take advantage of new opportunities.^{16,17}

Adaptive capacity. The “combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts, moderate harm, or exploit beneficial opportunities”.¹⁸

Assets. A valued feature of a community that may be harmed by climate change. Assets may include buildings, infrastructure, community services, ecosystems, and economic drivers.¹⁹

Bay-friendly landscaping. A holistic approach to landscaping that works with the natural conditions of the San Francisco Bay Watershed. Bay-friendly practices foster soil health and conserve water and other valuable resources while reducing waste and preventing pollution.

Carbon-free energy. Means that the energy supplied by a resource generates no carbon emissions.

Carbon neutral. Reducing GHG emissions released to the atmosphere to zero over a period of time, either by entirely eliminating all GHG emissions or by balancing out all remaining GHG emissions through carbon removal practices so that the "net" emissions are zero.

Carbon offsets. A reduction or removal of emissions of carbon dioxide or other GHGs made to compensate for emissions made elsewhere.

Carbon sequestration. The process of storing carbon dioxide in locations other than the atmosphere, where it cannot contribute to climate change or ocean acidification. For the purposes of this plan, carbon sequestration refers to nature-based carbon removal through the storage of atmospheric carbon in vegetation, soils, woody products, and aquatic environments.²⁰

Climate change. A change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. In the context of this plan, refers to changes brought on by human activities.^{21,22}

Climate justice. The concept that no group of people should disproportionately bear the burden of climate change impacts or the costs of mitigation and adaptation.²³

Climate Resilience Districts. Special districts that can raise and allocate money to fund projects and operations that address climate change adaptation efforts, such as those to help protect against sea level rise, wildfire, and drought. They have the authority to establish special taxes, assessments, or other charges. Local governments may establish climate resilience districts under Assembly Bill 852, adopted in 2022.

Community-wide. Operative throughout the whole community.

Complete streets. A transportation facility that is planned, designed, constructed, operated, and maintained to provide comfortable and convenient mobility, and improve accessibility and connectivity to essential community destinations for all users, regardless of whether they are travelling as pedestrians, bicyclists, public transportation riders, or drivers. Complete streets are especially attuned to the needs of people walking, using assistive mobility devices, rolling, biking, and riding transit.²⁴

Direct access: Electricity purchased directly from an Electric Service Provider (ESP) rather than an investor-owned utility company or Community Choice Energy provider, generally to power large industrial, commercial, and institutional facilities.

Electric Service Provider (ESP): An entity that is not a utility company, but provides electricity service to specific customers (usually large industrial, commercial, or institutional sites) within a utility's service area. This service is often known as direct access electricity. ESPs are overseen by State regulators.

Electric vehicle. A zero-emission vehicle that uses electricity stored in a battery to power one or more electric motors and can be plugged in at home, work, fleet, or public charging stations.²⁵

Embedded carbon (also known as embodied carbon). The total GHGs emitted in the production and use of a good or service. For example, the lifecycle GHG emissions of building materials would include emissions resulting from the extraction, manufacturing, transportation, installation, maintenance, and disposal of the materials.

Environmental, Social, and Governance (ESG). The implementation of a governance structure and reporting system that evaluates a company's performance related to environmental and social factors that go beyond the company's duty to maximize profits. *Environmental metrics* may include how well a company performs related to conserving energy, water, and other natural resources, protecting ecosystems and biodiversity,



reducing carbon emissions, mitigating climate change, and promoting resilience. *Social metrics* include factors such as whether a company is union friendly, provides fair pay and leave, prioritizes worker health and safety, and proactively seeks a diverse workforce. *Governance* refers to how the company manages both the environmental and social aspects of its policies, programs, and reporting.²⁶

Equity. The state in which each individual or group is allocated the resources needed to reach an equal outcome.^{27,28}

Exposure. The presence of people, infrastructure, natural systems, and economic, cultural, and social resources in areas that are subject to harm.²⁹

Extreme event. When a weather or climate variable exceeds the upper or lower thresholds of its observed range.^{30,31}

Extreme heat. Temperatures that are hotter than 98 percent of the historical high temperatures for the area, as measured between April and October of 1961 to 1990. Across Contra Costa County, the extreme heat threshold is 96.6°F, although it varies from 87.1°F in Kensington to 102.4°F in Byron.

Fire hazard severity zone. An area of significant fire hazard based on fuels, terrain, weather, and other relevant hazards.³²

First mile, last mile. Refers to the first or final mile of a trip, typically between the origin/final destination of the trip and the nearest public transit access point.

Graywater. Untreated wastewater that has not been contaminated by toilet discharge; affected by infectious, contaminated, or unhealthy bodily wastes; and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes.³³

Green bond. A green bond is a bond intended to finance projects with environmental benefits, such as renewable energy, public transportation, and pollution prevention and remediation.

Green infrastructure. Infrastructure that filters and absorbs stormwater where it falls. The federal Water Infrastructure Improvement Act (2019) defines green infrastructure as "the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspire stormwater and reduce flows to sewer systems or to surface waters".³⁴

Greenhouse gas(es). Greenhouse gases (GHGs) are gases that allow sunlight to pass through but reflect heat radiated from the Earth's surface, trapping heat in the lower atmosphere. Common GHGs include water vapor, carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). They may be emitted by natural or human processes.

Greenhouse gas (GHG) emissions inventory. A quantified list of a community's GHG emissions and sources.³⁵

Hazard. An event or physical condition that has the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural losses, damage to the environment, interruption of business, or other types of harm or loss.³⁶

Hazard mitigation. Sustained action taken to reduce or eliminate the long-term risk to human life and property through action by means of efforts that reduce hazard, exposure, and vulnerability.³⁷

Impact (Climate impact). The effects (especially the negative effects) of a hazard or other conditions associated with climate change.³⁸

Impacted Communities. Low-income areas that are disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation. Senate Bill (SB) 1000 labels such communities "disadvantaged communities", but county residents found that this term was neither supportive nor reflective of their community and opted for the term Impacted Communities instead. SB 1000 defines Impacted Communities per Health and Safety Code Section 39711, specifying CalEnviroScreen as the primary screening method for identifying Impacted Communities. In general, census tracts in the highest quartile of scores (75 to 100) are considered Impacted Communities under SB 1000.

Just Transition. Refers to the transition away from the extractive, profit-driven economy and culture to one that is ecologically sustainable, just, and equitable for all members of society. A central theme of the Just Transition is moving away from fossil fuels to renewable energy and the need to create sustainable green jobs for workers, particularly those in the fossil fuel industry.

Low-carbon building. Buildings designed and constructed to release little to no carbon over their lifetimes.



Low-carbon construction materials. Low-carbon construction materials may refer to building materials that meet the State’s requirements under AB 2446, which requires the State to develop a strategy for the building sector to achieve a 40 percent net reduction in GHG emissions of building materials by 2035.

Low-carbon energy. Energy sources that release less carbon than fossil fuels. Examples of low-carbon energy sources are solar, biomethane, and low- to zero-carbon hydrogen.³⁹

Low-Stress Bike Network. Low-stress cycling refers to the idea that a network may be established to ensure that there are ways in which cyclists can easily access areas throughout a community without being an extremely confident rider.⁴⁰

MCE. Community Choice Energy provider for unincorporated county and most of the cities in Contra Costa County.

Microgrid. According to the U.S. Department of Energy, a microgrid is a group of interconnected loads and distributed energy resources in clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid. A microgrid can operate in either grid-connected or in island mode, including entirely off-grid applications.

Natural carbon sequestration. Assembly Bill 1757 (2022) defines natural carbon sequestration as “actions that are undertaken on natural and working lands to remove and provide storage of atmospheric greenhouse gases in vegetation and soils. This shall include preservation, conservation, restoration, and sustainable management of these lands, which may include compost application, cover crops, hedgerows, planned grazing, urban forestry, riparian restoration, restoration of tidal flows to wetlands, and other forms of wetland restoration, among other relevant actions”.⁴¹

Natural infrastructure. An area or system that is either naturally occurring or naturalized and then intentionally managed to provide multiple benefits for the environment and human well-being.

Natural and working lands. Lands not covered by buildings or structures, including forests, grasslands, shrublands, woodlands, rangelands, farmland, wetlands, coastal areas, and the green spaces in urban and built environments. These lands serve important ecological purposes, including providing food and fiber, clean air, water, flood protection, species habitats, and other resources and benefits.⁴²

Near zero-emission. A building, vehicle, technology, or other type of operation that uses zero-emission technologies, enables technologies that provide a pathway to zero-emissions operations, or incorporates other technologies that significantly reduce criteria pollutants, toxic air contaminants, and GHG emissions.⁴³

Net-zero. Means that emissions of GHGs to the atmosphere are balanced by removals of GHG emissions over a period of time.⁴⁴

Open space. Land that is not intensively developed for residential, commercial, industrial, or institutional use.

Qualified climate action plan. A climate action plan that meets State requirements such that future development projects requiring environmental review under State law can streamline greenhouse gas impact analyses by demonstrating consistency with the plan.

Reach code. A local municipal code that exceeds the State building code. An energy reach code must be at least as stringent as the statewide code, cost-effective, approved by the California Energy Commission, and updated and re-approved with each State Energy Code update.

Resilience. The capacity of any entity—an individual, a community, an organization, or a natural system—to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience. Community resilience is the ability of communities to withstand, recover, and learn from past disasters to strengthen future response and recovery efforts.^{45,46,47}

Resilience Hubs. Community-serving facilities augmented to support residents and coordinate resource distribution and services before, during, and after a natural hazard event.

Risk. The potential for damage or loss created by the interaction of hazards with assets such as buildings, infrastructure, or natural and cultural resources.⁴⁸

Sea level rise. The worldwide average rise in mean sea level, which may be due to a number of different causes, such as the thermal expansion of sea water and the addition of water to the oceans from the melting of glaciers, ice caps, and ice sheets.⁴⁹

Sensitivity. The level to which a species, natural system, or community, government, etc. would be affected by changing climate conditions.⁵⁰



Social vulnerability. The susceptibility of a given population to harm from exposure to a hazard, directly affecting its ability to prepare for, respond to, and recover from the hazard.^{51,52}

Solid waste. The federal Resource Conservation and Recovery Act defines solid waste as “any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, resulting from industrial, commercial, mining, and agricultural operations, and from community activities. Nearly everything we do leaves behind some kind of waste. It is important to note that the definition of solid waste is not limited to wastes that are physically solid. Many solid wastes are liquid, semi-solid, or contained gaseous material”.

State Responsibility Area. The area in the state where the State of California has primary financial responsibility for the prevention and suppression of wildland fires.

Susceptibility. A person or population’s potential for vulnerability due to demographic, socioeconomic, and geolocation characteristics.⁵³

Sustainability. Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Transportation network company (TNC). Companies that provide prearranged transportation services for compensation using an online-enabled application or platform to connect drivers using their personal vehicles with passengers.

Unincorporated Area. All land and water within a county that is outside the boundaries of incorporated cities and towns. Development in the unincorporated area is subject to County land use regulations.

Unincorporated communities: Communities in the unincorporated areas of Contra Costa County subject to County land use regulations.

Urban heat island. The phenomenon in which large urban areas experience higher temperatures, greater pollution, and more negative health impacts during hot months due to a combination of heat-absorptive surfaces, heat-generating activities, and the absence of vegetation.⁵⁴

Vulnerable road user law. Laws that prioritize the safety of road users who are not motor vehicle drivers. Provisions may include instituting strong penalties for motor vehicle drivers who seriously injure people using roadways who are not protected within a motor vehicle.

Vulnerability. Climate vulnerability describes the degree to which natural, built, and human systems are susceptible “to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt”.⁵⁵

Vulnerability assessment. An analysis of how a changing climate may harm a community and which elements—people, buildings and structures, resources, and other assets—are most vulnerable to its effects based on an assessment of exposure, sensitivity, the potential impact(s), and the community’s adaptive capacity.⁵⁶

Wildland-urban interface. An area where houses and wildland vegetation directly intermingle, creating a significant threat to human life or property from wildfires.

Zero-emission vehicle. A vehicle that does not produce emissions when in operation, including battery-electric vehicles and hydrogen fuel cell electric vehicles.⁵⁷

Zero-net-energy building. A building where the value of the energy produced on-site by renewable energy resources is equal to the value of the grid energy consumed annually, as measured using the California Energy Commission’s Time Dependent Valuation Metric.⁵⁸

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APPENDIX A: KEY STATE AND REGIONAL CLIMATE CHANGE POLICY AND LEGISLATION

Since 2005, the State of California and regional agencies have responded to growing concerns over the effects of climate change by adopting a comprehensive approach to addressing emissions in the public and private sectors through legislation starting with the first Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) and more recently with aggressive statewide targets on greenhouse gas (GHG) reduction (Senate Bill [SB] 32 and AB 1279), renewable energy portfolio standard (SB 100), and zero-emissions vehicles (SB 1275). The following table provides a summary of key State and regional climate change policy and legislation through mid-2023, beginning with the most recent actions.

| POLICY OR LEGISLATION | DATE | DESCRIPTION |
|---|------|---|
| Bay Area Air Quality Management District (BAAQMD) Rules 9-4 and 9-6 | 2023 | <p>Nitrogen Oxides from Natural Gas-Fired Furnaces, Boilers, and Water Heaters</p> <p>BAAQMD adopted amendments to Regulation 9, Inorganic Gaseous Pollutants, Rule 4, Nitrogen Oxides from Natural Gas-Fired Furnaces (Rule 9-4), and Rule 6, Nitrogen Oxides Emissions from Natural Gas-Fired Boilers and Water Heaters (Rule 9-6). Space- and water-heating appliances generate a large portion of nitrogen oxide (NO_x) emissions from sources in the Bay Area. NO_x are a key criteria pollutant as a precursor to ozone and secondary particulate matter (PM) formation. The amendments would require more stringent NO_x emission standards for space- and water-heating appliances within the BAAQMD's jurisdiction starting in year 2023 and would substantially reduce NO_x emissions from these appliances commonly found in single-family homes and commercial applications.</p> <p>The amendments to Rules 9-4 and 9-6 include the following elements:</p> <ul style="list-style-type: none"> • Sales and installation of smaller water heaters and boilers (below 75,000 BTU/hour) must be zero emission, starting in 2027. • Sales and installation of furnaces (heat input rate less than 175,000 BTU/hour) must be zero emission starting in 2029. • Sales of larger water heaters and boilers (between 75,000 and 2 million BTU/hour) must be zero emission starting in 2031. |



| POLICY OR LEGISLATION | DATE | DESCRIPTION |
|-----------------------|------|---|
| | | <p>Existing appliances can remain in operation but the rule would apply once they need replacement.</p> <p>Nitrogen Oxides from Natural Gas-Fired Furnaces BAAQMD adopted the amendment to Regulation 9, Inorganic Gaseous Pollutants, Rule 4, Nitrogen Oxides from Natural Gas-Fired Furnaces (Rule 9-4). Space- and water-heating appliances generate a large portion of nitrogen oxide (NO_x) emissions from sources in the Bay Area. NO_x are a key criteria pollutant as a precursor to ozone and secondary particulate matter (PM) formation. The amended rule introduces new NO_x standards for new, natural gas-fired furnaces, requiring reduced NO_x emissions for devices beginning in 2024 and zero NO_x emissions for furnaces beginning in 2029. This more stringent NO_x emission standards for space-heating appliances within the BAAQMD's jurisdiction would substantially reduce NO_x emissions from these appliances commonly found in single-family homes.</p> <p>Nitrogen Oxides from Natural Gas-Fired Boilers and Water Heaters BAAQMD adopted the amendment to Regulation 9, Inorganic Gaseous Pollutants, Rule 6, Nitrogen Oxides Emissions from Natural Gas-Fired Boilers and Water Heaters (Rule 9-6). As mentioned, space- and water-heating appliances generate a large portion of NO_x emissions from sources in the Bay Area. This amendment would require a new zero-NO_x standards with compliance dates ranging from 2027 to 2031 to new, natural gas-fired devices. More stringent NO_x emission standards for water-heating appliances within the BAAQMD's jurisdiction would substantially reduce NO_x emissions from these appliances commonly found in single-family homes and commercial applications.</p> |
| Advanced Clean Fleets | 2023 | <p>California Air Resources Board (CARB) adopted the Advanced Clean Fleet standards in August of 2023. This regulation requires California state and local government fleets, including city, county, special district, and State agency fleets, to ensure 50% percent of vehicle purchases are zero-emissions beginning in 2024 and 100% percent of vehicle purchases are zero-emissions by 2027. They must also initially submit a compliance report by April 1, 2024. Small government fleets of 10 or fewer vehicles and those in designated counties would start their ZEV purchases beginning in 2027. Alternatively, State and local government fleet owners may elect to use the ZEV Milestones Option. State and local government fleets may purchase either ZEVs or near-ZEVs, or a combination of ZEVs and near-ZEVs,</p> |



Key Climate Change Policy and Legislation

| POLICY OR LEGISLATION | DATE | DESCRIPTION |
|--|---------------------------------|--|
| | | until 2035. Starting in 2035, only ZEVs will meet the requirements. |
| Title 24, Part 6, Building Energy-Efficiency Standards | 2022, updated every three years | The California Energy Resources Conservation and Development Commission (now the CEC) adopted energy conservation standards for new residential and nonresidential buildings in June 1977 and most recently revised in 2022. (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The 2022 Building Energy Efficiency Standards, which were adopted on August 11, 2022, went into effect January 1, 2023. |
| Title 24, Part 11, Green Building Standards Code (CALGreen) | 2022, updated every three years | On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards, the California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") as part of the California Building Standards Code. CALGreen establishes planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. The mandatory provisions of CALGreen became effective January 1, 2011. Like the other parts of Title 24, CALGreen is updated every three years. The current version of CALGreen was adopted in 2022 and became effective on January 1, 2023. |
| Title 20, Appliance Efficiency Regulations | 2020, updated every three years | The CEC adopted the 2016 Appliance Efficiency Regulations (Title 20 CCR Sections 1601–1608), which include standards for both federally regulated appliances and non-federally regulated appliances. Though these regulations are now often viewed as "business as usual," they exceed the standards imposed by all other states, and they reduce GHG emissions by reducing energy demand. California introduced Title 20 requirements in two phases, with Tier I going into effect January 1, 2018, and Tier II in effect July 1, 2019. |
| Advanced Clean Car II standards | 2022 | California Air Resources Board (CARB) adopted the Advanced Clean Car II standards in August of 2022. This regulation requires that all new light-duty vehicles (e.g., passenger cars, small trucks, and SUVs) sold in the state to be zero-emission by 2035, with interim targets for new light-duty vehicle sales beginning in 2026. There are some limited exceptions for plug-in hybrid vehicles. |



| POLICY OR LEGISLATION | DATE | DESCRIPTION |
|------------------------------|------|---|
| Senate Bill 852 | 2022 | Authorizes cities, counties, special districts, or a combination of any of the above to form a climate resilience district for the purposes of raising and allocating funding for eligible projects and the operating expenses of eligible projects. |
| Assembly Bill 1757 | 2022 | Requires the California Natural Resources Agency (CNRA), by January 1, 2024, in collaboration with CARB, the California Environmental Protection Agency (CalEPA), the California Department of Food and Agriculture (CDFA), and an expert advisory committee, to set targets for natural carbon sequestration and nature-based climate solutions for 2030, 2038, and 2045, which must be integrated into the Scoping Plan and other State policies. CARB must ensure that double counting of emissions reductions is avoided and emissions reduction projects and actions that receive State funding will not be eligible to generate credits under any market-based compliance mechanism. CARB, by January 1, 2025, must develop standard methods for State agencies to track GHG emissions and reductions, carbon sequestration, and, where feasible, additional benefits from natural and working lands over time. CNRA, by January 1, 2025, in collaboration with CARB, CalEPA, and CDFA, must review and update the Climate Smart Strategy to achieve the targets and post data on its website on progress made toward targets, including on State expenditures made to implement the targets. |
| Assembly Bill 1279 | 2022 | The California Climate Crisis Act codifies the statewide carbon neutrality goal. It directs the State to achieve net zero GHG emissions as soon as possible, but no later than 2045, and to achieve and maintain net negative GHG emissions thereafter, and to ensure that by 2045, statewide anthropogenic GHG emissions are reduced to at least 85% below the 1990 levels. |
| Senate Bill 596 | 2021 | Requires CARB to establish a strategy to reduce GHG emissions in the concrete and cement sector by 40% from 2019 levels by 2030 and to achieve carbon neutrality as soon as possible, but no later than 2045. |
| Senate Bill 27 | 2021 | Creates the California Carbon Sequestration and Climate Resilience Project Registry in order to maintain a list of eligible but unfunded projects, which then may be funded by public or private entities in order to mitigate California's GHG emissions and improve climate resilience. Also directs CARB to add carbon sequestration to the state's climate projection efforts. |
| Advanced Clean Trucks | 2023 | California Air Resources Board (CARB) adopted the Advanced Clean Trucks standards in August of 2022 accelerate a large-scale transition of zero-emission medium-and heavy-duty vehicles from Class 2b to Class 8. |



Key Climate Change Policy and Legislation

| POLICY OR LEGISLATION | DATE | DESCRIPTION |
|-----------------------|------|---|
| N-82-20 | 2020 | The order directs state agencies to deploy a number of strategies to store carbon in the state's natural and working lands and remove it from the atmosphere. The order also sets a first-in-the-nation goal to conserve 30 percent % of the state's land and coastal water by 2030 (30x30) to fight species loss and ecosystem destruction. Directs state agencies to pursue innovative actions, strategies and partnerships to maximize the full climate benefits of natural and working land, through healthy soils management, including planting cover crops, hedgerows and compost applications; wetlands restoration to protect coastal areas; active forest management to reduce catastrophic risk and restore forest health; and boosting green infrastructure in urban areas like trees and parks. |
| N-79-20 | 2020 | Signed September 23, 2020. Identifies three zero - emissions goals: (1) 100% percent of in-state sales of new light-duty vehicles (i.e., passenger cars and trucks) will be zero-emission by 2035; (2) 100% percent of medium- and heavy-duty vehicles in the State be zero-emission by 2045 for all operations where feasible; and (3) the State will transition to 100% percent zero-emission off-road vehicles and equipment by 2035 where feasible. The order directs CARB to develop regulations and strategies to achieve these goals. CARB adopted regulations for light-duty vehicles in August 2022 through the Advanced Clean Cars II rulemaking process. |
| Assembly Bill 2800 | 2020 | Establishes ed Climate-Safe Infrastructure Working Group for the purpose of examining how to integrate scientific data concerning projected climate change impacts into state infrastructure engineering. |
| Senate Bill 743 | 2020 | Amends the standards for determining negative environmental impacts from new development under the California Environmental Quality Act (CEQA) from level of service (traffic congestion levels) to vehicles miles traveled (VMT). |
| Senate Bill 1035 | 2018 | Requires local planning agencies to review and, if necessary, revise the safety element upon each revision of the housing element or local hazard mitigation plan, not less than every 8 years, to identify new information relating to flood and fire hazards and climate adaptation and resiliency strategies. Allows cities and counties to identify new information relating to flood and fire hazards and climate adaptation and resiliency strategies that was not available during the previous revision of the safety element. |
| Senate Bill 100 | 2018 | 100 Percent Clean Energy Act of 2018. Requires the state to purchase 100% percent of total retail sales of electricity from eligible renewable energy resources and zero-carbon resources by 2045. |



| POLICY OR LEGISLATION | DATE | DESCRIPTION |
|-----------------------|------|---|
| B-55-18 | 2018 | Signed September 10, 2018, sets a goal “to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter.” Directs CARB to work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning not only should emissions be reduced to 80% percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions should be offset by equivalent net removals of CO _{2e} from the atmosphere, including through sequestration in forests, soils, and other natural landscapes. |
| Assembly Bill 617 | 2017 | Companion to Cap-and-Trade Extension. Establishes a groundbreaking program to measure and reduce air pollution from mobile and stationary sources at the neighborhood level in the communities most impacted by air pollutants. Requires the Air Resources Board to work closely with local air districts and communities to establish neighborhood air quality monitoring networks and to develop and implement plans to reduce emissions. The focus on community-based air monitoring and emission reductions will provide a national model for enhanced community protection. |
| Assembly Bill 398 | 2017 | Cap-and-Trade Extension. Extends and improves the Cap and Trade Program, which will enable the state to meet its 2030 emission reduction goals in the most cost-effective manner. Furthermore, extending the Cap-and-Trade Program will provide billions of dollars in auction proceeds to invest in communities across California. |
| Senate Bill 1 | 2017 | Transportation funding legislation that increases the state’s gasoline tax by \$0.12 per gallon, raising over \$5 billion per year for transportation projects including improvements in efficiency and emission reduction. |
| Senate Bill 1383 | 2016 | Short-Lived Climate Pollutants Strategy. Establishes statewide reduction targets for short-lived climate pollutants, including black carbon and methane (CH ₄). Black carbon is the light-absorbing component of fine particulate matter produced during incomplete combustion of fuels. SB 1383 requires the state board, no later than January 1, 2018, to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40% percent , hydrofluorocarbon gases by 40% percent , and anthropogenic black carbon by 50% percent below 2013 levels by 2030. The bill also establishes targets for reducing organic waste in landfills. On March 14, 2017, CARB adopted the Short-Lived Climate Pollutant |



Key Climate Change Policy and Legislation

| POLICY OR LEGISLATION | DATE | DESCRIPTION |
|-----------------------|------|---|
| | | Reduction Strategy, which identifies the state's approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. |
| Assembly Bill 197 | 2016 | Greenhouse gas regulations. Prioritizes direct emission reductions from large stationary sources and mobile sources. |
| Senate Bill 32 | 2016 | GHG emission reduction target for 2030. Establishes a statewide GHG emission reduction target of 40% percent below 1990 levels by 2030. |
| B-30-15 | 2015 | Executive Order B-30-15, signed April 29, 2015, sets a goal of reducing GHG emissions within the State to 40% percent of 1990 levels by year 2030. Executive Order B-30-15 also directs CARB to update the Scoping Plan to quantify the 2030 GHG reduction goal for the State and requires State agencies to implement measures to meet the interim 2030 goal as well as the long-term goal for 2050 in Executive Order S-03-05. |
| Assembly Bill 1482 | 2015 | Requires Natural Resources Agency, beginning July 1, 2017, and every 3 years thereafter, to update the state's climate adaptation strategy. Requires state agencies to maximize specified objectives, including, among others, promoting the use of the climate adaptation strategy to inform planning decisions and ensure that state investments consider climate change impacts, as well as promote the use of natural systems and natural infrastructure, as defined, when developing physical infrastructure to address adaptation. |
| Senate Bill 379 | 2015 | Climate Adaptation and Resiliency Strategies. Requires cities and counties to include climate adaptation and resiliency strategies in the safety elements of their general plans. Cities and counties with an adopted local hazard mitigation plan prior to 2017, are to address climate change in the safety element of the general plan upon the next revisions or update of the local hazard mitigation plan. Cities and counties that do not have an adopted local hazard mitigation plan must update the safety element of the general plan to address climate adaptation and resiliency by January 1, 2022. The bill requires the climate adaptation update to include a set of goals, policies, and objectives based on a vulnerability assessment, as well as implementation measures, including the conservation and implementation of natural infrastructure that may be used in adaptation projects. |



| POLICY OR LEGISLATION | DATE | DESCRIPTION |
|-----------------------|------|---|
| Senate Bill 350 | 2015 | Clean Energy and Pollution Reduction Act of 2015. Establishes targets to increase retail sales of renewable electricity to 50% percent by 2030 and double the energy-efficiency savings in electricity and natural gas end uses by 2030. |
| Assembly Bill 246 | 2015 | Establishes the Integrated Climate Adaptation and Resiliency Program to be administered by the Office of Planning and Research to coordinate regional and local efforts with state climate adaptation strategies to adapt to the impacts of climate change, as specified. Also requires within one year of an update to the Safeguarding California Plan, the Office of Emergency Services, in coordination with the Natural Resources Agency, the Office of Planning and Research, and relevant public and private entities, to review and update, as necessary, the Adaptation Planning Guide, as specified. The bill establishes an advisory council to support the goals of the Office of Planning and Research and a clearinghouse for climate adaptation information. |
| Senate Bill 605 | 2014 | Short-lived climate pollutants. Requires CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants by January 1, 2016. |
| Senate Bill 1826 | 2014 | Organic Waste Diversion. Requires businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses and multifamily residential dwellings with five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed with food waste. |
| Senate Bill 1275 | 2014 | Charge Ahead California Initiative. Establishes a state goal of 1 million zero-emission and near-zero-emission vehicles in service by 2020. Amends the enhanced fleet modernization program to provide a mobility option. Establishes the Charge Ahead California Initiative requiring planning and reporting on vehicle incentive programs and increasing access to and benefits from zero-emission vehicles for disadvantaged, low-income, and moderate-income communities and consumers. |
| Senate Bill 1204 | 2014 | California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program. Creates the California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program funded by the Greenhouse Gas Reduction Fund for development, demonstration, precommercial pilot, and early commercial deployment of zero- and near-zero emission truck, |



Key Climate Change Policy and Legislation

| POLICY OR LEGISLATION | DATE | DESCRIPTION |
|---------------------------|------|--|
| | | bus, and off-road vehicle and equipment technologies, with priority given to projects benefiting disadvantaged communities. |
| Assembly Bill 8 | 2013 | Alternative fuel and vehicle technologies funding programs. Extends until January 1, 2024, extra fees on vehicle registrations, boat registrations, and tire sales in order to fund the AB 118, Carl Moyer, and AB 923 programs that support the production, distribution, and sale of alternative fuels and vehicle technologies and air emissions reduction efforts. The bill suspends until 2024 CARB's regulation requiring gasoline refiners to provide hydrogen fueling stations and appropriates up to \$220 million, of AB 118 money to create hydrogen fueling infrastructure in the state. |
| Assembly Bill 1092 | 2013 | Building standards for electric vehicle charging infrastructure. Requires the Building Standards Commission to adopt mandatory building standards for the installation of future electric vehicle charging infrastructure for parking spaces in multifamily dwellings and nonresidential development. |
| Senate Bill 535 | 2012 | Greenhouse Gas Reduction Fund and Disadvantaged Communities. Requires the California Environmental Protection Agency to identify disadvantaged communities; requires that 25% of all funds allocated to the Greenhouse Gas Reduction Fund established by AB 32 go to projects that benefit disadvantaged communities, with at least 10% going to projects located within these communities. Requires the Department of Finance to include a description of how these requirements are fulfilled in an annual report. |
| Assembly Bill 1532 | 2012 | Greenhouse Gas Reduction Fund in the Budget. Requires the Department of Finance to develop and submit to the Legislature an investment plan every three years for the use of the Greenhouse Gas Reduction Fund; requires revenue collected pursuant to a market-based compliance mechanism to be appropriated in the Annual Budget Act; requires the department to report annually to the Legislature on the status of projects funded; and specifies that findings issued by the Governor related to "linkage" as part of a market-base compliance mechanism are not subject to judicial review. |
| Senate Bill X1-2 | 2011 | Directs the California Public Utilities Commission's (CPUC's) Renewable Energy Resources Program to increase the amount of electricity generated from eligible renewable energy resources per year to an amount that equals at least 20% of the total electricity sold to retail customers in California per year by December 31, 2013, 25% by December 31, 2016 and 33% by December 31, 2020. In 2018, Senate Bill 100 was signed into law, which increases the RPS to 60% by 2030 and requires all the state's electricity to come from carbon-free resources by |



| POLICY OR LEGISLATION | DATE | DESCRIPTION |
|-----------------------|------|---|
| | | 2045 (see above). The new RPS goals applies apply to all electricity retailers in the state including publicly owned utilities (POUs), investor-owned utilities, electricity service providers, and community choice aggregators. This new RPS preempts the California Air Resources Board's 33% percent Renewable Electricity Standard. |
| Assembly Bill 1504 | 2011 | Requires Department of Forestry and Fire Protection and Air Resources Board to assess the capacity of its forest and rangeland regulations to meet or exceed the state's greenhouse goals, pursuant to AB 32. |
| Assembly Bill 341 | 2011 | AB 341 (Chapter 476, Statutes of 2011) increases ed the statewide goal for waste diversion to 75% percent by 2020 and requires recycling of waste from commercial and multifamily residential land uses. Section 5.408 of CALGreen also requires that at least 65% percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse. |
| Senate Bill X7-7 | 2010 | 20x20 Water Conservation Plan. Mandates urban water conservation and authorized the Department of Water Resources (DWR) to prepare a plan implementing urban water conservation requirements (20x2020 Water Conservation Plan). In addition, it requires agricultural water providers to prepare agricultural water management plans, measure water deliveries to customers, and implement other efficiency measures. SBX7-7 requires urban water providers to adopt a water conservation target of 20% percent reduction in urban per capita water use by 2020 compared to 2005 baseline use. |
| Assembly Bill 2514 | 2010 | Law R requiring electric utilities to install minimum levels of grid-scale energy storage infrastructure. |
| Senate Bill 375 | 2008 | Requires CARB to develop regional GHG emission reduction targets for passenger vehicles. CARB established targets for 2020 and 2035 for each region covered by one of the State's 18 metropolitan planning organizations (MPO). CARB is required to update the targets for the MPOs every eight years. |
| Assembly Bill 118 | 2007 | Creates the Alternative and Renewable Fuel and Vehicle Technology Program, to be administered by the Energy Commission, to provide funding to public projects to develop and deploy innovative technologies that transform California's fuel and vehicle types to help attain the state's climate change policies. |
| Senate Bill 97 | 2007 | Directs Governor's Office of Planning and Research to develop CEQA guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions." |



Key Climate Change Policy and Legislation

| POLICY OR LEGISLATION | DATE | DESCRIPTION |
|-------------------------|------|---|
| Assembly Bill 1881 | 2006 | The Water Conservation in Landscaping Act of 2006 requires local agencies to adopt the updated DWR model ordinance or an equivalent. Requires the CEC to consult with the DWR to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water. |
| Assembly Bill 1803 | 2006 | GHG inventory transferred to Air Resources Board from the Energy Commission. |
| Senate Bill 1 | 2006 | California's Million Solar Roofs plan is enhanced by the CPUC and CEC's adoption of the California Solar Initiative. SB 1 directs CPUC and CEC to expand this program to more customers and requires the state's municipal utilities to create their own solar rebate programs. This bill would require, beginning January 1, 2011, a seller of new homes to offer the option of a solar energy system to all customers negotiating to purchase a new home constructed on land meeting certain criteria and to disclose certain information. |
| Senate Bill 107 | 2006 | Directs CPUC's Renewable Energy Resources Program to increase the amount of renewable electricity (RPS) generated per year, from 17% to an amount that equals at least 20% of the total electricity sold to retail customers in California per year by December 31, 2010. |
| Assembly Bill 32 | 2006 | California Global Warming Solutions Act of 2006. Requires CARB to adopt a statewide GHG emissions limit equivalent to the statewide GHG emissions levels in 1990 to be achieved by 2020. CARB shall adopt regulations to require the reporting and verification of statewide GHG emissions and to monitor and enforce compliance with this program. AB 32 directs Climate Action Team established by the Governor to coordinate the efforts set forth under Executive Order S-3-05 to continue its role in coordinating overall climate policy. |
| Executive Order S-03-05 | 2005 | Signed June 1, 2005, set the following GHG reduction targets for the state: 2000 levels by 2010, 1990 levels by 2020, and 80% percent below 1990 levels by 2050. |
| Senate Bill 1078 | 2002 | Establishes the California RPS Program, which requires electric utilities and other entities under the jurisdiction of the CPUC to meet 20% of their renewable power by December 31, 2017, for the purposes of increasing the diversity, reliability, public health and environmental benefits of the energy mix. |



| POLICY OR LEGISLATION | DATE | DESCRIPTION |
|-----------------------|------|--|
| Senate Bill 812 | 2002 | Adds forest management practices to the California Climate Action Registry members' reportable emissions actions and directed the Registry to adopt forestry procedures and protocols to monitor, estimate, calculate, report and certify carbon stores and carbon dioxide emissions that resulted from the conservation-based management of forests in California. |
| Assembly Bill 1493 | 2002 | State law requiring the first set of GHG emission standards for passenger vehicles. Requires the registry, in consultation with CARB, to adopt procedures and protocols for the reporting and certification of reductions in GHG emissions from mobile sources for use by the state board in granting the emission reduction credits. This bill requires the state board to develop and adopt, by January 1, 2005, regulations that achieve the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks. |
| Senate Bill 527 | 2001 | Revises the functions and duties of the California Climate Action Registry and requires the Registry, in coordination with CEC to adopt third-party verification metrics, developing GHG emissions protocols and qualifying third-party organizations to provide technical assistance and certification of emissions baselines and inventories. SB 527 amended SB 1771 to emphasize third-party verification. |
| Senate Bill 1771 | 2000 | Establishes the creation of the non-profit organization, the California Climate Action Registry and specifies functions and responsibilities to develop a process to identify and qualify third-party organizations approved to provide technical assistance and advice in monitoring GHG emissions and setting GHG emissions baselines in coordination with CEC. Also, the bill directs the Registry to enable participating entities to voluntarily record their annual GHG emissions inventories. Also, SB 1771 directs CEC to update the state's GHG inventory from an existing 1998 report and continuing to update it every five years. |
| Assembly Bill 939 | 1989 | California's Integrated Waste Management Act of 1989, AB 939 (Public Resources Code §§ 40050 et seq.) sets a requirement for cities and counties throughout the state to divert 50% percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling, and composting. In 2008, the requirements were modified to reflect a per capita requirement rather than tonnage. To help achieve this, the act requires that each city and county prepare and submit a source reduction and recycling element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity. |



Key Climate Change Policy and Legislation

| POLICY OR LEGISLATION | DATE | DESCRIPTION |
|---|------|--|
| Assembly Bill 4420 | 1988 | <u>Directs</u> the CEC was statutorily directed to prepare and maintain the inventory of GHG emissions and to study the effects of GHGs and the climate change impacts on the state's energy supply and demand, economy, environment, agriculture, and water supplies. The study also required recommendations for avoiding, reducing, and addressing related impacts - and required the CEC to coordinate the study and any research with federal, state, academic, and industry research projects. |
| Sources: Statewide Energy Efficiency Climate Collaborative Climate Action Plan 2.0 Template; University of California Berkeley Center for Law, Energy, and the Environment, California Climate Policy Dashboard; PlaceWorks, 2021. | | |



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APPENDIX B: TECHNICAL GHG APPENDIX

This appendix provides details for Contra Costa County's greenhouse gas (GHG) emissions inventory and forecast in Chapter 3 of the 2024 Climate Action and Adaptation Plan (CAAP) and the GHG emission reduction pathway presented in Chapter 4 of the 2024 CAAP. It summarizes the technical details and findings from these analyses as well as the data sources, assumptions, and performance metrics used to assess the potential for GHG savings from State and local existing and planned efforts and the reduction strategies associated with the CAAP.

Inventory and Forecast

As part of the preparation of the 2015 CAP, Contra Costa County and its regional partners and technical consultants prepared community-wide and County operations GHG inventories for the calendar years 2005 and 2013. The 2015 CAP identified the year 2005 as the baseline year for emission reductions, as this was considered a year with good data availability at the time, consistent with State guidance, and without any unusual factors that might affect GHG emissions.

As part of the 2024 CAAP update process, the project teams prepared inventories of community-wide emissions for the years 2017 and 2019. County staff made some updates to the 2005 and 2013 community-wide inventories in the 2015 CAP to ensure a consistent method and approach across all inventory years.

County staff have also prepared a County operations GHG emissions inventory for the year 2017.

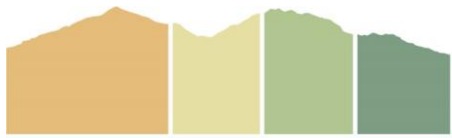
This document presents the full results of the Contra Costa County community-wide GHG inventory and the County operations inventory and is the most up-to-date summary of Contra Costa County's GHG emissions.

PROTOCOLS

A series of guidance documents, called protocols, provide recommendations on how to adequately assess GHG emissions. The project team prepared the new GHG inventories and updates to past GHG inventories consistent with the guidance in widely adopted, standard protocol documents. These protocols provide guidance on what activities should be evaluated in the GHG inventories and how emissions from those activities should be assessed. Using standard methods also allows for an easy comparison of GHG emission levels across multiple years and communities.

- The County operations GHG inventory relies on the Local Government Operations Protocol (LGOP), which was first developed in 2008 and was updated in 2010. The LGOP is a tool for accounting and reporting GHG emissions of local government (municipal) operations and is used throughout California and the United States. The LGOP includes guidance from several existing programs as well as the state's mandatory GHG reporting regulations.
- The community-wide GHG inventory uses the United States Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (U.S. Community Protocol), which was first developed in 2012 and updated most recently in 2019. The California Governor's Office of Planning and Research encourages cities and counties in California to follow the U.S. Community Protocol for community-wide GHG emissions.
- A third protocol, the Global Protocol for Community-Scale Greenhouse Gas Inventories (Global Protocol) was first developed in 2014 and is intended for use in preparing international community-scale GHG inventories. It is largely consistent with the U.S. Community Protocol, although it contains additional guidance and resources to support a wider range of activities that may be found in other countries. The project team has used the Global Protocol to assess GHG emissions from sources that are not covered in the U.S. Community Protocol.

GHG inventories are estimates of GHG emissions based on these standard methods and verified datasets. While they are not direct measurements of GHG emissions, the use of the standard methods identified in the protocols, in combination with accurate data from appropriate sources, allows GHG inventories to provide reliable estimates of local emission levels. Due to potential data limitations, some inconsistencies in methods may remain. Any concerns about inconsistent methods are noted in the appropriate sector discussion.



UNITS OF MEASUREMENT

GHG inventories and forecasts assess emissions in a unit called carbon dioxide equivalent (CO₂e), which is a combined unit of all GHGs analyzed in the inventory. As different GHGs have different effects on the processes that drive climate change, CO₂e is a weighted unit that reflects the relative potency of the different GHGs. These inventories report amounts of GHGs in metric tons of CO₂e (MTCO₂e), equal to 1,000 kilograms or approximately 2,205 pounds.

EMISSION FACTORS

An emission factor describes how many MTCO₂e are released per unit of an activity. For instance, an emission factor for electricity describes the MTCO₂e produced per kilowatt hours (kWh) of electricity used. Since different sources of electricity can have different emission factors, the emission factors in **Table B-1** represent a weighted average of emission factors across electricity sources and portfolios (e.g. MCE's Light Green and Deep Green products). The emission factor for on-road transportation describes the MTCO₂e produced per mile of driving. The project team calculated most of the GHG emissions using data on GHG-generating activities in combination with emission factors. Some sources of GHG emissions (known as sectors), including agriculture and off-road emissions, are calculated using formulae or models and do not have specific emission factors. **Table B-1** shows the emission factors for the inventory years for the unincorporated area.

TABLE B-1: GHG INVENTORY EMISSION FACTORS, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE | SOURCE |
|---|----------|----------|----------|----------|-------------------|--------------------------------|
| PG&E electricity (MTCO _{2e} /kWh) | 0.000226 | 0.000195 | 0.000096 | 0.000108 | -52% | PG&E |
| Direct access electricity (MTCO _{2e} /kWh) | 0.000388 | 0.000309 | 0.000208 | 0.000187 | -52% | California Energy Commission |
| MCE electricity (MTCO _{2e} /kWh) | N/A | N/A | 0.000059 | 0.000045 | -24% * | MCE |
| Natural gas (MTCO _{2e} /therm) | 0.005311 | 0.005311 | 0.005311 | 0.005311 | 0% | US Community Protocol |
| Propane (MTCO _{2e} /gallon) | 0.005844 | 0.005844 | 0.005844 | 0.005844 | 0% | US Community Protocol |
| Kerosene (MTCO _{2e} /gallon) | 0.010569 | 0.010569 | 0.010569 | 0.010569 | 0% | US Community Protocol |
| Wood (MTCO _{2e} /MMBTU) | 0.095624 | 0.095624 | 0.095624 | 0.095624 | 0% | US Community Protocol |
| On-road vehicles (MTCO _{2e} /VMT) | 0.000486 | 0.000483 | 0.000421 | 0.000408 | -16% | California Air Resources Board |
| BART (MTCO _{2e} /passenger mile) | 0.000093 | 0.000093 | 0.000093 | 0.000013 | -86% | BART |
| Municipal solid waste (MTCO _{2e} /ton) | 0.293179 | 0.293184 | 0.286047 | 0.261659 | -11% | CalRecycle |
| Alternative daily cover (MTCO _{2e} /ton) | 0.191850 | 0.245890 | 0.245694 | 0.245693 | 28% | CalRecycle |

* MCE's percentage change is from 2017 to 2019.

COMMUNITY-WIDE EMISSIONS

Sectors

The community-wide GHG inventory assessed GHG emissions from the following 11 categories of activities, known as sectors.

- **Transportation** includes GHG emissions created by driving on-road vehicles in the unincorporated county, including passenger and freight vehicles.
- **Residential energy** includes GHG emissions attributed to the use of electricity, natural gas, and other home heating fuels in residential buildings.
- **Solid waste** includes the GHG emissions released from trash collected in the unincorporated areas of Contra Costa County, as well as collective annual emissions from waste already in place at the Acme, Keller Canyon, and West Contra Costa Landfills.
- **Nonresidential energy** includes GHG emissions attributed to the use of electricity and natural gas in nonresidential buildings.
- **Agriculture** includes GHG emissions from various agricultural activities in the unincorporated county, including agricultural equipment, crop cultivation and harvesting, fertilizer application, and livestock operations.
- **Off-road equipment** includes GHG emissions from equipment that does not provide on-road transportation (excluding agricultural equipment), such as tractors for construction, or equipment used for landscape maintenance, commercial and industrial equipment, and outdoor recreational equipment.
- **Water and wastewater** accounts for the electricity used to transport and process water and wastewater used or generated by unincorporated county residents and businesses, as well as direct emissions resulting from wastewater treatment activities.
- **Bay Area Rapid Transit (BART)** includes GHG emissions associated with the operation of BART for unincorporated county residents.





- **Land use and sequestration** includes GHG emissions absorbed and stored in trees and soils on locally controlled lands as part of healthy ecosystems and released into the atmosphere from development of previously undeveloped land.
- **Stationary sources** are emissions from fuel use at major industrial facilities, permitted by state and regional air quality authorities. These emissions are informational and are not counted as part of the community total.
- **Wildfire** includes emissions released as a result of wildfires. These emissions are informational and are not counted as part of the community total.
- **Direct access electricity** is electricity purchased directly from an Electric Service Provider (ESP) rather than a conventional utility company or Community Choice Energy provider such as MCE, generally to power large industrial, commercial, and institutional facilities.



Community-Wide Inventory Results

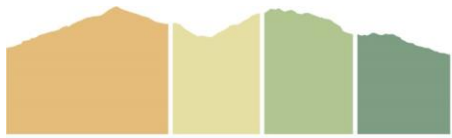
Table B-2 show the community-wide GHG emissions for the unincorporated area associated for the four inventory years. Total community-wide emissions declined 22 percent from 2005 to 2019. The most significant decreases in emissions came from BART, water and wastewater, residential energy use, and transportation, which all saw their associated emissions decrease by more than 25 percent. Only off-road equipment saw a significant (58 percent) increase in associated GHG emissions.


TABLE B-2: ABSOLUTE ANNUAL GHG EMISSIONS, 2005–2019 (MTCO₂E)

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005 - 2019 |
|--|----------------------|----------------------|----------------------|----------------|--------------------------------------|
| Transportation | 628,200 | 651,130 | 571,650 | 464,040 | -26% |
| Residential energy | 294,930 | 280,870 | 212,420 | 191,780 | -35% |
| Nonresidential energy | 118,740 | 125,350 | 98,850 ¹ | 85,390 | -28% |
| Solid waste | 243,940 | 224,570 | 223,100 | 220,760 | -10% |
| Agriculture | 33,350 | 39,300 | 44,880 | 36,130 | 8% |
| Off-road equipment | 34,160 | 36,290 | 42,840 | 54,010 | 58% |
| Water and wastewater | 8,080 | 7,400 | 4,400 | 4,870 | -40% |
| BART | 1,040 | 1,320 | 1,440 | 190 | -82% |
| Land use and sequestration | -70,860 | -70,860 | -70,860 | -70,860 | 0% |
| Total Annual MTCO₂e | 1,291,580 | 1,295,370 | 1,128,720 | 986,310 | -24% |
| <i>Informational Items</i> | | | | | |
| Stationary sources | 13,983,030 | 11,956,000 | 11,232,290 | 10,867,670 | -22% |
| Wildfire | 14,270 | 66,080 | 0 ^{2*} | 10,100 | N/A ³ |
| <u>Direct access electricity</u> | <u>0⁴</u> | <u>0⁴</u> | <u>0⁴</u> | <u>74,130</u> | <u>N/A</u> |
| <p>Note: All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows.</p> <p>¹ Estimates of nonresidential electricity use in 2013 are used in 2017 to account for a lack of available data in 2017.</p> <p>² No wildfires were recorded in the unincorporated county in 2017.</p> <p>³ Overall change between 2005 and 2019 for wildfire is not calculated because of the high degree of year-to-year variability.</p> <p>⁴ PG&E did not provide direct access electricity use data in these years. All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows.</p> <p>*No wildfires were recorded within the unincorporated County in 2017.</p> | | | | | |

Regarding stationary sources, there are several factors outside of the County's control that influence the operations and related emissions and energy use at these facilities. The County has therefore elected to exclude the direct emissions and energy use at these facilities from consideration of the County's GHG reduction goals for the following reasons:

- These facilities are regulated primarily through the Federal Energy Regulatory Commission and the California Energy Commission (CEC), and are subject to air quality and emissions standards set forth by USEPA, CARB, and BAAQMD.
- The energy used at some of these facilities fluctuates from year to year depending on the demand for resources and the availability of other electricity-generating sources such as hydropower or renewable resources. This makes it difficult to accurately forecast the energy use at these facilities.



- The County has limited jurisdictional authority to reduce GHG emissions from these sources as they are subject to cap-and-trade regulations set forth by CARB.
- The approach to excluding energy from sources that are outside of the County's jurisdictional control is consistent with the *U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions*.

The resultant jurisdictional inventory more accurately reflects the energy use from nonresidential customers in unincorporated Contra Costa County and allows the County to focus on actions that are within its control.

Contra Costa County is developing a Just Transition Economic Revitalization Plan, a long-term strategic plan for transitioning to a net zero-emission economy.

COMMUNITY-WIDE GHG INVENTORY RESULTS BY SECTOR

Transportation

On-road transportation activity accounts for vehicle miles driven between two points in the unincorporated area, or between the unincorporated area or another community. It does not include miles for trips that begin and end in other communities but pass through the unincorporated area (e.g., from Sacramento to Oakland). Unincorporated Contra Costa County community members drove approximately 1.3 billion vehicle miles in 2005, decreasing 12 percent to approximately 1.1 billion vehicle miles in 2019. The VMT in 2005 resulted in GHG emissions of approximately 628,200 MTCO₂e, which dropped to approximately 464,040 in 2019, a 26-percent decrease. GHG emissions decreased due to this reduction in VMT, increasingly fuel-efficient vehicles, and a wider adoption of electric vehicles. The average vehicle on the road in unincorporated Contra Costa County generated 16 percent fewer GHG emissions per mile in 2019 than in 2005, as reported by Caltrans. **Table B-3** provides a breakdown of the activity data and emissions for on-road transportation for the unincorporated area by each individual year included in the updated community inventory.



TABLE B-3: TRANSPORTATION ACTIVITY DATA AND GHG EMISSIONS, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005 - 2019 |
|--|---------------|---------------|---------------|---------------|--------------------------------------|
| Activity Data (VMT) | | | | | |
| On-road transportation | 1,291,819,230 | 1,349,279,980 | 1,357,121,160 | 1,136,911,090 | -12% |
| Emissions (MTCO₂e) | | | | | |
| On-road transportation | 628,200 | 651,130 | 571,650 | 464,040 | -26% |
| All numbers are rounded to the nearest 10. | | | | | |

Residential Energy

Contra Costa County's GHG emissions from residential energy totaled approximately 191,780 MTCO₂e in 2019, compared to 294,930 MTCO₂e in 2005, a decline of 35 percent. Residential electricity GHG emissions decreased due to a decrease in overall use and usage of cleaner sources of electricity. Residential electricity use fell 40 percent from 2005 to 2019, from 488,236,740 kWh to 293,561,300 kWh. Over this period, as seen in **Table B-1**, a unit of electricity supplied by [Pacific Gas and Electricity Company \(PG&E\)](#) emitted 52 percent less GHG in 2019 than in 2005. Electricity from MCE, which supplied electricity to community residents in 2017 and 2019, generated even fewer GHG emissions per unit of electricity than PG&E-supplied electricity, which has also contributed to the decline in this sector. Natural gas use and GHG emissions saw a small decrease from 2005 to 2019 of 3 percent despite a growing population. Propane and wood use and GHG emissions also declined over this period, although GHG emissions from these fuels are only a small proportion of those from the residential energy sector. **Table B-4** provides a breakdown of the activity data and GHG emissions for residential energy for the unincorporated area.



TABLE B-4: RESIDENTIAL ENERGY ACTIVITY DATA AND GHG EMISSIONS BY SUBSECTOR, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005 - 2019 |
|--|----------------|----------------|----------------|----------------|--------------------------------|
| Activity Data | | | | | |
| Residential PG&E electricity (kWh) | 488,236,740 | 478,219,710 | 461,970,670 | 46,158,330 | -91% |
| Residential MCE electricity (kWh) | - | - | 307,820 | 247,402,970 | 80,273%* |
| Residential natural gas (therms) | 30,919,160 | 31,007,110 | 28,634,420 | 30,100,640 | -3% |
| Residential propane (gallons) | 1,525,330 | 1,106,900 | 1,043,270 | 1,021,340 | -33% |
| Residential kerosene (gallons) | 13,160 | 10,960 | 8,030 | 16,320 | 24% |
| Residential wood (MMBTU) | 117,000 | 165,830 | 100,960 | 101,710 | -13% |
| Emissions (MTCO₂e) | | | | | |
| Residential PG&E electricity | 110,120 | 93,380 | 44,510 | 5,000 | -95% |
| Residential MCE electricity | 0 | 0 | 20 | 11,060 | 55,200%* |
| Residential natural gas | 164,570 | 165,040 | 152,060 | 159,850 | -3% |
| Residential propane | 8,910 | 6,470 | 6,100 | 5,970 | -33% |
| Residential kerosene | 140 | 120 | 80 | 170 | 21% |
| Residential wood | 11,190 | 15,860 | 9,650 | 9,730 | -13% |
| Total Annual MTCO₂e | 294,930 | 280,870 | 212,420 | 191,780 | -35% |
| * MCE did not operate in the unincorporated County until 2017, and 2017 operations were very limited. MCE percentage changes are for changes from 2017 to 2019. All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |

Solid Waste

Contra Costa County's community-wide GHG emissions associated with solid waste includes four subsectors.

- Municipal solid waste (MSW) is the material that is discarded by community members and reflects the actual waste generated by the community.
- Alternative daily cover (ADC) is organic material applied at landfills by the landfill operator as a means of controlling debris and pests.

- Waste in place is the solid waste and associated GHG emissions deposited in the County's landfills in previous years.
- The flaring subsector accounts for GHG emissions from the combustion of gases generated by the decomposing waste.

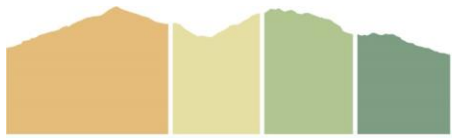
Between 2005 and 2019, total solid waste GHG emissions decreased by 10 percent due to decreases in solid waste generated and ADC applied, likely as a result of increased community awareness about recycling and composting and the availability of curbside recycling programs. Although annual waste generation decreased, waste in place at the landfills increased as waste is added to the landfills each year. **Table B-5** presents solid waste emissions data for each year for the unincorporated area.

TABLE B-5: SOLID WASTE ACTIVITY DATA AND GHG EMISSIONS BY SUBSECTOR, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005 – 2019 |
|---|----------------|----------------|----------------|----------------|--------------------------------|
| Activity Data (Tons) | | | | | |
| Solid waste | 154,820 | 78,790 | 79,520 | 79,340 | -49% |
| ADC | 15,950 | 13,990 | 11,470 | 7,580 | -52% |
| Waste in place | 34,455,010 | 41,785,650 | 45,776,140 | 47,618,290 | 38% |
| Landfill flaring | 5,270 | 5,260 | 5,250 | 5,270 | Less than 1% |
| Emissions (MTCO_{2e}) | | | | | |
| Solid waste | 45,390 | 23,100 | 22,750 | 20,760 | -54% |
| ADC | 3,060 | 3,440 | 2,820 | 1,860 | -39% |
| Waste in place | 193,950 | 196,500 | 196,000 | 196,610 | 1% |
| Landfill flaring | 1,540 | 1,530 | 13,550 | 13,590 | -1% |
| Total Annual MTCO_{2e} | 243,940 | 224,570 | 235,120 | 232,820 | -10% |
| All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |

Nonresidential Energy

Contra Costa County's GHG emissions from nonresidential energy totaled approximately ~~85,390~~~~159,520~~ MTCO_{2e} in 2019, compared to 118,740 MTCO_{2e} in 2005, a ~~decrease~~~~increase~~ of ~~28~~~~34~~ percent. Electricity emissions from retail electricity suppliers (PG&E and MCE) have fallen significantly, driven by a small decrease in electricity use and a large increase in the amount of electricity for renewable and carbon-free sources (see **Table B-1**). Between 2005 and 2019, nonresidential electricity obtained from PG&E



decreased by 90 percent and nonresidential electricity obtained from MCE increased from virtually nothing in 2017 to approximately 200 million kWh in 2019. Natural gas use and associated emissions have reportedly increased, although this may be less of an actual increase and more so the result of data being omitted by PG&E as a way of complying with State privacy regulations. As a consequence of this, the project team has kept nonresidential natural gas use constant at 2013 levels, a conservative estimate that may not account for actual decreases in this subsector. ~~Similarly, direct access electricity (electricity purchased from third parties instead of PG&E or MCE, usually by large customers such as major industrial facilities) was only reported for 2019, although this electricity use likely occurred in previous years but was not reported due to privacy regulations.~~ **Table B-6** provides a breakdown of the activity data and GHG emissions for nonresidential energy for the unincorporated area.



TABLE B-6: NONRESIDENTIAL ENERGY ACTIVITY DATA AND GHG EMISSIONS BY SUBSECTOR, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005–2019 |
|---|----------------|----------------|---------------|------------------------|------------------------------|
| Activity Data | | | | | |
| Nonresidential PG&E Electricity (kWh) ¹ | 284,558,070 | 266,216,660 | 266,216,660 | 29,062,250 | -90% |
| Nonresidential MCE electricity (kWh) ² | 0 | 0 | 28,730 | 200,181,720 | 696,669% |
| Nonresidential Direct Access electricity (kWh) ³ | 0 | 0 | 0 | 396,805,940 | N/A |
| Nonresidential natural gas (therms) ⁴ | 10,251,360 | 13,784,410 | 13,784,410 | 13,784,410 | -58% |
| Emissions (MTCO₂e) | | | | | |
| Nonresidential PG&E electricity ¹ | 64,180 | 51,980 | 25,650 | 3,150 | -95% |
| Nonresidential MCE electricity ² | 0 | 0 | Less than 10 | 9,040 | 451,900% |
| Nonresidential Direct Access electricity ³ | 0 | 0 | 0 | 74,130 | N/A |
| Nonresidential natural gas ³⁴ | 54,560 | 73,370 | 73,200 | 73,200 | 34% |
| Total Annual MTCO₂e | 118,740 | 125,350 | 98,850 | <u>85,390</u> | 34% |
| <p>1: Due to omissions in data reported by PG&E for the calendar year 2017, the project team assumed that electricity use remained constant from 2013 levels.</p> <p>2: MCE did not operate in the unincorporated County until 2017, and 2017 operations were very limited. MCE percentage changes are for changes from 2017 to 2019.</p> <p>3: Direct access electricity was only reported for 2019. As PG&E also reports MCE-supplied electricity as Direct Access, the numbers given in this table are the electricity use after MCE data are removed.</p> <p>34: Due to omissions in data reported by PG&E for the calendar years 2017 and 2019, the project team assumed that natural gas use remained constant from 2013 levels.</p> <p>All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows.</p> | | | | | |

Agricultural Emissions

GHG emissions associated with the agriculture sector for the unincorporated area increased by approximately 8 percent between 2005 and 2019, as shown in **Table B-7**. This increase is due primarily to a minor increase (5 percent) in the amount of cattle in the county. Although crop acreages declined from 2005 to 2019, more fertilizer was applied in



2019 than in 2005 due to a shift in the types of crops being grown that required slightly more fertilizer.

TABLE B-7: AGRICULTURE ACTIVITY DATA AND GHG EMISSIONS BY SUBSECTOR, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005–2019 |
|---|---------------|---------------|---------------|---------------|------------------------------|
| Activity Data | | | | | |
| Crops (acreage) | 200,980 | 204,031 | 197,360 | 183,730 | -9% |
| Nitrogen applied (pounds) | 3,261,620 | 3,560,480 | 3,698,500 | 3,608,340 | 11% |
| Livestock (effective annual population) | 16,500 | 19,110 | 22,060 | 17,340 | 5% |
| Emissions (MTCO₂e) | | | | | |
| Crops | 3,920 | 4,280 | 4,450 | 4,340 | 11% |
| Enteric fermentation | 28,510 | 33,920 | 39,160 | 30,790 | 8% |
| Manure management | 920 | 1,100 | 1,270 | 1,000 | 9% |
| Total Annual MTCO₂e | 33,350 | 39,300 | 44,880 | 36,130 | 8% |
| All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |

Off-Road Equipment Emissions

According to data shown in **Table B-8**, emissions from off-road equipment in unincorporated Contra Costa County increased approximately 73 percent between 2005 and 2019, although the sector overall remains a small proportion of the total community-wide emissions. This increase is primarily the result of a significant rise in diesel tractor and other agricultural equipment use over this period, along with increases in commercial and industrial/warehouse equipment use. Since this is modeling directly reported by State agencies, it is possible that changes in modeling methods may be affecting the results. Note that the State provides these GHG emission levels directly, so there is no activity data to display.



TABLE B-8: OFF-ROAD EQUIPMENT GHG EMISSIONS BY SUBSECTOR, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005 – 2019 |
|---|---------------|---------------|---------------|---------------|--------------------------------------|
| Agricultural equipment | 1,200 | 1,190 | 1,180 | 10,170 | 748% |
| Cargo handling equipment | 900 | 380 | 330 | 310 | -66% |
| Commercial harbor equipment * | 0 | 0 | 0 | 2,600 | N/A |
| Construction and mining equipment | 6,780 | 7,170 | 8,880 | 7,200 | 6% |
| Industrial equipment | 8,320 | 8,840 | 9,470 | 9,780 | 18% |
| Lawn and garden equipment | 3,580 | 3,280 | 3,760 | 3,880 | 8% |
| Light commercial equipment | 2,230 | 2,780 | 3,060 | 3,270 | 47% |
| Locomotives | 3,170 | 3,260 | 3,540 | 3,620 | 14% |
| Oil drilling equipment | 20 | 20 | 20 | 20 | 0% |
| Pleasure craft | 1,890 | 1,810 | 1,800 | 1,830 | -3% |
| Portable equipment | 4,830 | 6,240 | 6,700 | 6,970 | 44% |
| Recreational equipment | 650 | 670 | 610 | 630 | -3% |
| Transport Refrigeration Units | 590 | 650 | 3,490 | 3,730 | 532% |
| Total Annual MTCO₂e | 34,160 | 36,290 | 42,840 | 54,010 | 58% |
| * State modeling only provided emissions for commercial harbor equipment for 2019. All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |

According to records maintained by the California Department of Conservation's Geologic Energy Management Division, there are no active oil or gas extraction wells in the unincorporated area. There are 16 natural gas storage wells in the hills between Clyde and Bay Point, along with an observation well. As these sites are not being used for active extraction, there are no further emissions associated with fossil fuel production at well sites in this inventory.

Water and Wastewater Emissions

Emissions associated with the water and wastewater sector are counted as indirect or direct emissions. Indirect water emissions refer to emissions created by the electricity required to treat and move water to where it is used. Indirect wastewater emissions refer to electricity needed to move wastewater to water treatment facilities, and to process and discharge it. Direct wastewater emissions refer to emissions produced directly by decomposing materials in wastewater.

GHG emissions from Contra Costa County's water and wastewater activity decreased 40 percent between 2005 and 2019. Indirect water GHG emissions declined by 62 percent between 2005 and 2019 while indirect wastewater GHG emissions decreased by 66 percent. Community members used substantially less water (31 percent less) and generated less wastewater (30 percent less) in 2019 than in 2005 despite population growth. This is likely a result of increased water efficiency by community residents and businesses. Additionally, the electricity used in water and wastewater pumping and treatment has been increasingly supplied by renewable and carbon-free sources, decreasing GHG emissions. Direct wastewater emissions did rise by approximately 199 percent from 2005 to 2019, but given that the amount of wastewater generated declined by this period, this is likely due to changes in modeling approaches and available data. The emissions data for the unincorporated area in **Table B-9** shows that overall emissions increased slightly within the water and wastewater sector.

TABLE B-9: WATER AND WASTEWATER ACTIVITY DATA AND GHG EMISSIONS BY SUBSECTOR, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005 – 2019 |
|---|------------|------------|------------|------------|--------------------------------|
| Activity Data | | | | | |
| Water use (million gallons) | 11,530 | 11,650 | 7,380 | 8,010 | -31% |
| Water electricity use (kWh) | 26,443,770 | 28,004,290 | 19,137,620 | 20,783,930 | -21% |
| Wastewater generation (million gallons) | 4,560 | 4,610 | 3,150 | 3,170 | -30% |
| Wastewater electricity use (kWh) | 6,199,120 | 6,198,590 | 4,268,050 | 4,295,780 | -31% |
| Emissions (MTCO₂e) | | | | | |
| Indirect water | 5,960 | 5,470 | 1,840 | 2,250 | -62% |
| Indirect wastewater | 1,400 | 1,210 | 410 | 470 | -66% |
| Direct wastewater | 720 | 720 | 2,150 | 2,150 | 199% |
| Total Annual MTCO ₂ e | 8,080 | 7,400 | 4,400 | 4,870 | -40% |
| All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |



BART Emissions

Emissions associated with BART ridership decreased 82 percent between 2005 and 2019. This decline is attributable to changes in BART's electricity portfolio, which in recent years have shifted to favor more renewable and carbon-free sources of energy. BART ridership from community members in unincorporated Contra Costa County increased 29 percent between 2005 and 2019, as shown in **Table B-10**. Ridership at all stations serving the unincorporated area increased by 10 to 35 percent over this period except for Pittsburg/Bay Point, which saw some of its ridership shift to Pittsburg Center and Antioch with the opening of the BART to Antioch extension in 2018.

TABLE B-10: BART ACTIVITY DATA AND GHG EMISSIONS, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005–2019 |
|---|------------|------------|------------|------------|------------------------------------|
| Activity Data | | | | | |
| BART Ridership (passenger miles) | 11,231,870 | 14,228,420 | 15,528,840 | 14,444,740 | 29% |
| Emissions (MTCO₂e) | | | | | |
| Total Annual MTCO ₂ e | 1,040 | 1,320 | 1,440 | 190 | -82% |
| All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |

Land Use and Sequestration

GHG emissions from land use and sequestration can be either positive (a source of emissions) or negative (removing emissions from the atmosphere, creating what is known as an emissions “sink”). Natural lands and trees in urban areas absorb carbon, storing it in wood, plants, and soil. As a result, when natural land is preserved or when more trees are planted, emissions from this sector are negative because GHGs are being removed from the atmosphere. However, developing natural lands or converting them to a different form (for example, replacing forests with crop land) or removing street trees causes carbon to be released, creating GHG emissions.

This sector includes emission sources and sinks from three types of activities: sequestration of GHG emissions in locally controlled forested lands, sequestration of GHG emissions in street trees in urbanized unincorporated areas, and emissions caused by permanently removing vegetation from natural lands or farmlands as a part of development.



Emissions and sequestered amounts remained constant in both years for all three activities. Locally-controlled forests and urban trees have not had their sequestration capabilities changed by human activities during the inventory period. While there was some development activity that caused a loss of sequestered GHG emissions, records of when the development specifically occurred are not available, and so the GHG emissions have been assigned equally to both inventory years, hence the lack of changes. Forests sequestered 58,110 MTCO₂e annually, while urban trees sequestered 12,750 MTCO₂e, for a total carbon sink of 70,860 MTCO₂e for the unincorporated area, as shown in **Table B-11**.

TABLE B-11: LAND USE AND SEQUESTRATION ACTIVITY DATA AND GHG EMISSIONS, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005 – 2019 |
|---|----------------|----------------|----------------|----------------|--------------------------------------|
| Activity Data | | | | | |
| Acres of forested land | 60,050 | 60,050 | 60,050 | 60,050 | 0% |
| Acres of urban trees | 32,780 | 32,780 | 32,780 | 32,780 | 0% |
| Acres of land use changes | 0 | 0 | 0 | 0 | 0% |
| Emissions (MTCO₂e) | | | | | |
| Forest sequestration | -58,110 | -58,110 | -58,110 | -58,110 | 0% |
| Street tree sequestration | -12,750 | -12,750 | -12,750 | -12,750 | 0% |
| Land use changes | 0 | 0 | 0 | 0 | 0% |
| Total Annual MTCO₂e | -70,860 | -70,860 | -70,860 | -70,860 | 0% |
| All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |

Wildfire

Wildfires create GHG emissions by burning organic materials such as trees and plants, releasing the carbon sequestered in these materials. Larger fires and those that burn through forested areas, as opposed to less densely vegetated ecosystems, release more GHG emissions. The County reported wildfires in the unincorporated area in 2005, 2013, and 2019, but not in 2017. The acreages and emissions of these fires for the unincorporated area are reported in **Table B-12**. Although wildfire emissions and acreages were lower in 2019 than in 2005, wildfire activity varies widely from year to year, and is generally expected to increase in future years due to climate change. Wildfire emissions are not calculated in the totals presented in this appendix and are for informational purposes only.



TABLE B-12: WILDFIRE ACTIVITY DATA AND GHG EMISSIONS, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005–2019 |
|--|--------|--------|------|--------|------------------------------------|
| Activity Data | | | | | |
| Acres burned | 2,070 | 6,320 | 0 | 1,830 | -31% |
| Emissions (MTCO₂e) | | | | | |
| Total Annual MTCO ₂ e | 14,270 | 66,080 | 0 | 10,100 | -29% |
| 2005 wildfires: Bragdon Fire, BNSF Fire, Byron Fire, Vasco Airport Fire, and an unnamed fire south of Antioch. | | | | | |
| 2013 wildfires: Kirker Fire and Morgan Fire. | | | | | |
| 2019 wildfires: Marsh 3 Fire, Marsh 5 Fire, Marsh 6 Fire. | | | | | |
| All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |

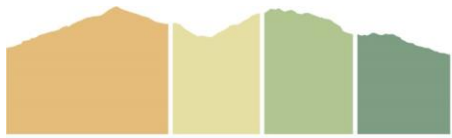
Stationary Source Emissions

Stationary source emissions result from fuel use, such as natural gas or propane, at large industrial facilities. These facilities include refineries, power plants, factories, and similar installations. Natural gas use at these facilities may be included as part of the nonresidential natural gas use reported by PG&E. These facilities are regulated by the State and BAAQMD, and the County does not have direct control over their operations. Emissions from these facilities are therefore not counted toward the County's total GHG emissions.

Table B-13 shows the emissions from stationary sources for the unincorporated area. This information is directly reported by the California Air Resources Board as total emissions. The Board does not report activity data for stationary sources, which would include amounts of fuel burned at these facilities. These emissions are not included in the totals presented in this memorandum and are for informational purposes only.

TABLE B-13: STATIONARY SOURCE GHG EMISSIONS, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005–2019 |
|---|------------|------------|------------|------------|------------------------------------|
| Emissions (MTCO₂e) | | | | | |
| Total Annual MTCO ₂ e | 13,983,030 | 11,956,000 | 11,232,290 | 10,867,670 | -22% |
| All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |



Direct Access Electricity Emissions

PG&E provided direct access electricity data only for 2019. In 2019, Contra Costa County direct access electricity customers used 396, 805, 940 kWh of electricity, producing 74,130 MTCO₂e of emissions. Direct access electricity, supplied by an ESP to large nonresidential customers, is regulated by the California Public Utilities Commission. The identities of direct access customers and the specific ESPs from which they purchase electricity are not made available to the public. Given the County's limited ability to monitor and regulate the sale and use of direct access electricity, as well as historical inconsistencies in how direct access electricity use is reported, direct access emissions are reported for informational purposes only.

COUNTY OPERATIONS EMISSIONS

Sectors

The County operations inventory looks at GHG emissions from the following sectors:

- **Employee commute** includes GHG emissions from County employees commuting to and from work, as well as emissions associated with business travel.
- **Buildings and facilities** includes the electricity and natural gas use at County-owned facilities.
- **Government fleet** includes the fuel-use from County-owned vehicles.
- **Government-generated solid waste** includes the waste materials generated at County facilities.
- **Public lighting** includes the electricity use for publicly owned lights, including streetlights and traffic signals.
- **Water and wastewater** includes emissions associated with water use and wastewater generation at County facilities.
- **Refrigerants** includes the leaks of GHGs from air conditioning systems in County-owned vehicles and buildings.

County Operations Inventory Results

In 2006, Contra Costa County government operations emissions totaled 54,090 MTCO₂e for the sectors reported in this inventory, as shown in **Table B-14**. In 2017, County government operations GHG emissions were 43,380 MTCO₂e, a 20 percent decrease from 2006 levels. This decrease is primarily the result of reductions in energy use, reductions in County fleet emissions, and reductions in employee waste disposal. The 2017 inventory also includes emissions from wastewater treatment and refrigerants, which were not included in the 2006 inventory.

TABLE B-14: 2006 BASELINE AND 2017 COUNTY-OPERATIONS GHG EMISSIONS SUMMARY

| SECTOR | 2006 GHG EMISSIONS (MTCO ₂ E) | 2017 GHG EMISSIONS (MTCO ₂ E) | PERCENT AGE CHANGE |
|----------------------------------|---|---|-------------------------------|
| Employee commute | 23,530 | 25,800 | 10% |
| Buildings and facilities | 19,260 | 12,500 | -35% |
| Government fleet | 8,500 | 3,430 | -60% |
| Government-generated solid waste | 1,980 | 900 | -54% |
| Public lighting | 830 | 440 | -47% |
| Water and wastewater | Not included | 220 | — |
| Refrigerants | Not included | 90 | — |
| Total | 54,090 | 43,380 | -20% |

These inventories assume 8,420 County employees in 2006 and 10,030 employees in 2017, a 19% increase.

Note: All numbers are rounded to the nearest 10. Totals may not add up to the sum of individual rows due to rounding.

COUNTY OPERATIONS GHG INVENTORY RESULTS BY SECTOR

Employee Commute and Travel

Tables B-15 and **B-16** summarize changes in 2006 and 2017 related to employee commute activities.

TABLE B-15: 2006 BASELINE AND 2017 EMPLOYEE COMMUTE AND TRAVEL EMISSIONS

| ACTIVITY/SOURCE | 2006 MTCO ₂ E | 2017 MTCO ₂ E | PERCENT AGE CHANGE |
|------------------|--------------------------|--------------------------|-------------------------------|
| Employee commute | 23,530 | 25,800 | 10% |



TABLE B-16: 2017 EMPLOYEE COMMUTE ACTIVITY DATA AND GHG EMISSIONS

| ACTIVITY/SOURCE | ACTIVITY DATA | UNITS | GHG EMISSIONS (MTCO ₂ E) | PERCENTAGE |
|------------------------------------|-------------------|-----------------|-------------------------------------|--------------|
| Driving alone (gas) | 77,173,500 | Vehicle miles | 24,600 | 95% |
| Driving alone (electric) | 4,494,570 | Vehicle miles | 0 | 0% |
| Carpool | 1,155,500 | Passenger miles | 350 | 1% |
| Transit (BART, bus) | 641,830 | Passenger miles | 100 | Less than 1% |
| Motorcycle | 425,050 | Vehicle miles | 749 | 3% |
| Active transportation (walk, bike) | 66,590 | Miles | 0 | 0% |
| Telecommute | 88,816 | Miles | 0 | 0% |
| Total | 84,045,860 | Miles | 25,800 | 100% |

Note: All numbers are rounded to the nearest 10. Totals may not add up to the sum of individual rows due to rounding.

Although employees' personal commute is not under the direct operational control of the County, there are a variety of tools and resources available to influence employees' commute patterns. For this reason, emissions are included in this inventory. Employee commute accounted for in the emissions inventory includes business travel; travel via personal vehicles; carpool; alternative transportation methods, including biking and walking; air travel; and public transit.

In 2017, County employees' commute to work contributed to 25,795 MTCO₂e. This is a 10 percent increase in GHG emissions from the 23,530 MTCO₂e reported in 2006. Over the years, there was an increase in the number of employees from 8,420 to 10,030 between 2006 and 2017. Commute emissions reflect increased vehicle fuel efficiency, although changes in the number of employees and increases in commute distance balance that out.

Buildings and Facilities

The buildings and facilities sector includes electricity and natural gas use at County-owned and operated buildings and facilities. Emissions from this sector totaled 19,210 MTCO₂e in 2006 and 12,500 MTCO₂e in 2017 (see **Table B-17**), a 35 percent decrease.



TABLE B-17: 2006 BASELINE AND 2017 BUILDINGS AND FACILITIES ENERGY USE EMISSIONS

| SUBSECTOR | 2006 MTCO ₂ E | 2017 MTCO ₂ E | PERCENT AGE CHANGE |
|--|--------------------------|--------------------------|-------------------------------|
| Buildings and facilities – natural gas | 11,360 | 6,300 | -44% |
| Buildings and facilities – electricity | 7,670 | 6,200 | -19% |
| Total | 19,030 | 12,500 | -35% |

Note: All numbers are rounded to the nearest 10. Totals may not add up to the sum of individual rows due to rounding.

Government (County) Fleet

The vehicles and equipment used in the County's daily operations burn gasoline, diesel, propane, and compressed natural gas fuel, resulting in the emission of GHGs.

Contra Costa's 2017 vehicle fleet emissions totaled 3,430 MTCO₂e (see **Table B-18**). This is a 59-percent decrease in GHG emissions from the 8,500 MTCO₂e in the 2006 inventory. This is primarily the result of a decrease in on-road vehicle miles traveled and an increase in fuel efficiency between inventory years.

TABLE B-18: 2006 BASELINE AND 2017 VEHICLE FLEET EMISSIONS

| SECTOR | 2006 MTCO ₂ E | 2017 MTCO ₂ E | PERCENT AGE CHANGE |
|------------------|--------------------------|--------------------------|-------------------------------|
| Government fleet | 8,500 | 3,430 | -59% |

Solid Waste

County operations generates solid waste during normal activity, much of which is eventually landfilled. Emissions from this sector are estimates of methane generation that will result in future years from the waste that was sent to the landfill in the inventory year. Solid waste generated by County employees contributed to a total of 900 MTCO₂e in year 2017 (see **Table B-19**). Solid waste collected from County operations saw a reduction of 54 percent in emissions since the 2006 baseline, where this sector contributed to 1,980 MTCO₂e.

TABLE B-19: 2006 BASELINE AND 2017 GOVERNMENT-GENERATED SOLID WASTE

| SECTOR | 2006 MTCO ₂ E | 2017 MTCO ₂ E | PERCENT AGE CHANGE |
|----------------------------------|--------------------------|--------------------------|-------------------------------|
| Government-generated solid waste | 1,980 | 900 | -54% |

Public Lighting

Emissions from public lighting owned by the County, such as streetlights, totaled 440 MTCO₂e in 2017 (see **Table B-20**). This is a 47-percent decrease from the 830 MTCO₂e reported in 2006.

TABLE B-20: 2006 BASELINE AND 2017 PUBLIC LIGHTING

| SECTOR | 2006 MTCO ₂ E | 2017 MTCO ₂ E | PERCENT AGE CHANGE |
|-----------------|--------------------------|--------------------------|-------------------------------|
| Public lighting | 830 | 440 | -47% |

Water and Wastewater

The water and wastewater treatment sector includes the emissions generated by the electricity needed to move and process the water used and the wastewater generated by County government facilities (indirect water and wastewater), along with direct emissions caused by the processing of County-generated wastewater. Water use and wastewater generation at County facilities generated a total of 220 MTCO₂e in 2017 (see **Table B-21**). The water and wastewater sector was not included in the 2006 baseline inventory.

TABLE B-21: 2006 BASELINE AND 2017 WASTEWATER TREATMENT

| SECTOR | 2006 MTCO ₂ E | 2017 MTCO ₂ E |
|---|--------------------------|--------------------------|
| Indirect Water | Not included | 180 |
| Indirect Wastewater | Not included | 20 |
| Direct Wastewater | Not included | 20 |
| Total | Not included | 240 |
| Note: All numbers are rounded to the nearest 10. Totals may not add up to the sum of individual rows due to rounding. | | |

Refrigerants

Vehicles and buildings with air conditioning use refrigerants that can leak from engines and appliances during normal operation and maintenance. These refrigerants are often GHGs that trap a very large amount of heat per unit of gas, known as gases with a very high global warming potential (GWP). Emissions from refrigerant leaks were accounted for in the 2017 GHG emissions inventory for County government operations. This sector was not included in the 2006 baseline inventory.

Refrigerant emissions contributed to 90 MTCO₂e in 2017 (see **Table B-22**).



TABLE B-22: 2006 BASELINE AND 2017 REFRIGERANTS

| SECTOR | 2006 MTCO ₂ E | 2017 MTCO ₂ E |
|--------------|--------------------------|--------------------------|
| Refrigerants | Not included | 90 |

CONSUMPTION-BASED INVENTORY EMISSIONS

As discussed in Chapter 3, the consumption-based inventory accounts for GHG emissions created by the goods and services used by community members of the unincorporated county, including residents, businesses, and employees. A consumption-based inventory assesses emissions associated with the manufacture, transportation, and disposal of these goods and services, regardless of where they occur.

In 2015, BAAQMD worked with the Cool Climate Network at the University of California, Berkeley, to prepare a consumption-based inventory for all Bay Area jurisdictions. This inventory includes GHG emissions from the following sources:

- **Travel:** GHG emissions from fuel use by on-road vehicles, vehicle manufacturing and repairs, public transportation, and air travel.
- **Housing:** GHG emissions from electricity and natural gas use in homes as well as other fuels associated with home heating (such as kerosene or fuel oil), electricity emissions from water and wastewater activities, and waste emissions. This category also includes emissions from the manufacture, transportation, and construction and demolition of materials used to construct houses.
- **Food:** GHG emissions from the growth, processing/manufacturing, and transportation of food products.
- **Goods:** GHG emissions from the manufacture, transportation, and disposal of consumer products, such as home furnishings, appliances and electronics, clothing, and healthcare and personal items.
- **Services:** GHG emissions from personal and business services, including entertainment and recreation, communication, education, healthcare, and maintenance and repair activities.

Some of these GHG emission sources are also included in the production-based inventory prepared as part of the 2024 CAP, and others are covered by either the production-based or consumption-based inventory but not both. **Table B-23** compares the sources of GHG



emissions in the 2024 CAAP production-based inventory and the BAAQMD/Cool Climate Network consumption-based inventory.

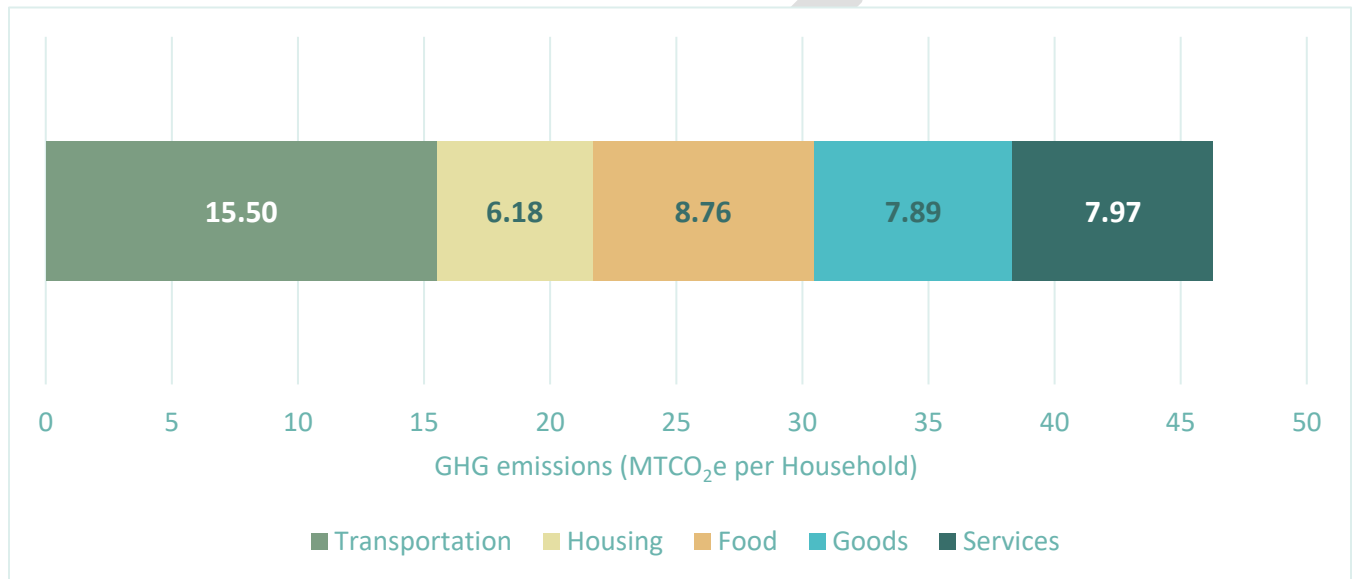
TABLE B-23 COMPARISON OF SOURCES IN PRODUCTION-BASED AND CONSUMPTION-BASED GHG EMISSION INVENTORIES

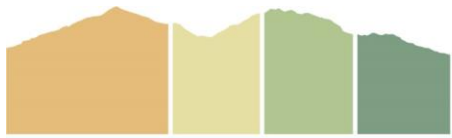
| SOURCE OF EMISSIONS | PRODUCTION-BASED CAAP INVENTORY | BAAQMD/COOL CLIMATE NETWORK CONSUMPTION- BASED INVENTORY |
|--|------------------------------------|--|
| Generation of electricity used | Included | Included |
| Combustion of natural gas used | Included | Included |
| Combustion of other home heating fuels used | Not included | Included |
| Fuel use from on-road vehicles | Included | Included |
| Fuel use from public transportation | Included | Included |
| Electricity use from BART | Included | Included |
| Vehicle manufacturing and repairs | Partially included* | Included |
| Air travel | Not included | Included |
| Fuel use from off-road equipment, including construction and landscaping equipment | Included | Not included |
| Generation of electricity used for water processing and transportation | Included | Included |
| Generation of electricity used for wastewater processing and transportation | Included | Unknown† |
| Direct wastewater process emissions | Included | Not included |
| Landfilling of solid waste | Included | Included |
| Reprocessing of recyclables | Partially included* | Included |
| Compost processing | Partially included* | Included |
| Manufacturing of home-construction materials | Partially included* | Included |
| Food growth, processing, production, and transportation | Partially included* | Included |
| Carbon sequestration in forests and street trees | Included | Not included |
| Other embedded emissions in goods and services | Not included | Included |
| <p>Note: Due to differences in data sources and analysis methods, the same source of emissions in both inventories may produce different results.</p> <p>* Emissions from energy use, water use, and waste generation associated with these activities are included in the 2024 CAAP Update inventory if these activities occur in Contra Costa County. Emissions from these activities outside of Contra Costa County and other emissions associated with these activities in Contra Costa County are not included in the 2024 CAAP inventory.</p> <p>† Emissions from these activities are not explicitly called out in the BAAQMD/Cool Climate Network consumption-based inventory but may be included in the total electricity use category.</p> <p>Due to differences in data sources and analysis methods, the same source of emissions in both inventories may produce different results.</p> | | |



According to the consumption-based inventory, transportation is responsible for 15.5 MTCO₂e per household, or 34 percent of emissions produced by activities conducted and goods consumed ~~within unincorporated~~ Contra Costa County. Food is responsible for 8.79 MTCO₂e per household (19 percent), goods and services for 7.89 MTCO₂e per household and 7.97 MTCO₂e per household, respectively (17 percent each), and housing for 6.18 MTCO₂e per household or 13 percent (see **Figure B-1**).

FIGURE B-1. CONSUMPTION-BASED INVENTORY RESULTS





Community-Wide Forecast

The forecast of community-wide GHG emissions for the unincorporated area is based on the results of the 2019 community GHG emissions inventory. The project team assumed growth in these emissions consistent with the anticipated growth in unincorporated Contra Costa County's future population, jobs, and development patterns, developed as part of the Envision Contra Costa buildout calculations. The project team forecast GHG emissions for the calendar years 2030 and 2045. The forecast is a "worst case" scenario that does not assume any efforts are taken, at any level, to reduce GHG emissions beyond the policies that are already in effect in 2019.

For many sectors, the GHG forecast assumes that each person in the unincorporated area will continue to contribute the same amount of GHG emissions as they did in 2019, so that the amount of GHG emissions increases proportionally to demographic growth. There are some sectors that are not projected this way:

- Transportation, which is projected using a regional traffic demand model based partially on demographics and partially on the location of various land uses.
- Agriculture, which is forecast using future land use projections for the amount of agricultural land in the unincorporated area.
- Land use and sequestration, which is forecast using future land use projections for developed land, forested land, and any agricultural and open space land that is developed.
- Within the off-road equipment sector, emissions from construction and mining equipment are projected using the rate of population and job growth, emissions from industrial equipment are projected using future land use projections for industrial land, and emissions from Transportation Refrigeration Units are projected using the proportion of county-wide road miles in the unincorporated area.

The forecast does not project any change in activity or GHG emissions for alternative home heating fuels (propane, kerosene, and wood), direct access electricity, cargo-handling equipment, or oil drilling equipment. Additionally, emissions for the two informational sectors (stationary sources and wildfires) are not forecasted, owing to their informational and substantial uncertainty in projecting future activities for these sectors. These GHG emissions do not have a demographic indicator that staff can use to reasonably project the volume of these emissions in the future, particularly given that they are informational



items and not included in the total community-wide emissions. **Table B-23** shows the demographic projections and their sources for the unincorporated area.

TABLE B-23: DEMOGRAPHIC PROJECTIONS, 2019 – 2045

| DEMOGRAPHIC | 2019 | 2030 | 2045 | PERCENTAGE CHANGE, 2019-2045 | SOURCE |
|--|---------|---------|---------|------------------------------------|---|
| Population | 174,150 | 199,360 | 239,720 | 38% | ABAG/MTC, Envision Contra Costa |
| Households | 60,320 | 69,210 | 83,500 | 38% | ABAG/MTC, Envision Contra Costa |
| Jobs | 38,760 | 42,480 | 48,150 | 24% | US Census Bureau, Envision Contra Costa |
| Service population* | 212,910 | 241,840 | 287,870 | 35% | ABAG/MTC, US Census Bureau, Envision Contra Costa |
| * Service population is the sum of population and jobs All numbers are rounded to the nearest 10. | | | | | |

Table B-24 shows unincorporated Contra Costa County's projected future GHG emissions relative to the 2019 inventory. Most sectors show an increase in GHG emissions due to the growing population. Agricultural emissions decrease because the amount of land use for agricultural purposes is projected to decline. Although the land use and sequestration sector is expected to remain a net carbon sink (negative emissions), the amount of emissions sequestered (removed from the atmosphere) by the activities in this sector are projected to decline. This is due to anticipated development of currently undeveloped land, removing the potential for this land to sequester carbon. Sequestration in forested and urbanized areas is projected to increase slightly.

TABLE B-24: ABSOLUTE BUSINESS-AS-USUAL GHG EMISSIONS FORECAST, 2019–2045

| SECTOR | 2019 MTCO ₂ E | 2030 MTCO ₂ E | 2045 MTCO ₂ E | PERCENTAGE CHANGE, 2019–2045 |
|---------------------------------------|--------------------------|--------------------------|--------------------------|------------------------------------|
| Transportation | 464,040 | 542,020 | 605,080 | 30% |
| Residential energy | 191,780 | 217,710 | 259,380 | 35% |
| Nonresidential energy | <u>85,590</u> | <u>93,590</u> | <u>106,070</u> | <u>24%</u> |
| Solid waste | 220,760 | 229,450 | 260,490 | 18% |
| Agriculture | 36,130 | 34,770 | 33,410 | -8% |
| Off-road equipment | 54,010 | 69,520 | 76,100 | 41% |
| Water and wastewater | 4,870 | 5,530 | 6,590 | 35% |
| BART | 190 | 220 | 260 | 37% |
| Land use and sequestration | -70,860 | -67,580 | -58,890 | -17% |
| Total Annual MTCO₂e | <u>986,310</u> | <u>1,125,230</u> | <u>1,288,490</u> | <u>31%</u> |

All values rounded to the nearest 10. Due to rounding, totals may not equal the sum of the individual values.

Quantification

STATE AND REGIONAL GHG EMISSION REDUCTIONS FROM EXISTING ACTIONS

California has adopted and is committed to implementing policies that reduce statewide GHG emissions, including those in Contra Costa County. Many of these policies are laid out in the Climate Change Scoping Plan (Scoping Plan), a state document that outlines regulatory and market-based solutions to achieving California's GHG emission reduction goals. The Scoping Plan was first prepared in 2008, with successive updates in 2014, 2017, and 2022. These updates revised the state-level actions and identified additional opportunities for GHG emission reductions.

The Scoping Plan and related documents lay out several policies to reduce California's GHG emissions, although not all are directly applicable to Contra Costa County. The project team has assessed Contra Costa County's GHG emissions and identified five Sstate policies that are directly relevant to the community. This allows the 2024 CAAP to provide "credit" to Contra Costa County for these policies. These Sstate efforts are:

- **The Renewables Portfolio Standard (RPS)**, which requires increases in renewable and carbon-free electricity supplies. RPS was first established in 2002 and has been amended multiple times, most recently by SB 100 in 2018. It requires all electricity

providers in the state to obtain at least 33 percent of their electricity from eligible renewable resources by the end of 2020, 60 percent of their electricity from eligible renewable resources by the end of 2030, and all of their electricity from carbon-free (although not necessarily eligible renewable) resources by the end of 2045. This policy reduces GHG emission from electricity use, including electricity used to transport and process water and wastewater, and electricity used for electric vehicles.

- The Clean Car Standards**, which require increased fuel efficiency of on-road vehicles and decreased carbon intensity of vehicle fuels. In 2002, California adopted AB 1493, the New Passenger Motor Vehicle Greenhouse Gas Emission Standards or Pavley standard. It required a reduction in tailpipe GHG emissions from new vehicles produced from 2009 to 2015. In 2012 CARB adopted an extension of this policy, the Advanced Clean Car Standards, which requires more stringent reductions in tailpipe GHG emissions from vehicles produced from 2016 to 2025. The Clean Car Standards reduce GHG emissions from on-road transportation. In August 2022, CARB adopted another expansion of these standards, known as the Advanced Clean Cars II standards. This regulation requires that all new light-duty vehicles (e.g., passenger cars, small trucks, and SUVs) sold in the state to be zero-emission by 2035, with interim targets for new light-duty vehicle sales beginning in 2026. There are some limited exceptions for plug-in hybrid vehicles. CARB adopted similar rules for heavy-duty vehicles and state and local government fleets in 2020 (Advanced Clean Trucks) and 2023 (Advanced Clean Fleets). Advanced Clean Cars II and Advanced Clean Fleets are not included in the modeling used to assess GHG reductions from the Clean Car Standards. These GHG reductions are counted as part of the reductions associated with Strategy TR-2.
- The updated Title 24 building energy efficiency standards** require new buildings to achieve increased energy-efficiency targets. The latest version of these standards is set to go into effect January 1, 2023. California Code of Regulations, Title 24, Part 6 is California's energy efficiency standards for new and renovated buildings, applied at the local level through the project review and building permit process. The standards are strengthened every three years, with the ultimate goal of making new buildings net-zero energy, meaning that they would generate as much energy as they use. The most recent set of Title 24 standards went into effect on January 1, 2020. On August 11, 2021, the California Energy Commission (CEC) adopted the 2022 Title 24 standards. In December, it was approved by the California Building Standards Commission for inclusion into the California Building Standards Code. The 2022 Title 24 standards encourage efficient electric heat pumps, establish electric-ready requirements for new homes, expand solar photovoltaic and battery storage standards, and strengthen

ventilation standards. Buildings whose permit applications are applied for on or after January 1, 2023, must comply with the 2022 Title 24 standards.

- **The Low Carbon Fuel Standard (LCFS)** mandates reduced carbon intensity of fuels used in off-road equipment. The Low Carbon Fuel Standard was adopted in 2009 and required a 10 percent reduction in the carbon intensity of all transportation and equipment fuels by 2020. This policy reduces GHG emissions from on-road transportation and from off-road equipment. The LCFS has since been revised several times, most recently in 2020. The 2020 LCFS requires further reductions in carbon intensity of around 1.25 percent every year until 2030.
- **The Short-Lived Climate Pollutant Reduction Strategy**, also known as Senate Bill (SB) 1383, requires that communities divert 75 percent of organic waste (food scraps, grass, and plant trimmings, etc.) away from landfills and toward alternatives such as composting or energy generation. As a part of this requirement, all jurisdictions must offer curbside composting to single-family and small multifamily properties (less than five units). Larger multifamily properties and businesses must either participate in curbside composting or subscribe to self-haul organic waste to a composting program or collection site. SB 1383 also includes requirements related to diverting surplus food to people in need, increasing the use of products made from recycled organics, and providing more detailed reporting statistics.
- **Renewable Natural Gas** assumes that biomethane and renewable hydrogen fuels will be blended into the fossil gas pipeline and that, in the 2030s, dedicated hydrogen pipelines will be constructed to serve certain industrial clusters.

In addition to these five state-level policies, the County's default electricity provider, MCE, has also taken action to reduce the GHG emissions from the electricity it supplies to Contra Costa community members, beyond the minimum required by RPS. In 2019, MCE electricity was approximately 60 percent renewable and 90 percent carbon-free. In 2023, MCE sourced over 95 percent of its electricity from carbon-free sources. Since MCE supplies more electricity from carbon-free sources than RPS requires it to, the County can receive "credit" for the GHG reductions that result from going beyond the State minimum. The County also enacted an all-electric reach code (suspended in February 2024), which required many types of new buildings to be built using only electricity, not use natural gas, thereby reducing GHG emissions associated with residential and nonresidential energy. The County is developing a new ordinance that will support high levels of energy efficiency and low levels of GHG emissions for new construction. This ordinance is expected to take



effect on January 1, 2025, and will be updated during future revisions to the Building Standards Code.

Overall, these existing policies are expected to reduce Contra Costa County's future GHG emissions. Without these policies in place, community-wide GHG emissions in the unincorporated area are expected to be approximately 1,300,320 MTCO₂e by 2045, or 289 percent above 2019 levels. With these policies enacted, community-wide GHG absolute emissions in the unincorporated area are projected to be approximately 874,420~~36,100~~ MTCO₂e by 2045, or 187 percent below 2019 levels. **Table B-25** shows the absolute reductions achieved by these policies.

TABLE B-25: GHG EMISSION REDUCTIONS FROM EXISTING AND PLANNED STATE, REGIONAL, AND LOCAL ACTIONS (2019–2045)

| | 2019 | 2030 | 2045 | PERCENTAGE CHANGE, 2019–2045 |
|--|----------------|------------------|------------------|------------------------------------|
| Forecast emissions without state and regional actions | <u>986,310</u> | <u>1,125,230</u> | <u>1,288,490</u> | <u>31%</u> |
| Reductions from RPS | - | -24,620 | -115,400 | - |
| Reductions from Clean Car standards | - | -110,250 | -214,120 | - |
| Reductions from Title 24 | - | <u>-9,880</u> | <u>31,600</u> | - |
| Reductions from LCFS (off-road only)* | - | -740 | 7,430 | - |
| Reductions from SB 1383 | - | -21,880 | -53,870 | - |
| Reductions from renewable natural gas | | <u>-18,460</u> | <u>-78,050</u> | |
| Reductions from MCE clean energy procurement | - | -1,240 | - | - |
| <u>Reductions from all-electric reach code (suspended February 2024)</u> | - | <u>-3,150</u> | <u>-2,590</u> | - |
| Reductions from all <u>existing and planned state and regional</u> actions | - | <u>-188,740</u> | <u>-488,200</u> | - |
| Emissions with <u>all existing and planned state and regional</u> actions | <u>986,310</u> | <u>957,470</u> | <u>874,420</u> | <u>-11%</u> |
| Note: All numbers are rounded to the nearest 10. Due to rounding, totals may not equal the sum of the individual values. | | | | |
| * Due to the methods used in the forecast and assessment of state GHG reduction potential, future projections for off-road equipment GHG emissions are higher than forecast above. | | | | |

TECHNICAL DATA FOR GHG REDUCTION STRATEGIES

This section discusses the data sources, methods, and assumptions for the quantification of the GHG-reduction strategies included in the Contra Costa County 2024 CAAP. In addition to the sources presented here, these calculations also rely on the GHG inventory and forecast. These calculations rely on emission factors that reflect the reductions already achieved by the existing actions discussed in the previous section. **Table B-26** shows these emission factors.

TABLE B-26: EMISSION FACTORS WITH EXISTING ACTIONS (2019–2045)

| ACTIVITY TYPE | UNITS | 2019 | 2030 | 2045 |
|-----------------------------|-------------------------------------|----------|----------|----------|
| Electricity (PG&E) | MTCO ₂ e/kWh | 0.000108 | 0.000077 | 0.000000 |
| Electricity (MCE) | MTCO ₂ e/kWh | 0.000045 | 0.000044 | 0.000000 |
| Electricity (direct access) | MTCO ₂ e/kWh | 0.000187 | 0.000134 | 0.000000 |
| Electricity (PG&E and MCE) | MTCO ₂ e/kWh | 0.000054 | 0.000047 | 0.000000 |
| Natural gas | MTCO ₂ e/Therms | 0.005310 | 0.005311 | 0.005310 |
| Propane | MTCO ₂ e/Gallons | 0.005845 | 0.005845 | 0.005845 |
| Kerosene | MTCO ₂ e/Gallons | 0.010417 | 0.010417 | 0.010417 |
| Wood | MTCO ₂ e/MMBTU | 0.095664 | 0.095664 | 0.095664 |
| On-road transportation | MTCO ₂ e/VMT | 0.000408 | 0.000325 | 0.000408 |
| Solid waste (MSW) | MTCO ₂ e/Tons | 0.261659 | 0.261678 | 0.261676 |
| Solid waste (ADC) | MTCO ₂ e/Tons | 0.245383 | 0.245132 | 0.245854 |
| Solid waste (combined) | MTCO ₂ e/Tons | 0.004628 | 0.003958 | 0.260191 |
| BART | MTCO ₂ e/Passenger miles | 0.000013 | 0.000008 | 0.000013 |

For each strategy, this appendix discusses the following items:

- The savings in activity data (e.g., kWh of electricity or tons of solid waste) in 2030 and 2045 resulting from implementing the strategy as described. A negative value indicates an increase in activity data.
- The decreases in GHG emissions in 2030 and 2045 resulting from implementing the strategy as described.
- The assumptions made about the strategy's performance, such as the level of community participation required to achieve the specified reductions by 2030 and 2045.
- The performance targets, which are quantifiable metrics about the projected level of success the strategy must meet to achieve the specified reductions by 2030 and 2045.

- Sources: Key studies, analyses, and other sources of data used to inform the quantification. This does not include the GHG inventory, forecast, or other technical analyses prepared as part of the 2024 CAAP or the 2045 Contra Costa General Plan.

CLEAN AND EFFICIENT BUILT ENVIRONMENT

Strategy BE-1: Require and incentivize new buildings and additions built in unincorporated Contra Costa County to be low-carbon or carbon neutral.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|------------------------------|-------------------|-------------------|
| Natural gas savings (therms) | <u>889,870</u> | <u>2,754,380</u> |
| Electricity savings (kWh) | <u>-1,198,930</u> | <u>-6,086,080</u> |

GHG SAVINGS

| | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | <u>4,340</u> | <u>10,970</u> |

KEY ASSUMPTIONS

| | 2030 | 2045 |
|---|-------------|-------------|
| Cumulative percentage of residential new construction <u>influenced by EDR code (once implemented)</u> built to be all-electric | 95% | 95% |
| Cumulative percentage of new <u>eligible nonresidential office</u> construction <u>influenced by EDR code (once implemented)</u> built to be all-electric | <u>95%</u> | 95% |
| Cumulative percentage of new <u>nonresidential buildings eligible for EDR code</u> non-office commercial construction built to be all-electric | <u>50%</u> | <u>50%</u> |
| <u>Year EDR reach code is first implemented</u> Cumulative % new non-residential buildings that are office space: | <u>2025</u> | <u>2025</u> |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|--|------------|------------|
| Number of new <u>EDR-compliant all-electric</u> residential units | 8,450 | 22,020 |
| Number of new <u>EDR-compliant all-electric</u> commercial buildings | <u>140</u> | <u>360</u> |



SOURCES

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Strategy BE-2: Retrofit existing buildings and facilities in the unincorporated County, and County infrastructure, to reduce energy use and convert to low-carbon or carbon-neutral-free fuels.

In March 2023, BAAQMD adopted amendments to Regulation 9, Rules 4 and 6. These revisions require that, when existing natural-gas-powered space heaters and water heaters reach the end of their operational life, they be replaced with electric-powered models. These requirements are scheduled to take effect in 2027 to 2031 for water heaters (depending on the capacity of the unit) and in 2029 for space heaters.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|---|--------------------|--------------------|
| Electricity savings (kWh) – With BAAQMD rule | <u>100,583,970</u> | <u>190,187,380</u> |
| Natural gas savings (therms) – With BAAQMD rule | <u>6,596,190</u> | <u>16,882,720</u> |
| Propane savings (gallons) – With BAAQMD rule | <u>130,620</u> | <u>344,450</u> |
| Gallons kerosene | 2,090 | 5,500 |
| MMBTU wood | 13,010 | 34,300 |

GHG SAVINGS

| WITH BAAQMD RULE | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | <u>55,990</u> | <u>156,150</u> |

KEY ASSUMPTIONS

| | 2030 | 2045 |
|--|----------------------|------------|
| Percentage of existing homes conducting standard retrofits | 20% | 40% |
| Percentage of existing homes upgrading to Title 24 Standards | 20% | 40% |
| Percentage of existing mobile homes conducting standard retrofits | 30% | 60% |
| Percentage of businesses conducting standard retrofits (not including fuel switching) | 15% | 25% |
| Percentage of businesses retrofitting to current Title 24 standards (not including fuel switching) | 15% | 25% |
| <u>Cumulative percentage of homes electrifying water heaters (BAAQMD compliance)</u> | <u>15%</u> | <u>85%</u> |
| <u>Cumulative percentage of homes electrifying space heaters (BAAQMD compliance)</u> | <u>10%</u> | <u>90%</u> |
| <u>Cumulative percentage of businesses electrifying water heaters (BAAQMD compliance)</u> | <u>Less than 10%</u> | <u>70%</u> |
| <u>Cumulative percentage of businesses electrifying space heaters (BAAQMD compliance)</u> | <u>5%</u> | <u>90%</u> |
| <u>Percentage of commercial buildings covered by BAAQMD rules</u> | <u>50%</u> | <u>50%</u> |
| <u>Cumulative percentage of homes electrifying cooking appliances</u> | <u>5%</u> | <u>65%</u> |
| <u>Cumulative percentage of homes electrifying clothes drying appliances</u> | <u>10%</u> | <u>80%</u> |
| <u>Cumulative percentage of businesses electrifying cooking appliances</u> | <u>5%</u> | <u>60%</u> |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|---|--------|--------|
| Number of housing units undergoing energy efficiency retrofits | 14,160 | 28,310 |
| Number of housing units <u>renovated</u> brought up to current Title 24 energy efficiency standards | 13,210 | 26,430 |
| Number of commercial buildings undergoing energy efficiency retrofits | 490 | 820 |
| Number of commercial buildings- brought up <u>renovated</u> to current Title 24 energy efficiency standards | 490 | 820 |

SOURCES

~~American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE). 2015. "ASHRAE Technical FAQ".~~



California Energy Commission. 2006. *2006 California Commercial End-Use Survey (CEUS)*. <https://www.energy.ca.gov/datab-reports/surveys/californiB-commercial-end-use-survey/2006-californiB-commercial-end-use-survey>.

California Energy Commission. 2014. *Impact Evaluation of the California Comprehensive Residential Retrofit Programs*.

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Strategy BE-3: Increase the amount of electricity used and generated from renewable sources in the county.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|---------------------------|-------------|-------------|
| Electricity savings (kWh) | 114,969,980 | 271,666,080 |

GHG SAVINGS

| | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | 10,8320 | 0 |



KEY ASSUMPTIONS

| | 2030 | 2045 |
|---|------|------|
| Percentage of existing homes installing solar energy systems | 15% | 35% |
| Percentage of existing homes with solar energy systems and installing battery storage systems | 20% | 50% |
| Percentage of new homes installing battery storage systems | 40% | 60% |
| Percentage of existing businesses installing solar energy systems | 3% | 11% |
| Percentage of existing businesses with solar energy systems and battery storage systems | 15% | 45% |
| Percentage of residents enrolling in MCE | 90% | 90% |
| Percentage of businesses enrolling in MCE | 90% | 90% |
| Percentage of residents enrolling in 100% renewable tiers | 10% | 30% |
| Percentage of businesses enrolling in 100% renewable tiers | 5% | 20% |
| Percentage of direct access customers switching to MCE | 5% | 10% |

PERFORMANCE TARGETS

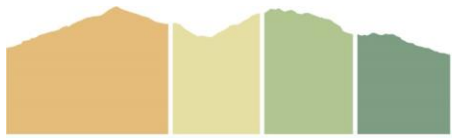
| | 2030 | 2045 |
|--|-------------|-------------|
| Residential solar systems installed | 9,190 | 23,030 |
| Residential battery systems installed | 5,330 | 0 |
| Nonresidential solar systems installed | 30 | 290 |
| Nonresidential battery systems installed | 10 | 0 |
| Residential electricity supplied by MCE (kWh) | 272,202,760 | 292,636,220 |
| Residential electricity provided at Deep Green tier (kWh) | 25,842,700 | 83,347,910 |
| Nonresidential electricity provided by MCE (kWh) | 219,413,250 | 220,477,040 |
| Nonresidential electricity provided at Deep Green tier (kWh) | 10,533,730 | 42,339,190 |

SOURCES

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NO WASTE CONTRA COSTA

Strategy NW-1: Increase composting of organic waste.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|----------------------|-------|-------|
| Waste savings (tons) | 5,580 | 9,190 |

GHG SAVINGS

| | 2030 MTCO ₂ e | 2045 MTCO ₂ e |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | 2,240 | 4,000 |

KEY ASSUMPTIONS

| | 2030 | 2045 |
|--------------------------------|------|------|
| Current compost diversion rate | 77% | 77% |
| Target compost diversion rate | 90% | 95% |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|--|--------|--------|
| Number of households with composting service | 62,290 | 79,330 |
| Number of businesses with composting service | 2,930 | 3,510 |

SOURCES

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California Department of Resources Recycling and Recovery. 2019. "Residential Waste Stream by Material Type".

<https://www2.calrecycle.ca.gov/WasteCharacterization/ResidentialStreams?lg=7&cy=7>.

California Department of Resources Recycling and Recovery. 2019. "Waste Characterization Tool for California Jurisdictions". <https://www2.calrecycle.ca.gov/WasteCharacterization/>.

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<https://www.contracosta.ca.gov/AgendaCenter/ViewFile/Agenda/12142020-3083>.



Strategy NW-2: Reduce waste from County operations.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|----------------------|-------|-------|
| Waste savings (tons) | 2,630 | 3,510 |

GHG SAVINGS

| | 2030 MTCO ₂ e | 2045 MTCO ₂ e |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | 1,090 | 1,620 |

KEY ASSUMPTIONS

| | 2030 | 2045 |
|--|------|------|
| Target composting diversion rate for County activities | 85% | 95% |
| Target recycling diversion rate for County activities | 85% | 95% |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|--|-------|-------|
| Weekly average cubic yards of composted organics (uncompacted) | 1,050 | 1,140 |
| Weekly average cubic yards of recycled materials (uncompacted) | 270 | 300 |

SOURCES

California Air Resources Board. 2011. Landfill Methane Emissions Tool [data table].

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California Department of Resources Recycling and Recovery. 2019. "Residential Waste Stream by Material Type."

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Strategy NW-3: Increase community-wide recycling and waste programs.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|----------------------|-------|--------|
| Waste savings (tons) | 5,560 | 16,770 |

GHG SAVINGS

| | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | 520 | 2,530 |

KEY ASSUMPTIONS

| | 2030 | 2045 |
|--|------|------|
| Target community diversion rate | 77% | 85% |
| Decrease in non-organic and non-recyclable waste tonnage | 20% | 50% |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|---|-------|--------|
| Reduction in landfilled recyclables (tons) | 0 | 1,280 |
| Decrease in non-compostable/recyclable tonnage (tons) | 5,560 | 15,490 |
| Pounds of waste per person per day | 2.08 | 1.85 |

SOURCES

California Air Resources Board. 2011. Landfill Methane Emissions Tool [data table].

<https://ww2.arb.ca.gov/resources/documents/landfill-methane-emissions-tool>.

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Strategy NW-4: Reduce emissions from landfill gas.GHG SAVINGS

| | 2030 MTCO ₂ e | 2045 MTCO ₂ e |
|---|--------------------------|--------------------------|
| <u>GHG reduction (Absolute MTCO₂e)</u> | <u>57,460</u> | <u>61,410</u> |

KEY ASSUMPTIONS

| | 2030 | 2045 |
|---|------------|------------|
| <u>Current methane capture rate</u> | <u>75%</u> | <u>75%</u> |
| <u>Future methane capture rate (Keller and Acme only)</u> | <u>85%</u> | <u>85%</u> |
| <u>Decrease in flared landfill gas</u> | <u>15%</u> | <u>30%</u> |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|--|--------------|--------------|
| <u>Methane capture rate at Keller and Acme landfills</u> | <u>15%</u> | <u>30%</u> |
| <u>Tons of flared landfill gas</u> | <u>5,460</u> | <u>4,330</u> |

SOURCES

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REDUCE WATER USE AND INCREASE DROUGHT RESILIENCE

Strategy DR-1: Reduce indoor and outdoor water use.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|---------------------------|-----------|-----------|
| Electricity savings (kWh) | 1,436,210 | 2,560,780 |
| Water (MG) | 360 | 650 |

GHG SAVINGS

| | 2030 MTCO ₂ e | 2045 MTCO ₂ e |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | 970 | 1,440 |



KEY ASSUMPTIONS

| | 2030 | 2045 |
|---|------|------|
| Percentage of existing homes with graywater systems | 5% | 20% |
| Percentage of existing businesses with graywater systems | 2% | 10% |
| Percentage of existing homes retrofitting water fixtures | 60% | 90% |
| Percentage of existing businesses retrofitting water fixtures | 60% | 90% |
| Percentage of new homes with graywater systems | 10% | 35% |
| Percentage of new businesses with graywater systems | 5% | 20% |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|--|--------|--------|
| Number of residential graywater system installations | 3,910 | 20,180 |
| Number of commercial graywater systems installations | 70 | 440 |
| Number of nonresidential buildings receiving water efficiency upgrades | 1,790 | 2,680 |
| Number of residential buildings receiving water efficiency upgrades | 36,190 | 54,290 |

SOURCES

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Water Research Foundation. 2016. "Residential End Uses of Water Study, Version 2: Executive Report."

Strategy DR-2: Ensure sustainable and diverse water supplies.

This is a supportive measure that does not result in direct measureable GHG emissions. There are no activity or GHG savings, assumptions, performance indicators, or sources associated with this measure.



CLEAN TRANSPORTATION NETWORK

Strategy TR-1: Improve the viability of walking, biking, zero-emission commuting, and using public transit for travel within, to, and from the county.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|------------------------------|------------|-------------|
| Vehicle Miles Traveled (VMT) | 52,447,950 | 153,067,310 |

GHG SAVINGS

| | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | 17,050 | 40,370 |

KEY ASSUMPTIONS

| | 2030 | 2045 |
|--|------|------|
| Miles of bicycle lanes | 45 | 132 |
| Average round trip length for bicycle trips (miles) | 2.1 | 2.1 |
| Is bike parking provided in most nonresidential locations? | Yes | Yes |
| Percentage increase in combined housing units/acre due to TOD | 15% | 63% |
| Percentage increase in jobs/acre due to TOD | 10% | 45% |
| Percentage increase in transit frequency | 5% | 15% |
| Level of implementation (increase in transit frequency) | 10% | 25% |
| Percentage increase in transit service miles | 5% | 15% |
| Percentage of employers participating in TDM | 5% | 20% |
| Average trip reduction from voluntary TDM participation | 15% | 45% |
| Percentage of county with expanded sidewalks | 5% | 15% |
| Change in percentage of households that have access to electric bike sharing | 5% | 9% |
| Percentage of multifamily units permanently designated as affordable | 5% | 15% |
| Percentage of transit routes that receive supportive treatments | 1% | 2% |



PERFORMANCE TARGETS

| | 2030 | 2045 |
|--|------------|------------|
| Miles of bicycle lanes | 50 | 130 |
| Bicycle mode share | 1% | 1% |
| Bus ridership (commute share) | 5% | 15% |
| BART ridership (passenger miles) | 17,227,850 | 22,459,900 |
| VMT reduction from TDM programs | 1,705,370 | 25,757,280 |
| New affordable multifamily units | 70 | 540 |
| Percentage of transit routes that receive supportive treatments | 1% | 2% |
| Change in percentage of households that have access to electric bike sharing | 5% | 9% |

SOURCES

California Air Pollution Control Officers Association. 2010. "Quantifying Greenhouse Gas Mitigation Measures." <http://www.aqmd.gov/docs/default-source/ceqa/handbook/capcoB-quantifying-greenhouse-gas-mitigation-measures.pdf>.

Contra Costa Transportation Authority. 2018. "Contra Costa Countywide Bicycle Pedestrian Plan." <https://ccta.net/wp-content/uploads/2018/10/5b8ec26192756.pdf>.

US Census. "Contra Costa County 2019 ACS 5-Year Estimates, Table B08006."

Strategy TR-2: Increase the use of zero-emissions vehicles. Transition to a zero-emission County fleet by 2035 and a community fleet that is at least 50 percent zero-emission by 2030.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|------------------------|--------------|--------------|
| Electricity used (kWh) | -111,003,180 | -260,019,140 |
| Natural gas (gallons) | 2,760 | 5,450 |
| Diesel (gallons) | 530,690 | 1,353,420 |
| VMT | 14,260 | 14,260 |

GHG SAVINGS

| | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | 148,000 | 343,890 |



KEY ASSUMPTIONS

| | 2030 | 2045 |
|---|------|------|
| Percentage of eCounty vehicles that are zero-emission | 80% | 95% |
| Percentage of community fleet that is zero-emission (light-duty) | 35% | 85% |
| Target percentage of total community TNC VMT from electric vehicles | 75% | 90% |
| Percentage of community fleet that is zero-emission (heavy-duty) | 10% | 70% |
| Target percentage total commercial Natural Gas VMT replaced by biomethane | 2% | 5% |
| Target percentage total commercial Diesel VMT replaced by biomethane | 5% | 15% |
| Percentage of lawn and garden fuel use converted to electric | 30% | 80% |
| Percentage construction equipment fuel use converted to electric | 30% | 60% |
| Percentage other commercial fuel use converted to electric | 20% | 55% |
| Number of EVs in EV car sharing | 50 | 100 |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|---|-------------|--------------------|
| New VMT from electric vehicles, community-wide, <u>including municipal operations</u> | 325,676,160 | <u>968,702,100</u> |
| Reduction in municipal vehicle gasoline use (gallons) | 230,120 | 250,030 |
| New VMT from electric vehicles, TNC | 82,961,910 | 101,629,820 |
| Reduction in offroad gasoline use (gallons) | 2,113,740 | 0 |
| Reduction in offroad diesel use (gallons) | 3,625,240 | 0 |
| Increase in biomethane VMT | 3,003,670 | 8,050,840 |
| Number of EVs in car sharing | 50 | 100 |

SOURCES

California Air Pollution Control Officers Association. 2010. "Quantifying Greenhouse Gas Mitigation Measures." <http://www.aqmd.gov/docs/default-source/ceqa/handbook/capcoB-quantifying-greenhouse-gas-mitigation-measures.pdf>.

California Air Resources Board. 2010. "Local Government Operations Protocol For the quantification and reporting of greenhouse gas emissions inventories." https://ww3.arb.ca.gov/cc/protocols/localgov/pubs/lgo_protocol_v1_1_2010-05-03.pdf.

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California Air Resources Board. 2021. "Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity."



https://www.airquality.org/ClimateChange/Documents/Handbook%20Public%20Draft_2021-Aug.pdf.

California Air Resources Board. 2021. EMFAC2021 V1.0.1 Emission Inventory.
<https://arb.ca.gov/emfac/emissions-inventory/>.

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Contra Costa Transportation Authority. 2019. "Contra Costa Electric Vehicle Readiness Blueprint." <https://ccta.net/wp-content/uploads/2019/07/CCTB-EV-Blueprint.pdf>.

US Department of Energy. 2021. "FuelEconomy.gov". <https://fuelconomy.gov/>.

DRAFT



RESILIENT COMMUNITIES AND NATURAL INFRASTRUCTURE

Strategy NI-4: Sequester carbon on natural and working lands in Contra Costa County.

ACTIVITY DATA SAVINGS

There are no activity data savings associated with this strategy.

GHG SAVINGS

| | 2030 MTCO ₂ e | 2045 MTCO ₂ e |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | 22,630 | 88,910 |

KEY ASSUMPTIONS

| | 2030 | 2045 |
|--|------|------|
| Percentage of irrigated crops with seasonal cover crops | 15% | 35% |
| Percentage of irrigated crops practicing mulching | 5% | 35% |
| Percentage of irrigated crops with compost application | 15% | 80% |
| Percentage of irrigated crops with field borders | 2% | 8% |
| Percentage of irrigated crops practicing alley cropping | 10% | 30% |
| Percentage of irrigated crops with conservation crop rotation | 25% | 50% |
| Percentage of irrigated crops practicing reduced tillage | 15% | 35% |
| Percentage of irrigated crops practicing no tillage | 5% | 10% |
| Percentage of orchards/vineyards with seasonal cover crops | 5% | 25% |
| Percentage of orchards/vineyards practicing mulching | 5% | 25% |
| Percentage of orchards/vineyards with compost application | 15% | 80% |
| Percentage of orchards/vineyards with windbreaks | 0% | 2% |
| Percentage of orchards with reduced tilling | 10% | 35% |
| Percentage of vineyards with reduced tilling | 10% | 35% |
| Percentage of pastures and rangeland with compost application | 5% | 15% |
| Percentage of pastures and rangeland with prescribed grazing | 15% | 40% |
| Percentage of pastures and rangeland practicing oak restoration | 1% | 5% |
| Percentage of pastures and rangeland practicing riparian restoration | 0% | 1.2% |
| Percentage of rangeland with range planting | 2% | 10% |
| Percentage of grasslands with native grass restoration | 2% | 10% |
| Percentage of forested areas undergoing annual fuel reduction | 5% | 25% |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|---|--------|--------|
| Acres of irrigated crops with seasonal cover crops | 3,770 | 8,130 |
| Acres of irrigated crops practicing mulching | 1,260 | 8,130 |
| Acres of irrigated crops with compost application | 3,770 | 18,590 |
| Acres of irrigated crops with field borders | 500 | 1,860 |
| Acres of irrigated crops converted due to alley cropping | 510 | 1,480 |
| Acres of irrigated crops with conservation crop rotation | 6,280 | 11,620 |
| Acres of irrigated crops practicing reduced tillage | 3,770 | 8,130 |
| Acres of irrigated crops practicing no tillage | 1,260 | 2,320 |
| Acres of orchards or vineyards with seasonal cover crops | 220 | 1,060 |
| Acres of orchards or vineyards practicing mulching | 220 | 1,060 |
| Acres of orchards or vineyards with compost application | 660 | 3,380 |
| Acres of orchards or vineyards with windbreaks | - | 80 |
| Acres of orchards with reduced tilling | 250 | 790 |
| Acres of vineyards with reduced tilling | 210 | 690 |
| Acres of pastures and rangeland with compost application | 7,430 | 21,430 |
| Acres of pastures and rangeland with prescribed grazing | 22,300 | 57,140 |
| Acres of pastures and rangeland practicing oak restoration | 1,490 | 7,140 |
| Acres of pastures and rangeland practicing riparian restoration | - | 1,710 |
| Acres of rangeland with range planting | 2,870 | 13,780 |
| Acres of grasslands with native grass restoration | 2,610 | 13,150 |
| Acres of forested areas undergoing annual fuel reduction | 3,030 | 15,250 |

SOURCES

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https://ww3.arb.ca.gov/cc/protocols/localgov/pubs/lgo_protocol_v1_1_2010-05-03.pdf.

APPENDIX C: VULNERABILITY ASSESSMENT

In January 2019, Contra Costa County prepared a Vvulnerability Aassessment in compliance with Section 65302 of the California Government Code in order to identify key vulnerable assets and populations within the cCounty and set the groundwork for short- and long-term adaptation efforts. This Vvulnerability Aassessment highlighted the cCounty's potential vulnerabilities to agricultural pests and diseases, changes in air quality, drought, extreme heat, flooding, fog, human health hazards, landslides and debris flows, severe storms, sea level rise, shoreline flooding, and wildfire.

METHOD

The Vulnerability Assessment follows the recommended process in the *California Adaptation Planning Guide* (APG). The APG suggests vulnerability assessments follow a four-step process, including the following steps, as shown in **Figure C-1**:

- **Identify Exposure.** Exposure is the presence of people; infrastructure; natural systems; and economic, cultural, and social resources in areas subject to harm from hazardous conditions. A *hazard*, or climate hazard, is an event or physical condition that has the potential to cause types of harm or loss. The project team looked at the exposure of different populations and assets to specific climate change hazards.
- **Analyze Sensitivity and Potential Impacts.** *Sensitivity* is the level to which changing climate conditions affect a species, natural system, community, government, etc. Potential *impacts* are the effects of a climate change hazard, or the combination of *exposure* and *sensitivity*. The project team first identified which hazard would likely affect particular populations and assets because not all hazards will affect all populations or assets. For example, human health hazards are likely to affect most populations, but they would not affect the structural stability of a bridge or a dam. The project team then evaluated the severity of the impacts from the climate change hazard, to generate an impact score ranging from High (most severe) to Low (least severe).

- **Evaluate Adaptive Capacity.** *Adaptive capacity* is the ability of people and assets to adjust to potential damage from climate change hazards, to take advantage of existing opportunities such as funding, tools, and resources, or to respond to the impacts of climate change. The project team evaluated the adaptive capacity of each population or asset for each applicable identified hazard. As with impact scoring, the project team scored the adaptive capacity of populations or assets ranging from High (more adaptable to a hazard) to Low (least adaptable to a hazard).
- **Conduct Vulnerability Scoring.** *Vulnerability* is the degree to which populations and assets are susceptible to harm, based on a combination of impact and adaptive capacity for each applicable identified hazard as affected by the level of exposure to changing climate conditions. In accordance with the process in the APG, the project team used the impact and adaptive capacity scoring to identify and prioritize the most vulnerable populations and assets in Contra Costa County.

FIGURE C-1. CALIFORNIA ADAPTATION PLANNING GUIDE RECOMMENDED MODEL



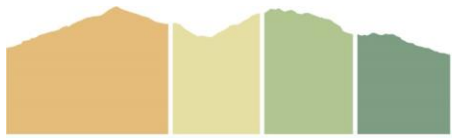
Key Concepts in Climate Change Vulnerability

Exposures: the presence of people, infrastructure, natural systems, and economic, cultural, and social resources in areas that are subject to harm. For example, the number and frequency of extreme heat days is expected to increase across Contra Costa County. To prepare this vulnerability assessment, the project team determined which effects of climate change are expected to occur in and around Contra Costa County, as well as those that may already be occurring.

Sensitivity: the degree to which a species, natural system, or community, government, and other associated systems would be affected by changing climate conditions. The project team prepared a list of the various types of people and assets in and around Contra Costa County that could be affected by climate change to be included in the vulnerability assessment.

Impact: a specific negative result of a climate change effect, generally on a particular population or asset. Impact is often determined by the combination of exposure and sensitivity. For example, if the effect of climate change is that droughts are likely to become more frequent and severe, a potential impact to farmers is that less water could be available for irrigation. Every population and asset in Contra Costa County is likely to experience different impacts. In this vulnerability assessment, the project team looked at the potential impacts to each sensitivity from each identified exposure.

Adaptive Capacity: the combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts [or] moderate harm or to exploit beneficial opportunities." Adaptive capacity is the ability to adjust to potential damage, to take advantage of opportunities, or to respond to consequences. For example, during extreme heat events, populations with a greater risk of heat-related illnesses can go to cooling centers, which improve their adaptive capacity. The project team looked at the adaptive capacity of each sensitivity for each identified exposure as part of the vulnerability assessment.



Assessment Process

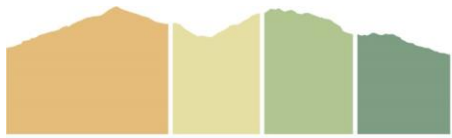
Following the APG's recommended process, the project team selected the hazards that made the most sense to analyze in the vulnerability assessment. The project team reviewed various guidance documents and reports to select these exposures and sensitivities, including the Adaptation Planning Guide, the Contra Costa County Hazard Mitigation Plan, and the County's existing General Plan.

Once these were identified, the project team looked at who and what in the community are likely to be affected by which hazards since not all hazards will affect all populations and assets. For example, human health hazards affect most population sensitivities, but they would not affect the structural stability of a bridge or a dam. The project team then assessed the impacts and adaptive capacity for each relevant hazard for all affected populations and assets.

County staff from various departments and a representative from the Contra Costa County Sustainability Commission with related technical expertise reviewed the impact, adaptive capacity, and vulnerability scores to provide local knowledge and additional accuracy for the assessment.

Potential Impact

Cascading Impacts: Climate change hazards can have cascading or compounding effects throughout the county. Cascading or compounding climate change effects means one climate change hazard leads to another, and the effects can "cascade" into a disaster. Human health hazards, for example, have cascading effects, such as rendering workers unable to work and visitors unable to travel to an area, that harm both economic drivers and key community services. The project team accounted for these when developing the applicability matrix, during the assessment process, and while summarizing the vulnerability results.



To identify the magnitude of the impacts of each relevant hazards on the populations and assets, the project team considered a number of different questions that helped ensure that the assessment broadly covers the range of potential harm. Examples of these questions include:

- What types of impacts may occur? Could they cause physical injury or damage? Is there a risk of behavioral or mental harm, loss of economic activity, or other nonphysical effects?
- How many people or community assets could be affected by both direct and indirect harm?
- How long would the impacts persist?
- Is there a substantial chance of death or widespread destruction?

Based on the results of the impact assessment (IM), the County ranked each population and asset on a five-point scale (0 – 4) for each relevant hazard. IM0 is the lowest score (lowest impact), and IM4 is the highest score (highest impact). Impact is a negative quality, so a lower impact score is better. Contra Costa County adjusted these scores up or down to account for risk levels and onset.

Table C-1 provides more detail about what each impact score means.

Direct and Indirect Impacts

Direct and Indirect Impacts: The project team marked the hazard as applicable to the population or asset if the hazard directly or indirectly affects a population or asset. Direct impacts affect physical assets, health, or immediate operations, which can lead to indirect impacts on the broader system or community, including asset types in a different category. For example, severe weather can directly damage electrical transmission lines and cause power outages, which can indirectly impact persons with chronic illnesses who depend on electricity for life support systems. Therefore, the project team marked both electrical transmission lines and persons with chronic illnesses who depend on life support systems as being potentially affected by severe weather, the project team evaluated them for their susceptibility to severe weather in the Vulnerability Assessment .



TABLE C-1: IMPACT SCORE RUBRIC

| IMPACT SCORE | MEANING (PEOPLE AND ECOSYSTEMS) | MEANING (BUILDINGS, INFRASTRUCTURE, SERVICES, AND ECONOMIC DRIVERS) |
|-------------------------|---|--|
| IM0. Minimal Impact | Community members may not notice any change. | Damage, interruption in service, or impacts on the local economy are small or intermittent enough to mostly go unnoticed. |
| IM1. Low Impact | Community members notice minor effects. Daily life may experience mild, occasional disruptions. | There are minor but noticeable interruptions in service, damage, or negative effects on the economy. |
| IM2. Moderate Impact | There is a marked impact to the community. Quality of life may decline. Impacts may be chronic, and at times substantial. | Damage, service interruptions, and other impacts are clearly evident. Impacts may be chronic and occasionally substantial. |
| IM3. Significant Impact | The well-being of the community declines significantly. The community's current lifestyle and behavior may no longer be possible. | Impacts are chronic. Buildings, infrastructure, and services may be often or always unable to meet community demand. Large sections of the economy experience major hardships. |
| IM4. Severe Impact | There is a severe risk of widespread injury or death to people, or of significant or total ecosystem loss. | Buildings, infrastructure, and services cannot function as intended or needed. Economic activities are not viable. |

Adaptive Capacity

The project team next assessed the adaptive capacity of each population and asset for each relevant hazard. Using a similar process as the team used to analyze impacts, the County considered various questions to help ensure that the adaptive capacity assessment addresses the full potential of a sensitivity to resist and recover from harm. Examples of these questions include:

- Are there existing programs and policies to provide assistance? Can affected community members take advantage of these programs?
- Are there barriers that limit response or recovery? Are these barriers financial limitations, political challenges, lack of access to technology or other resources, or others?

- For community assets, do alternatives exist in or near Contra Costa County that community members can use?

Based on the results of the adaptive capacity (AC) assessment, the project team ranked each sensitivity on a five-point scale (0 - 4) ranging from AC0 (the lowest adaptive capacity) to AC4 (the highest adaptive capacity). Adaptive capacity is a positive quality, so a higher adaptive capacity score is better. As recommended by the APG, the project team adjusted the adaptive capacity scores to ensure that they reflect risk levels and onset periods.

Table C-2 provides more detail about what each adaptive capacity score means.

TABLE C-2: ADAPTIVE CAPACITY SCORE RUBRIC

| ADAPTIVE CAPACITY SCORE | MEANING (ALL SENSITIVITIES) |
|------------------------------------|--|
| AC0. No Adaptive Capacity | Currently, there are no feasible means of adapting. |
| AC1. Low Adaptive Capacity | Adaptive solutions are available, but they are expensive, technologically difficult, and/or politically unpopular. |
| AC2. Some Adaptive Capacity | Some adaptation methods are available, but not always feasible. Adapting may create significant challenges for some sensitivities. |
| AC3. High Adaptive Capacity | Adaptation solutions are feasible for most or all sensitivities. There may be occasional or small-scale challenges to implementing adaptation methods. |
| AC4. Outstanding Adaptive Capacity | Sensitivities can adapt with little or no effort. Quality of life is unchanged or may improve. |



Vulnerability Scoring

The project team used the impact and adaptive capacity scores for each sensitivity and relevant exposure to determine a vulnerability score. The vulnerability (V) score reflects how susceptible the sensitivity is to be harmed by a particular exposure.

Vulnerability is assessed on a scale of V1 to V5:

| | |
|----|------------------------|
| V1 | Minimal vulnerability |
| V2 | Low vulnerability |
| V3 | Moderate vulnerability |
| V4 | High vulnerability |
| V5 | Severe vulnerability |

Table C-3 shows how different impact and adaptive capacity scores translate to a vulnerability score.

TABLE C-3: SCORING MATRIX

| | | IMPACT SCORE | | | | |
|-------------------------|-----|--------------|-----|-----|-----|-----|
| | | IM0 | IM1 | IM2 | IM3 | IM4 |
| Adaptive Capacity Score | AC0 | V3 | V4 | V5 | V5 | V5 |
| | AC1 | V2 | V3 | V4 | V5 | V5 |
| | AC2 | V1 | V2 | V3 | V4 | V5 |
| | AC3 | V1 | V1 | V2 | V3 | V4 |
| | AC4 | V1 | V1 | V1 | V2 | V3 |

Data Sources

The County used data from a variety of credible sources to prepare the vulnerability assessment, determine the impact and adaptive capacity scores, and support conclusions. These resources include the following:

- **Scholarly Research:** Much of the information came from an extensive body of scientific research that discusses how climate change may affect people and community assets. Much of this research is peer reviewed, which ensures greater accuracy, including studies published in the Proceedings of the National Academy of Science, Geophysical Research Letters, and Climate Change journals.
- **Local Data:** Regional government agencies have already prepared a number of plans and reports that support the vulnerability assessment or contain information relevant to the analysis. The County relied on several local plans and reports to prepare the vulnerability assessment, most notably the 2018 Contra Costa County Hazard Mitigation Plan and Contra Costa County Adapting to Rising Tides Project.
- **State and federal Data:** The County supplemented the scholarly research and local data with data from State and federal agencies, including published reports and datasets. The County relied on information from several agencies, including the Centers for Disease Control and Prevention, Federal Emergency Management Agency (FEMA), the California Energy Commission, California Office of Emergency Services (Cal OES), the California Governor's Office of Planning Resources (OPR), California Natural Resources Agency (CNRA), and the California Department of Forestry and Fire Protection (CAL FIRE).

Population and Asset Consideration

When selecting assets and populations to include in the vulnerability assessment, the County considered the following:

- **Sample pool:** the sample pool is a subset of the overall group of people that are being measured or studied. For example, in a political poll among registered voters, the sample pool only includes registered voters, since unregistered voters do not fall into this category. This concept is important for the Contra Costa County Vulnerability Assessment because some of the demographics used in the Vulnerability Assessment have different sample pools. Most of the demographic data come from the US Census Bureau's American Community Survey (ACS), and most of these data have a sample

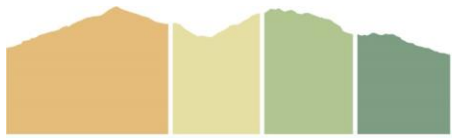
pool of either all residents or all households in the county. However, a few are different. This does not affect the outcome of the Vulnerability Assessment, but it creates slight differences in the number of people counted as part of each population. Some of these differences in the sample pool size include:

- Data on persons with limited English proficiency only count people who are at least 14 years old instead of the total population, since young children generally are not proficient in any language.
- Statistics that only count the noninstitutionalized population (e.g., people not in prisons or long-term care homes).
- **Data limitations:** The vulnerability assessment pulls data from a wide array of sources. The project team took care to only use reliable, credible sources with the best available information. In some cases, the vulnerability assessment is constrained by the lack of available high-quality information, such as the number of undocumented persons or outdoor workers.
- **Related assets:** Throughout the 65 populations and assets in the vulnerability assessment, there are a few that may appear redundant. For example, the vulnerability assessment looks at both public safety buildings (as a Buildings asset) and at public safety response (as a Key Community Service asset). To be as comprehensive as possible, the vulnerability assessment looks at physical structures separately from the services or benefits they provide. Similarly, this assessment looks at vulnerable people separately from the homes they live in or the industries where they are employed. This is because the effects of climate change on one type of population or asset can be different from the effects on related populations and assets.

POPULATION VULNERABILITIES

A number of factors can contribute to differences in climate change vulnerability across age, occupation, socio-economic status, and lifestyle conditions. The four primary overarching drivers of climate change vulnerability for populations are:

- **Physiology:** Older individuals, children, individuals with disabilities, and those who are immunocompromised or with chronic health conditions may be more physically susceptible to the health effects of heat, wildfire smoke exposure, and human health hazards. These individuals may encounter barriers to evacuating in the event of a fire, flood, or other emergency.



- **Access to financial resources:** Low-income households, households in poverty, and those with precarious employment may struggle to acquire the financial resources necessary to prepare for and recover from the effects of climate change.
- **Exposure:** Outdoor workers and those in low-resilience or precarious housing are more likely to be directly exposed to effects of climate change such as high heat, poor air quality, severe storms, and flooding.
- **Exclusion and social isolation:** Individuals who are physically or socially isolated from the rest of the community, especially from community decision-making, may lack communication or transportation access, face language or cultural barriers, or may lack social connections. Excluded and isolated persons are often at risk because they are overlooked in community planning and are less able to access supportive resources.

A given individual or community may experience more than one of these underlying contributors to climate change vulnerability. These underlying contributors are often structural in nature. This means that, in order for these vulnerabilities to be comprehensively addressed, community members and policymakers must look beyond the level of individual choice and actively investigate how federal, state, and local economic, health and safety, and housing policy can both exacerbate vulnerability and help resolve it.

Some of Contra Costa County's most vulnerable communities and the climate hazards to which they are most vulnerable are highlighted below:

Children Under 10

Children are considered those that are 10 years of age or younger. According to the 2017 ACS, approximately 20,500 children live within the unincorporated areas of Contra Costa County, or approximately 12 percent of the total population. High concentrations of children live in parts of Concord, Richmond, Pittsburg, Brentwood, and San Ramon.

On average, children spend more time than adults outdoor, which leaves them more susceptible to allergens and pollution from poor air quality and wildfire.¹ Poor air quality can cause asthma and lung diseases, in addition to exacerbating existing conditions that children may have.² Infants and young children are physiologically less able to regulate their body temperature than adults, and children also may not recognize the need to hydrate and cool down when overheated. Schools or daycares where children spend a majority of their time could be damaged by a flood or landslide.³ Children could have to stay home, which may have greater economic challenges as parents would also have to



stay home or find daycare options for their children. Children could also be swept away and drown from flood waters.



Air Quality



Wildfire

Extreme
HeatShoreline
Flooding

Flooding

Landslides and
Debris Flows

Households in Poverty

Households with an income below the poverty line, which is \$24,300 for a household of four people. Approximately 7,600 households in Contra Costa County live in poverty, or approximately 12 percent of total households for which poverty status can be determined. Within Contra Costa County, the areas with the highest concentrations of poverty occur in central Richmond, North Richmond and San Pablo, tracts of Concord and Martinez, and in Bay Point, Pittsburg, and Antioch.



Air Quality

Households in poverty are located within areas that currently have high levels of DPM, PM 2.5, and high ground-level ozone concentrations, which can worsen as air temperatures continue to increase.⁴

Households in poverty are likely to be more exposed to poor air quality due to lack of vegetation and trees and lower access to air conditioning.^{5, 6} Persons in these households may become more susceptible to respiratory and cardiovascular related illnesses.⁷



Extreme Heat

Poverty is associated with greater vulnerability to heat in a number of ways. The long-standing association between low-income and poor health outcomes, as well as pre-existing health conditions among people in poverty, play a key role in vulnerability. Impoverished and low-income people who are uninsured may be less likely to seek medical help if they do become ill, may live in poorly insulated housing, and may also be less likely to use fans or air conditioning out of concern for high utility bills. During extreme heat days, temperatures in uninsulated homes may reach unhealthy temperatures. Households in poverty are located throughout the County, however those in central and eastern Contra Costa may face the greatest exposure from extreme heat.


Shoreline
Flooding

Households in poverty affected by coastal flooding are primarily located within North Richmond, Bay Point, and the tracts and islands in the Delta.⁸ Most of the households in poverty are located within or near 100-year flood zones.⁹ Flooding can damage homes, cause mildew and mold to grow, destroy infrastructure, and contaminate water supplies.



Flooding


Human Health
Hazards

Households in poverty may be living in conditions that increase the chances of catching a vector-borne illness, pathogens, or diseases. Households in poverty may be disproportionately affected higher rates of pollution and poor air quality.


Landslides and
Debris Flows

Households in poverty may live in homes that are less structurally sound. Rodeo, Crockett, Bay Point, and Port Costa have a high concentration of households in poverty and also have high landslide susceptibility areas.^{10, 11} Landslides can damage the foundations of homes or destroy them completely.¹²



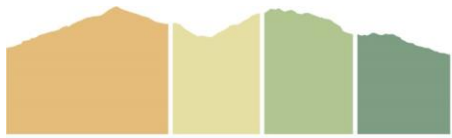
Sea Level Rise

Vine Hill, Bay Point, and North Richmond households in poverty may be affected by sea level rise. Households in poverty may live in structures that are not waterproofed or built above the current 100-year flood elevation.¹³ These households are more likely to live in low-lying areas that are already subject to flooding, which may worsen as sea levels rise.



Severe Storms

Households in poverty may live in structures that are less resilient to severe weather.¹⁴ This increases the likelihood that high winds, thunderstorms, and heavy rain storms can damage their homes or cause mold or mildew growth. Persons living in these households can be physically harmed or experience a decrease in quality of life due to severe weather.



Wildfire

Households in poverty may be subject to greater damage from wildfires, due to financial limitations or neighborhood characteristics that make it difficult to maintain defensible space in fire-prone areas. Some households in poverty are located within the wildland-urban interface, which is the most susceptible to damage from wildfires.¹⁵ Smoke and ash from wildfires can also harm households in poverty.

Low-Income Households

Households with an income of 80 percent or less of the median income, which is approximately \$104,400 in Contra Costa County. Approximately 25,340 households or 41 percent of all households in the County are within the low-income category. Low-income households may have fewer financial resources to devote to preparing for and recovering from the effects of climate change.

Many low-income households are located within or near a flood zone or dam inundation area, especially in north and east county.¹⁶ High concentrations of low-income households vulnerable to shoreline flooding occur in Rodeo, Crockett, the islands in the Delta, and Discovery Bay.¹⁷ Low-income households may live in structures that are not waterproofed or built above the current 100-year flood elevation.¹⁸ Coastal flooding can damage homes, cause mildew and mold to grow, and destroy infrastructure.



Shoreline Flooding



Flooding

Outdoor Workers

People who mostly work outdoor, including construction workers, agricultural workers, and people who work at outdoor recreation centers throughout Contra Costa County.

Agricultural Pests
and Diseases

Outdoor workers may not be directly affected by agricultural pests and diseases. However, outdoor workers can be indirectly affected due to damage to crops and vineyards within the County. This can reduce work opportunities and create economic hardship for outdoor workers. Those working outside of agriculture may not be impacted by agricultural pests and diseases.



Air Quality

Outdoor workers are directly exposed to poor air quality due to the nature of their occupation. Exposure to increased pesticides, ground level ozone concentrations, and particulate matter can lead to asthma, lung disease, cardiovascular health risks.¹⁹ If outdoor work is stopped due to poor air quality, outdoor workers may face economic hardship.



Drought

Drought can reduce water availability for agricultural operations, parks, and recreation areas, which can indirectly harm outdoor workers. Agricultural operations and Delta recreational opportunities can be halted, which may cause outdoor workers to lose jobs.



Extreme Heat

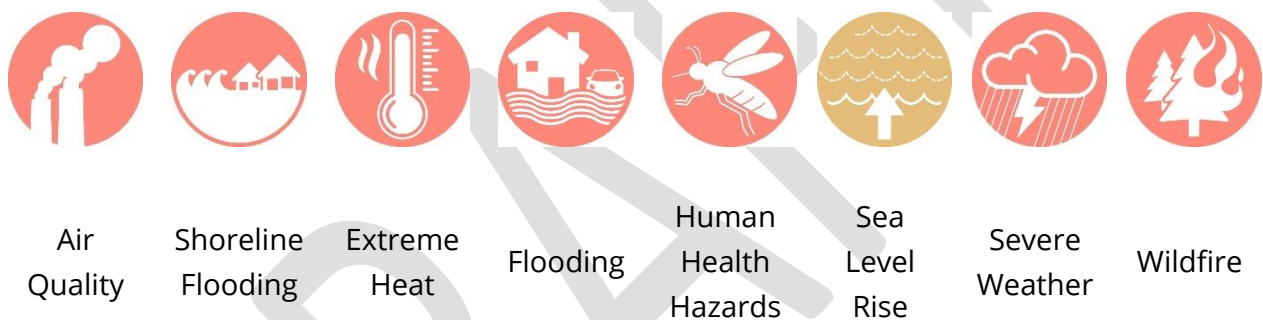
Outdoor workers in the agriculture, construction, building maintenance, landscaping and refinery operations fields are disproportionately impacted by extreme heat because they are required to be outside and risk heat exhaustion from exertion at jobs.²⁰ Outdoor work is often physically intense, increasing the risk of individuals suffering heat-related medical complications. Outdoor work may also be halted during high temperatures, which can cause significant economic hardships.

Persons Experiencing Homelessness

Persons who do not have a permanent home, including those who live in their vehicles or temporary shelters. There are approximately 2,230 persons experiencing homelessness in Contra Costa County, according to the County's 2018 homeless count, although most of these persons are likely in incorporated communities.

Persons experiencing homelessness lack permanent, and often temporary, shelter, and therefore are more exposed to climate change impacts. Most of the homeless encampments within Contra Costa County occur along the coastline and near or within coastal flood areas.²¹ Coastal flooding and sea level rise can destroy homeless encampments and homeless facilities near the shoreline, creating additional hardships for persons experiencing homelessness. These events could become more frequent as sea levels rise and coastal storms intensify.

Persons experiencing homelessness, especially those in central and east county, face greater exposure to extreme heat because they lack access to permanent, and often temporary shelter. Dehydration is common among homeless persons, which makes health-related complications from extreme heat more likely. Homeless persons are more likely to suffer respiratory infections, which are exacerbated by extreme heat. Homeless persons on medication are also at greater risk from extreme heat, as some medication interferes with the body's ability to maintain a safe internal temperature during times of extreme temperatures. Homeless persons may face a significant decline in health due to direct exposure to poor air quality that can cause reduced lung function, pneumonia, asthma, and cardio-vascular-related morbidity.²² Homeless encampments located near Bay Point and other wildland-urban interface areas may also be in danger of being burned in the event of a wildfire.²³



Persons Living on Single Access Roads

Persons living in areas with a sole route in and out of the neighborhood or area. Several neighborhoods and communities in the Delta and in the hillside areas of central and western Contra Costa County are only accessible via one roadway.

Flooding events, landslides, and wildfire can block, damage, and destroy roadways that are essential for persons living on single access roads. Bethel Island and Delta islands are accessible by single access roads, and many residential areas with single access roads are in the hilly areas in the center of the County. If roadways become impassable, persons living on single access roads can become isolated from the community and emergency services may not be able to reach these communities. Those that are not connected to urban water systems can also have water contamination.²⁴



Shoreline
Flooding



Flooding



Landslides and
Debris Flows



Sea Level Rise



Wildfire

Persons with Chronic Illnesses

People who have a long-term or permanent health condition that can create regular challenges in their day-to-day lives. These health problems include cancer, asthma, heart disease, and arthritis.



Air Quality

Persons with chronic illnesses may face increased health risks during poor air quality conditions. Poor air quality can exacerbate existing conditions such as asthma and respiratory illnesses, in addition to cause pneumonia.²⁵



Shoreline
Flooding

Persons with chronic illnesses, such as cardiovascular diseases and asthma, that may experience coastal flooding are primarily located in Rodeo, Bay Point, and the islands and tracts in the Delta region on the County.²⁶ Persons with chronic illnesses may live in homes that are not flood-proofed and can have mold growth or be damaged during coastal flooding.



Extreme Heat

Persons with chronic health problems, including cardiovascular disease, respiratory disease and diabetes, may face a significantly elevated risk of heat-related illness and death during extreme heat events.²⁷ Extreme heat can exacerbate existing conditions such as diabetes, cardiovascular conditions, respiratory ailments, and cerebrovascular diseases.^{28 29 30} Persons with chronic illnesses may also be on medication that can reduce the ability of the body to maintain a safe internal temperature.³¹



Human Health
Hazards

Persons with chronic illnesses may have weaker immune systems due to pre-existing conditions that make it more difficult to fight off new illnesses.³² Allergens and vector-borne illnesses can exacerbate existing illnesses, which can create difficulties in existing or new treatment.



Severe Storms

Severe weather may cause power outages throughout the County, which can affect the life support systems that persons with chronic illnesses may rely on.³³



Wildfire

Wildfires can create smoke that travels 50-100 miles of the fire, which can exacerbate illnesses that persons with chronic illnesses have and cause asthma, acute bronchitis, chronic obstructive disease, pneumonia.³⁴

Persons with Limited English Proficiency

This group includes people who say they do not speak English “well” or “very well,” although the Census Bureau does not formally define what these terms mean. The 2017 ACS reports that approximately 10,060 people in Contra Costa County who are at least 5 years old have limited English proficiency, or approximately 6 percent of the total population. Other languages spoken in the County are primarily Spanish, Mandarin, Cantonese, Tagalog, and Persian. The highest proportion of households with limited English proficiency occur in Richmond, Concord, and San Pablo.



Air Quality

Persons with limited English proficiency are more likely to live in areas that have poor air quality, such as particulate matter and lower level ozone. Exposure to increased ground level ozone concentrations and particulate matter can lead to asthma, lung disease, and cardiovascular health risks.³⁵ They may also not be aware of air quality warnings or other alerts.



Flooding

Persons with limited English proficiency are more likely to be in low-income areas, which are also more likely to be located in low-lying areas. Flooding from atmospheric rivers can damage homes and cause them to become uninhabitable or unhealthy to live in. Homes are also more likely to be damaged by high winds or hail events.



Severe Storms



Human Health Hazards

Persons with limited English proficiency may work outdoors or live in conditions that make them more susceptible to vector-borne illnesses or diseases. These conditions could exacerbate existing illnesses.



Wildfire

Persons with limited English proficiency may not have control over their homes or live in neighborhoods that make it difficult to maintain defensible space. These persons may live in the wildland-urban interface or may not have shelter from smoke conditions.

Persons Without Access to Lifelines

These are individuals who do not have access to basic technology or services, such as transportation or modern communication. These persons may live in areas where these lifelines are not available or feasible, may not be able to afford these lifelines, or for personal reason may choose not to have them. While data is not available on all persons without lifelines, the 2017 ACS reports that approximately 2,850 households in Contra Costa County do not have vehicles, or approximately 5 percent of all households.

Persons without access to lifelines, such as cars and communication systems, may encounter barriers in preparing for and responding to emergency events. They may be unaware of an approaching emergency, may be unable to evacuate in a timely manner, and may become isolated if power services or transit systems are not working. Areas where large numbers of households do not have access to private vehicles may be important sites to strengthen public transit and also to provide mass transportation options to cooling centers during extreme heat events. Areas with clusters of households that do not have access to a vehicle occur in Concord, Richmond, Martinez, and San Pablo.



Shoreline flooding



Flooding



Wildfire

Seniors

Seniors are defined as persons 65 years of age or older. The 2017 ACS reports that there are approximately 26,110 seniors in Contra Costa County, or approximately 15 percent of the total population. Some areas within Contra Costa County, including central Contra Costa County, Bethel Island, the eastern part of Richmond, and several parts of Walnut Creek, have particularly high concentrations of seniors due to both institutional and residential retirement communities. People living in supportive senior housing, such as Rossmoor, may have access to protective resources, including staff paying attention to their well-being.

Seniors' physiology makes these individuals especially vulnerable to the health effects associated with poor air quality, extreme heat, and wildfire exposure. Meanwhile, physical limitations may make it harder for seniors to evacuate in the event of an emergency. Communities with high concentrations of seniors are primarily located on the hillsides in Contra Costa County, which are within high landslide susceptibility areas and are at elevated wildfire risk.³⁶



Air quality



Extreme Heat



Landslides and
Debris Flows



Wildfire

Seniors Living Alone

This group includes senior citizens who are the only people living in their homes, although they may have one or more caretaker. According to the 2017 ACS, approximately 5,070 senior citizens live alone in Contra Costa County, or approximately 19 percent of seniors.

Like other seniors, seniors living alone may be especially vulnerable to the health effects associated with high heat, poor air quality, and wildfire smoke. Seniors living alone generally face elevated overall vulnerability compared to other seniors because they may lack access to social connections and community support to assist in preparing for and responding to emergency events, evacuating, improving home resiliency, managing medical needs, and locating support services. These individuals may be especially isolated in the event of a power outage or road closure. Communities with high concentrations of



seniors are primarily located on the hillsides in Contra Costa, which are within high landslide susceptibility and wildfire risk areas.³⁷



Air
Quality



Shoreline
Flooding



Extreme
Heat



Flooding



Human
Health
Hazards



Landslides
and
Debris
Flows



Severe
Weather



Wildfire

Undocumented Persons

This group includes people who do not have formal permission to live in the United States (they do not have citizenship, permanent residency, visas, or other similar status). There are no official counts of how many undocumented persons live in Contra Costa County, but a 2017 study estimated that the total number of undocumented persons in Contra Costa County (including those living in incorporated areas) was 77,500.

Many undocumented persons have outdoor occupations or work in highly unregulated environments, which leaves them susceptible to harm from extreme heat conditions, exposure to poor air quality, and exposure to disease vectors such as ticks and mosquitoes. Outdoor work is often physically intense, increasing the risk of individuals suffering heat-related medical complications. Outdoor work may also be halted during high temperatures, which can cause significant economic hardships. Undocumented agricultural workers may face economic hardship if crops, vineyards, or rangeland are damaged by agricultural pests and diseases. Agricultural workers who are undocumented are more likely to be let go when farms experience economic hardship.

Undocumented persons are most likely to fall in the households in poverty or low-income categories, and are more likely to live in low-lying areas that may be inundated during flooding or damaged by severe weather. Undocumented persons may live in structures that are not waterproofed or built above the current 100-year flood elevation.³⁸ Flooding can damage homes, cause mildew and mold to grow, and destroy infrastructure.



Agricultural
pests and
diseases



Air Quality



Shoreline
Flooding



Extreme Heat



Flooding



Human Health
Hazards



Landslides and
Debris Flows



Severe Weather



Wildfire

INFRASTRUCTURE VULNERABILITIES

Bridges

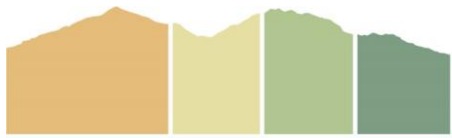
Bridges may carry roads, rails, or trails. In Contra Costa County, these range from the large, state-owned bridges that carry interstate freeways, to locally owned bridges that carry rural roads and pedestrians over small creeks. There are over 400 bridges countywide, with approximately 80 owned by the Contra Costa County and approximately 160 owned by Caltrans. Damage to bridges could interrupt local and regional transportation patterns, disrupting economic activity and potentially emergency response. Bridge damage or failure could also lead to injury or loss of life.



Shoreline Flooding

According to the Local Hazard Mitigation Plan, 8 bridges are within the coastal flood zones within the County, including 4 on local roads, 3 on Interstate 680, and 1 on State Route 4 west bound.³⁹

Major bridges include the Benecia-Martinez Bridge and the Carquinez Bridge, which are major transportation routes within the Bay Area. Additional bridges that provide key linkages are the Highway 160 bridge and Bethel Island bridge. Damage to these bridges would cause major congestion on other roadways and bridges in the County.⁴⁰ Failure of the Bethel Island bridge could also leave residents and business owners stranded on the island.



Flooding

There are 26 bridges within the 100-year flood zone and dam inundation areas.⁴¹ Some of these bridges are located in low-lying areas that could become covered in floodwater.



Landslides and Debris Flows

Forty bridges, including those on State Route 4 and Interstates 80 and 680 are within the moderate to very high landslide areas.⁴² Landslides can cause these bridges to become unstable and fail.



Severe Storms

Bridges may be damaged or periodically closed due to severe weather.⁴³

Electricity Transmission and Distribution Lines

Electrical transmission and distribution lines are power lines that carry high-voltage electricity long distances between power plants and electricity customers. There are transmission lines located throughout the county, primarily owned by Pacific Gas & Electric (PG&E). Other transmission lines in eastern Contra Costa County are owned by the Western Area Power Administration (WAPA) and the Transmission Agency of Northern California.⁴⁴



Extreme Heat

Extreme heat conditions may most likely affect electricity transmission and distribution lines in east and central Contra Costa, as temperatures in those areas are projected to increase substantially on extreme heat days. Extreme heat can cause an increase in air conditioning use, which can stress and overload the grid, subsequently causing power outages and damage to the lines.



Landslides and Debris Flows

Many electrical transmission lines pass over hills and mountains in east and west Contra Costa and are also within high landslide potential areas.⁴⁵ Landslides can damage or destroy the power lines and towers that support them. These power lines carry electricity to other regions in the Bay Area and could cause widespread power outages if multiple lines are disrupted at the same time.

**Severe Storms**

Electricity transmission and distribution lines can be damaged or destroyed by high velocity winds. This can cause secondary impacts such as power outages, that would impact County residents and businesses.

**Wildfire**

Several electrical transmission and distribution lines go through mountainous areas that are within high fire hazard severity zones. Electrical transmission lines and the poles that support them can be damaged or destroyed by the flames and high temperatures created by wildfires. This can cause residents and businesses within the County to lose power if electricity lines fail. This can cause economic hardship and potential public safety concerns.

Flood Control Infrastructure

Flood control infrastructure includes levees, dikes, and drainage channels, and other infrastructure meant to help prevent the creeks, Delta, and other water bodies throughout Contra Costa County from overflowing their banks and causing floods. The Contra Costa County Flood Control District is the agency responsible for local flood control projects. Many of the levees and drainage facilities in the Delta region of the county are privately owned and operated.

Levees near North Richmond, Vine Hill, and the Delta could all be damaged and/or overtopped due to the increase in tidal levels from a coastal storm. Coastal storms can damage or destroy levees and other flood-control infrastructure, making them unable to function as intended or needed. Sea level rise may exacerbate these effects.

**Shoreline Flooding****Sea Level Rise**

Major Roads and Highways

Major roads and highways within Contra Costa County include Interstates 80, 680, and 580; State Routes 4, 24, and 123; and local roads such as Richmond Parkway, San Pablo Avenue, San Pablo Dam Road, Ygnacio Valley Road and Kirker Pass, Vasco Road, Byron Highway, Marsh Creek Road, and Morgan Territory Road.



Shoreline Flooding



Flooding



Sea Level Rise

Major regional roadways, including Interstates 680 and 80, as well as State Route 4 are within flooding zones. Interstates 680 and 80 and State Route 160 are within sea level rise inundation areas. Flooding to these roadways, in addition to major local roadways could cause major disruptions to local and regional transportation, transit, and commuters.⁴⁶ Large sections of the economy could face economic hardship if commuters in the Bay Area are unable to reach their jobs and communities are isolated because of flooding.



Landslides and Debris Flows

Major roadways, such as Interstate 80 and 680, and State Routes 4 and 24 are within high landslide susceptibility areas⁴⁷. These roadways could be damaged and become impassable, including the fourth bore of the Caldecott Tunnel. This could substantially disrupt regional transportation and connections between Contra Costa County and the rest of the Bay Area.



Wildfire

State Route 4, 24, and Interstate 80 go through moderate to very high fire hazard zones within Contra Costa⁴⁸. Wildfires can damage roadways and cause road closures, which can cause major disruption to commute and traffic patterns in the Bay Area. Closure of Highway 4 and 24 may prevent those living in eastern and central Contra Costa from traveling to west Contra Costa County.

Railroads and BART

There are three standard rail lines that run through Contra Costa County. The rail lines are operated by Union Pacific, Burlington Northern Santa Fe, and Richmond Pacific Railroad Corporation that run along the western, northern, and eastern boundaries on the county along Interstate 80, State Route 4, and Byron Highway.⁴⁹ Each rail line is used for freight trains, and the Capitol Corridor commuter train runs along the Union Pacific railway. The Bay Area Rapid Transit District (BART) operates its own separate rail lines which are used exclusively for public transit. There are two BART rail lines in Contra Costa County, one



beginning in Richmond and heading south toward Berkeley, and the second in the central part of the county extending from Orinda to Antioch.



Shoreline Flooding



Flooding



Sea Level Rise

Amtrak, freight lines, and BART are within the flood areas within coastal and northern of Contra Costa.⁵⁰ Flooding can damage the track bed and ballast material, and the entire system could shut down. Some of these rail lines, including the Martinez and Antioch Amtrak stations, rail lines along Bay Point, Montalvin Manor, Rodeo, Port Costa serve as first line of defense to coastal flooding for communities.⁵¹ Damage to the rail and BART lines could mean disruptions to regional transit networks that are essential for economic activity.⁵²



Landslides and Debris Flows

The North Concord/Martinez BART station, Martinez Amtrak station, Pittsburg/Bay Point BART station, and Lafayette BART station, in addition to the adjacent rail lines are within moderate to high landslide susceptibility zones.⁵³ Landslides could damage the tracks or destroy a station, which could prevent rail cars from passing through the station in either direction. This could limit transit opportunities within east and west county.

Single Access Roads

These are roadways that are one of few, or the only, ways in and out of some communities of neighborhoods. The single or limited number of entry and exit points does not make the road itself more vulnerable than other roads, but the loss of these roadways can effectively cut off large number of people from the rest of Contra Costa County. Single access roadways are primarily located in Bay shoreline and Delta fronting neighborhoods, as well as communities located on the San Pablo Ridge, Canyon, and Briones Hills.



Single access roads can be damaged or blocked by falling trees, flooding, landslides, and wildfire. Single access roads are primarily located in hillside community that are also within high or very high fire hazard severity zones.⁵⁴ Within these forested areas, trees can be damaged by redwood bark beetle or sudden oak death. These diseases can weaken trees can cause them to fall on and damage roadways.

Single access roads in Bay Point, Bethel Island, and in the Delta may be affected by coastal flooding; single access roads throughout the County are located within the 100 and 500 year floodplain. Single access roads can become inundated and be damaged by a flood event, especially those that rely on bridges that cross through the Delta. This can leave residents and business owners stranded and isolated during a flood.

Damage to or blockage of a single access road can leave residents stranded during an emergency and can inconvenience residents and businesses that rely on access to these roads.



Agricultural
pests and
diseases



Shoreline
Flooding



Flooding



Landslides and
Debris Flows



Wildfire

Wastewater Treatment Plants

These facilities treat wastewater so it can be safely discharged into the environment. There are 10 wastewater treatment plants in the county, which treat wastewater for people living in cities and unincorporated areas of Contra Costa County.⁵⁵ Failure of these treatment plants could cause sewer systems to backup and potentially contaminate streams and water systems with raw sewage.



Shoreline
Flooding

Three wastewater treatment plants (WWTP): Rodeo sewage treatment plant, West Contra Costa Wastewater, and Mt View Sanitary District are within low lying or coastal flooding areas.⁵⁶ Coastal flooding can exacerbate wet weather flows into the treatment plants with higher levels of stormwater and rising sea levels, which can prevent the system from functioning properly.⁵⁷ Pumps and control panels that are not waterproofed or salt-resistant could also fail.



Flooding

Two WWTPs are within the 100 & 500 year floodplain, one WWTP is within dam inundation zone, including the West Contra Costa and Pinole Hercules plants.⁵⁸



Sea Level Rise

Three wastewater treatment plants: Rodeo sewage treatment plant, West Contra Costa Wastewater, and Mt View Sanitary District are within low lying areas along the shoreline.⁵⁹ Inundation due to sea level rise can exacerbate wet weather flows into the treatment plants with higher levels of stormwater and rising sea levels, which can prevent the system from functioning properly.⁶⁰ Pumps and control panels that are not waterproofed or salt-resistant could also fail.

Water and Wastewater Infrastructure

These facilities convey water from water treatment plants for public use and convey wastewater to wastewater treatment plants through sewer systems. This includes piping, pump stations, wells, and septic systems.

The Mokelumne Aqueduct could be exposed to coastal flooding if the Delta levees fail.⁶¹ Contra Costa Canal and the Clifton Court Forebay are also within the coastal flooding area. If the levees fail during a coastal flooding events, these pieces of infrastructure would also fail, and fresh water would become contaminated with salt water, reducing the amount of suitable drinking water and agricultural water. This could halt economic activities in Contra Costa and the greater California area. These hazards could be exacerbated by sea level rise.



Shoreline Flooding



Flooding



Sea Level Rise

BUILDING VULNERABILITIES

Industrial Buildings

These are buildings that contain industrial and manufacturing uses and businesses. There are approximately 270 industrial buildings in the unincorporated area of Contra Costa County.



Shoreline
Flooding

Approximately 61 industrial buildings in Contra Costa County are within coastal flooding areas.⁶² Coastal flooding can cause damage to industrial structures and increase the potential for hazardous materials release that would contaminate soil, water, and air in surrounding areas.⁶³ Industrial structures that are currently outside of the 100-year flood zone are also unlikely to be waterproofed or flood resistant.⁶⁴



Flooding

There are 68 industrial buildings within the 500-year floodplain and 99 industrial buildings within a dam inundation area⁶⁵. This includes 5 hazardous materials facilities that could potentially release toxic substances into the ground, air, and water if damaged.⁶⁶



Landslides and
Debris Flow

There are 34 industrial structures within landslide-prone areas.⁶⁷ Landslides can disturb holding tanks or damage industrial buildings, and cause chemicals to be released into the air, water, or ground in the surrounding areas.



Sea Level Rise

Approximately 44 industrial buildings in Contra Costa County are within sea level rise inundation areas.^{68, 69} Sea level rise can cause damage to industrial structures over time and increase the potential for hazardous materials release that would contaminate soil, water, and air in surrounding areas due to high mean high tide levels.⁷⁰ Industrial structures that are currently outside of the 100-year flood zone are also unlikely to be waterproofed or flood resistant.⁷¹



Wildfire

There are 24 industrial buildings within the fire hazard zone.⁷² Wildfires can damage holding tanks or manufacturing centers that contain harmful chemicals. Damage to these facilities can release toxic materials into the air, water, and soil of the surrounding communities.



ECONOMIC DRIVER VULNERABILITIES

Agriculture

This category includes field crops (such as tomatoes, sweet corn, and other vegetables), fruit and nut orchards, vineyards, and plant nurseries. These agricultural operations are primarily located in eastern Contra Costa County, between Mt. Diablo State Park and the Delta. In 2017, farms and orchards produced approximately \$95 million in agricultural products.⁷³



Agricultural
Pests and
Diseases

Agriculture within Contra Costa County can be affected by fungal pathogens and invasive disease vectors, which could affect agriculture as an economic asset.⁷⁴ Pests and diseases can affect the quality or viability of crops and vineyards that are within the county. Impacts could become chronic as conditions continue to change and warmer temperatures persist.



Shoreline
Flooding

Agricultural land in the eastern and Delta portions of the County are within the coastal flood zone. Coastal flooding can inundate farmland and damage or destroy crops. Damage to the fresh water canals and aqueducts could also severely harm the agriculture industry. Eastern Contra Costa County may face significant economic hardship if agriculture is not viable.



Drought

Agriculture may be directly harmed from drought conditions due to an increase in soil salinity, topsoil erosion, and reduced water supply.⁷⁵ This can limit crop production and in turn result in a loss of income for agriculture owners. The economy in eastern Contra Costa can be especially harmed by limited water for agricultural production.



Extreme Heat

Extreme heat conditions can damage crops or reduce yield, which can create economic hardships in eastern Contra Costa. High heat conditions can also make crops more difficult to manage, and can lead to die off of crops. Wine grapes are expected to experience a decline in fruit quality due to extreme heat.⁷⁶



Flooding

Agriculture within Contra Costa is located in low-lying areas that are in both the floodable areas and dam inundation areas. Flooding can cause significant damage to crop production because they can damage plants, wash away topsoil nutrients, and degrade essential microbial activity. This can harm plants and reduce agricultural productivity, subsequently harming the agricultural economy in east Contra Costa.⁷⁷



Sea Level Rise

Agricultural land in the eastern and Delta portions of the County are within the sea level rise inundation area. Sea level rise can inundate farmland creating higher salinity water and soils. Water supplies, including groundwater, can also experience salt water intrusion, which can be damaging to crops that do not grow in high salt conditions. Damage to the fresh water canals and aqueducts could also severely harm the agriculture industry. Eastern Contra Costa County may face significant economic hardship if agriculture is not viable.



Severe Storms

High winds, hail, and thunderstorms can decimate agricultural operations. Crops can be flattened by high velocity winds and food crops can be damaged by hail.⁷⁸ This can severely damage the agricultural economy in east Contra Costa and bring economic hardship to farm owners in that area.

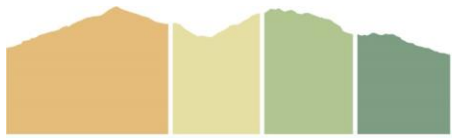


Wildfire

Smoke and ash can damage crops, farms, and agricultural fields in Contra Costa County. While many of the agricultural areas are outside of fire hazard zones, smoke and ash can change crops such as wine grapes and change nutrients in the soil.⁷⁹ This may cause plants to die or not produce as many useable fruits. This can cause major economic hardship for farmers.

Industrial and Manufacturing Centers (including oil refineries)

Industrial and manufacturing centers include facilities that have light and heavy industrial and manufacturing businesses. In the unincorporated areas in Contra Costa County, these centers are located in North Richmond, Rodeo, Crockett, Bay Point, Pacheco, and Clyde. Oil refineries are included in this category, as they are industrial facilities where crude oil is



processed into gasoline and industrial byproducts for a variety of retail and wholesale markets. There are three of these facilities in the unincorporated areas of Contra Costa County, which are in Rodeo, Pacheco, and Martinez (straddling the City/County boundaries).



Shoreline Flooding



Flooding



Sea Level Rise

The majority of these centers are located within the coastal flood hazard areas along the bayfront and Delta in western and northern Contra Costa County, with additional centers located within the flood hazard zones on the northern and western edges of the county. Industrial and manufacturing centers can be damaged by flooding, which could result in lost productivity, jobs, and income sources for employees. Coastal flooding hazards could be exacerbated by sea level rise.



Landslides and Debris Flows

Industrial and manufacturing centers, including oil refineries, are located within the landslide prone areas on the northern and western edges of Contra Costa.⁸⁰ Landslides can damage these facilities and cause hazardous material release that can harm the oil refining industry and also the surrounding communities. Impacts may become chronic if landslides increase.



Wildfire

Few industrial and manufacturing centers are located within fire hazard severity zones. However, oils refineries and holding tanks can be damaged by wildfires, which can cause hazardous materials to be released into the surrounding air, water, and soil. This can negatively impact both economic and public health.

Rangeland

Rangeland are lands where many livestock species, including cattle, are raised. Rangeland is primarily located in eastern Contra Costa County. In 2017, rangeland produced approximately \$26 million in livestock products.⁸¹



Drought

Rangeland is primarily located on grassland habitats, which can lose topsoil and productivity due to the drier conditions created by droughts.⁸² This can reduce the available foraging habitat for livestock and cause economic hardship for rangeland owners.



Extreme Heat

Extreme heat is very harmful to livestock animals, especially cattle. Temperatures above 100 degrees can create heat stress, increase the risk of infection, reduce milk production and fertility, and may lead to death of animals. Animals that are already stressed by existing illnesses are at the highest risk.



Flooding

Rangeland located on Bethel Island and the Delta areas are within the 100-year floodplain and dam inundation areas. Flood waters can damage important rangeland infrastructure and the natural grassland that feeds to cattle and livestock⁸³. This can harm the local economy in east County.

Regional Parks

Regional parks within Contra Costa County are scattered throughout the county. East Bay Regional Park District operates over 113,000 acres of regional parkland in Alameda and Contra Costa Counties.⁸⁴



Sea Level Rise

Regional shorelines and parks on the Bay/Delta could be permanently inundated by sea level rise. This could make the regional parks unusable and the parks may not be able to meet the demands of the public.



Wildfire

Many regional parks within the County are located within high or very high fire hazard severity zones.⁸⁵ Wildfires can destroy park facilities, damage trails and walking paths, and damage scenic views and vistas within these parks. This may reduce the number of visitors to the parks, as they may not be as desirable to visit.

The Delta

The Sacramento-San Joaquin River Delta (Delta) spans from Pittsburg in the west, Locke in the east, Sacramento to the North, and Tracy to the south. The Delta primarily encompasses the northern and easternmost borders of Contra Costa County and provides opportunities for boating, fishing, transportation, and a water source for the County.



Air Quality

The Delta supports fishing, water recreation, and park activities that could be curtailed due to poor air quality.⁸⁶ Those who rely on the Delta could have a periodic loss of economic activity as long as poor air quality curtails outdoor and water recreation.



Shoreline Flooding

The Delta, including marinas, harbors, farmland, and recreational opportunities may be continuously flooded and inundated by coastal storms. This can significantly reduce the economic viability of the Delta due to damage to ecosystems, recreation facilities such as marinas and harbors, and farmland on the islands and tracts within the Delta.



Drought

Reduced streamflow and water quality can decrease both commercial fishing, agricultural production, and recreational opportunities in the Delta.⁸⁷ Certain fish species may die off if water conditions change and high salinity water may not be able to be used for agricultural production.⁸⁸



Extreme Heat

The Delta supports fishing, water recreation, and park activities that could be curtailed due to extreme heat.⁸⁹ Extreme heat may also alter the water quality, cause water temperatures to rise, and cause fish die off and algae growth.



Sea Level Rise

The Delta, including marinas, harbors, farmland, and recreational opportunities may be continuously flooded and inundated by sea level rise. This can significantly reduce the economic viability of the Delta due to damage to ecosystems, recreation facilities such as marinas and harbors, and farmland on the islands and tracts within the Delta. Salt water may also travel farther into the Delta, disrupting water quality and fish/wildlife populations.



Severe Storms

Severe weather can damage harbors, marinas, outdoor recreation centers within the Delta, which can harm both the fishery and recreation based economies in the Delta. Severe storms can also damage bridges that connect islands and tracks within the Delta, which can isolate them from other areas in the region.

ECOSYSTEM AND NATURAL RESOURCE VULNERABILITIES

Aquatic

Aquatic habitat includes streams, reservoirs, ponds, and sloughs or channels. This ecosystem includes the Delta and shoreline areas that are submerged by water. In Contra Costa County, the three large reservoirs include San Pablo Reservoir, Briones Reservoir, and Los Vaqueros Reservoir. Aquatic wildlife species include various duck species, California red-legged frog, western pond turtle, and juvenile and spawning adult Chinook salmon.⁹⁰



Drought

Drought can cause lower water levels and water quality, in addition to raising water temperatures in aquatic habitats. These conditions can cause algal blooms in Delta areas, harm salmonid populations, and cause system wide failures.^{91, 92} Lower dissolved oxygen levels and increased algae growth can also harm a variety of aquatic species.⁹³



Extreme Heat

Extreme heat events can cause water temperatures in aquatic habitats to rise, which can alter water quality and other water characteristics. Native fish species may have a more difficult time surviving in warmer waters and non-native species may out compete native species.⁹⁴



Landslides and Debris Flows

Aquatic habitat within landslide prone areas includes lakes and streams, which are in the central and western parts of the county. Landslides can cause streams to be blocked and significantly affect fish and wildlife habitat through additional debris in aquatic systems.⁹⁵



Sea Level Rise

Sea level rise may push salt water into the Delta aquatic system, which may degrade the water quality and harm fish and other aquatic organisms.⁹⁶ Aquatic habitats may also be harmed if industrial/oil facilities are inundated, as hazardous materials could be released into the soils and water.⁹⁷

Riparian Woodland and Shrub

Riparian woodland and shrub ecosystems consist of Valley foothill riparian, undetermined shrub, and riverine habitat. These areas are scattered throughout Contra Costa County and have wildlife species such as gray fox, striped skunk, broad-handed mole, mule deer, dusky-footed woodrat, yellow warbler, northern flicker, white tailed kite, and Cooper's hawk.⁹⁸



Drought

Drought conditions can cause smaller streams to run dry, which can subsequently harm the plants and animal habitat within the ecosystem. Trees may not have adequate water during drought periods, which can lead to pests and diseases destroying important habitat for the Gray fox, Cooper's hawk, and mule deer.⁹⁹ Soil erosion can also occur on the banks of streams.¹⁰⁰



Severe Storms

Severe storms can cause trees to fall in riparian ecosystems, which can disrupt the flow of water through the systems and impact aquatic wildlife in the streams.

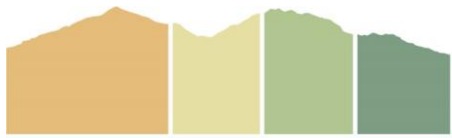


Wildfire

Riparian ecosystems can be harmed by wildfires due to loss of canopy and changes in soil structure, erosion, and shifts in specific composition due to changes in habitat structure.¹⁰¹ Impacts may become chronic as wildfire frequency increases.

Wetland

Wetland ecosystems include permanent wetland, seasonal wetland, fresh emergent wetland, alkali wetland, and marsh. These areas are located adjacent to the San Francisco Bay and Delta. Wildlife in these ecosystems includes Great blue heron, great egret, wood duck, green-winged teal, mallard, California red-legged frog, western pond turtle, garter



snakes, western spadefoot toad, western toad, California tiger salamander, tri-colored blackbird, and vernal pool fairy shrimp.¹⁰²



Shoreline
Flooding

Coastal flooding and rising sea levels may inundate most of the wetland and tidal marshes by 2070.¹⁰³ The wildlife habitat, recreation, and flood protection that these ecosystems provide may not be able to be sustained.¹⁰⁴



Drought

Wetlands can be directly affect by reduced water quantity and quality due to drought conditions.¹⁰⁵ Drought can contribute to algal blooms, low streamflow, degraded water quality, higher temperatures, and increased erosion in both Delta and inland wetland habitats.¹⁰⁶ This can in turn harm wildlife such as the California red-legged frog and western pond turtle that depend on these ecosystems.¹⁰⁷



Extreme Heat

Warmer waters may change wetland habitats so that native species can no longer survive.¹⁰⁸ Warmer temperatures may also cause harmful algal growth that can harm both plant and wildlife species.



Sea Level Rise

Rising sea levels may inundate most of the wetland and tidal marshes by 2070.¹⁰⁹ The wildlife habitat, recreation, and flood protection that these ecosystems provide may not be able to be sustained.¹¹⁰

Woodland

Woodland ecosystems include oak savannah, oak woodland, and mixed evergreen forest. These ecosystems are primarily located on the hillsides and mountainous regions of western and central Contra Costa County. Wildlife in these ecosystems include deer mouse, western gray squirrel, coyote, red-tailed hawk, barn owl, great horned owl, and acorn woodpecker.¹¹¹



Agricultural Pests and Diseases

Both evergreen and oak woodlands in the county can be damaged by forestry pests and diseases such as sudden oak death and redwood bark beetles. This can decimate the ecosystems and wildlife such as coyote, gray fox, barn owl, red-tailed hawk, and Copper's hawk that depend on these ecosystem for habitat and foraging.¹¹²



Fog

Redwoods, which are a common species in woodland habitats in western Contra Costa, depend on the coastal fog in the summer months. Redwoods can get up to one third of their water from fog in the summer.¹¹³ The absence of coastal fog may cause higher evapotranspiration rates and increase the demand for water in woodland ecosystems during the drier summer months.



Wildfire

Fire sensitivity varies by species, but most species have an elevated risk of damage. Large fires can cause widespread devastation throughout woodland areas in Contra Costa County, particularly if trees have been weakened or killed by drought, extreme heat, and/or pests or infestation.¹¹⁴

KEY COMMUNITY SERVICES VULNERABILITIES

Energy Delivery

Energy delivery services in Contra Costa County include electricity and natural gas delivered through high-capacity utility lines and pipelines. In more rural areas of Contra Costa County, propane may be delivered via truck. Energy is needed for vital functions such as space heating, telecommunications, as well as entertainment and comfort. Major energy providers are MCE and PG&E.



Extreme Heat

Extreme heat can regularly cause power outages due to a combination of mechanical failure of electrical grid equipment, heat damage to the wires themselves, and high demand for electricity as a result of cooling equipment, all of which causes stress on the grid. As extreme heat events become more frequent and intense, disruptions in service are likely to become more frequent. The US Department of Energy estimates that a 9-degree increase in temperature reduces the capacity of power lines by 7 to 8 percent, and the capacity of electrical substations by 2 to 4 percent.¹¹⁵



Landslides and
Debris Flows

Landslides can damage or destroy transmission lines and substations that are located in the hillside areas of the County. This could cause major disruptions in the power grid and could cause widespread power outages. Power outages can harm vulnerable populations and businesses.¹¹⁶



Severe Storms

Energy delivery could be disrupted by severe weather if wind, hail, or thunderstorms cause the electrical grid to not function properly. If multiple sections or element of the system fail (substations, power plants, electricity lines) county residents and businesses could be without power for hours, days, or weeks depending on severity.



Wildfire

Wildfires can damage or destroy energy delivery infrastructure, which can cause power outages that can last for days or weeks depending on the severity of the event. This can directly harm the economy, government operations, public safety, and hinder wildfire recovery efforts.

Public Transit Access

Public transit within Contra Costa County is provided by County Connection, WestCAT, Tri Delta Transit, and AC Transit. Additional public transit that provides access to other regional locations includes BART and Amtrak.



Shoreline
Flooding

Public transit routes are at risk for disruption to the extent they rely on vulnerable roads and bridges. Disruption of these services would be detrimental to those who do not own or operate vehicles.¹¹⁷



Flooding

Residents may not be able to get essential goods and services, and commuters may be unable to go to work without public transit access. For rail and BART, if part of the lines is not functioning, then that could affect transit access on other parts of the line.



Landslides and
Debris Flows

Landslides can block roadways, tunnels, and rail lines, which could substantially disrupt access to public transit in north, central, and west Contra Costa. These areas rely on public transit more and when disrupted, public transit may not be able to meet the needs of the community.

Water and Wastewater

These services involve treating and transporting water to be used by customers and transporting and treating wastewater so it can be safely released into the environment. Water and wastewater services are provided by several agencies and small private organizations throughout Contra Costa County and are critical to ensuring public and environmental health. Major water providers are East Bay Municipal Utilities District and Contra Costa Water District. Additional service districts within the county are Byron Sanitary District, Castle Rock County Water District, Central Contra Costa Sanitary District, County Sanitation District 6, Crockett Community Services District, Delta Diablo Sanitation District, Diablo Community Services District, Diablo Water District, Dublin-San Ramon Services District, Ironhouse Sanitary District, Mt. View Sanitary District, Rodeo Sanitary District, Stege Sanitary District, Town of Discovery Bay Community Services District, and West County Wastewater District.



Shoreline Flooding

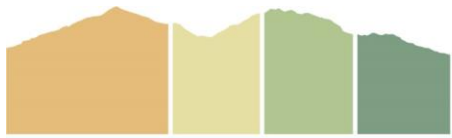


Flooding



Sea Level Rise

Water and wastewater services can be disrupted from flooding if the wastewater treatment plants are not functioning properly. Flooding can exacerbate wet weather flows into the treatment plants with higher levels of stormwater and rising sea levels, which can prevent the system from functioning properly.¹¹⁸ Failure of these treatment plants could cause sewer systems to back up and potentially contaminate streams and water systems with raw sewage. Major points in the water delivery system could also be disrupted. Sea level rise may exacerbate these hazards.



Landslides and Debris Flows

Water and wastewater services could be disrupted if the pipelines were to be damaged or destroyed from a landslide. This could cause both water and wastewater systems to not function properly.



Wildfire

Wildfires in the County could impact the reservoir water sources.¹¹⁹ Water quality can be degraded due to ash content or fire retardants that make their way into surface water storage. This may reduce the overall quantity of water that the water districts in the county have to supply agricultural, commercial, and residential demands.

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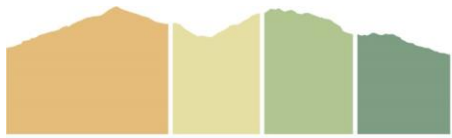


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APPENDIX D: 2015 CAP GOALS

The 2015 Climate Action Plan (CAP) identified how the County planned to achieve the Assembly Bill (AB) 32 greenhouse gas (GHG) emissions reduction target of 15 percent below baseline levels by the year 2020, in addition to supporting other public health, energy efficiency, water conservation, and air quality goals identified in the County's General Plan and other policy documents. This appendix summarizes the key accomplishments of the 2015 CAP.

ENERGY EFFICIENCY

These measures focus on energy efficiency in new and existing homes in the unincorporated areas of the county. As shown in **Figures D-1** and **D-2**, the County has made strides towards achieving this goal with a total of 1,018 single-family home energy efficiency retrofits and 24 multifamily unit energy efficiency retrofits completed from 2015 through 2020.

FIGURE D-1: SINGLE-FAMILY HOME ENERGY EFFICIENCY PROJECTS COMPLETED IN THE UNINCORPORATED COUNTY

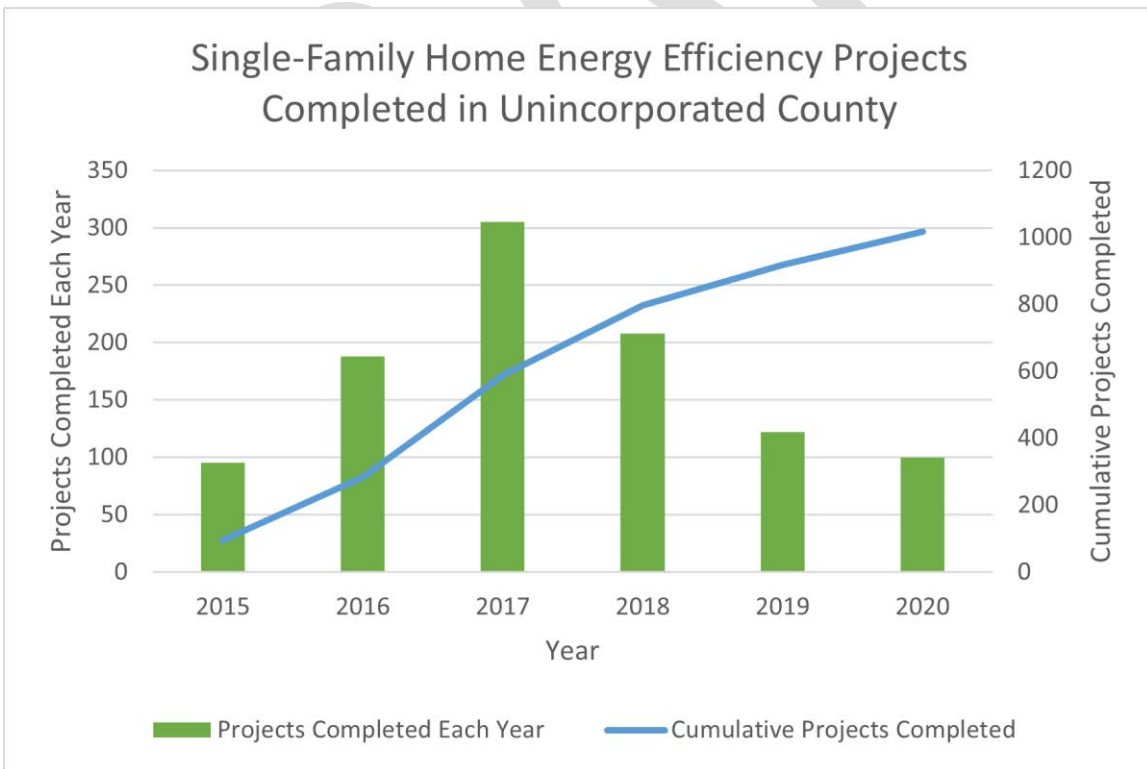
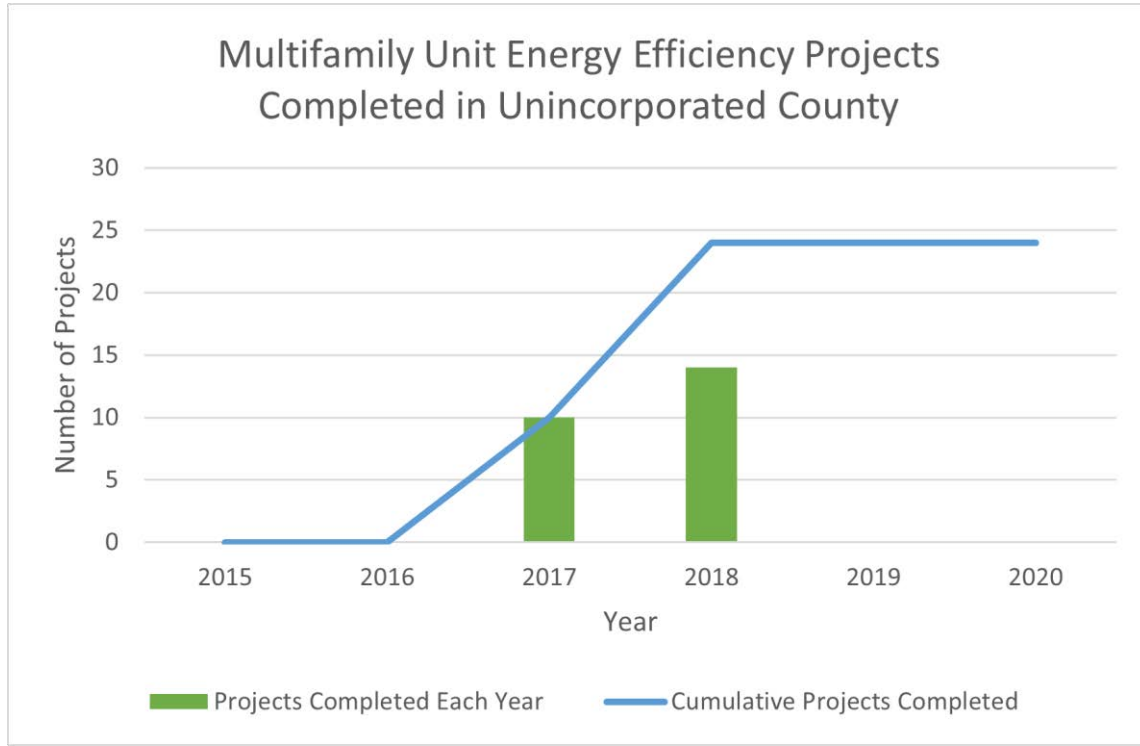


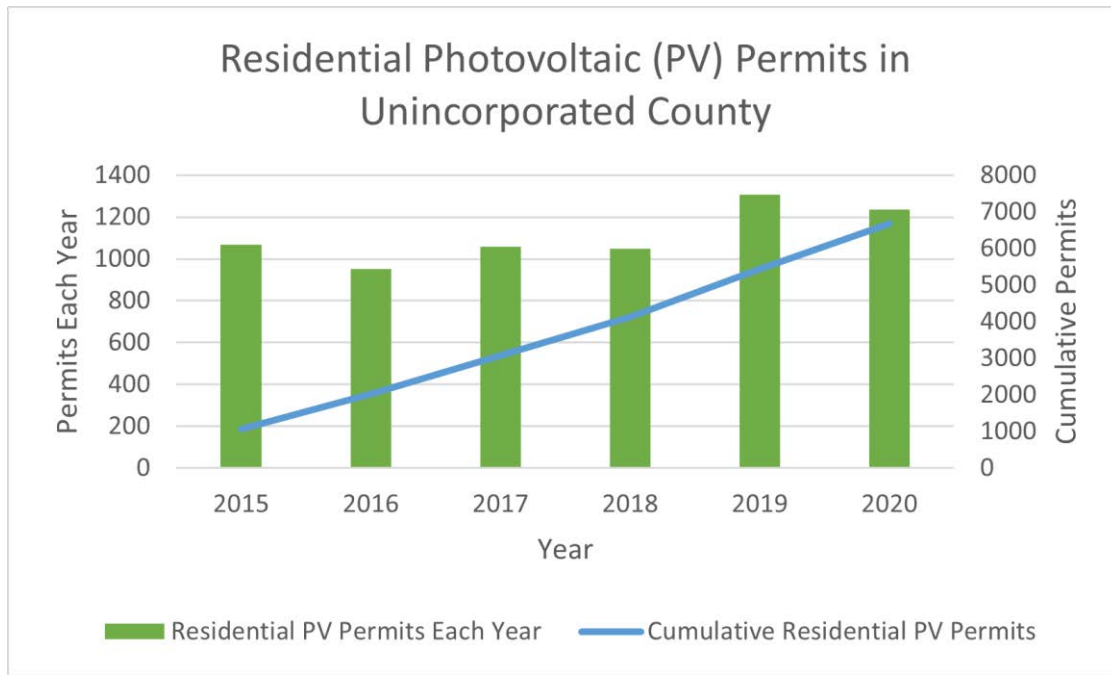
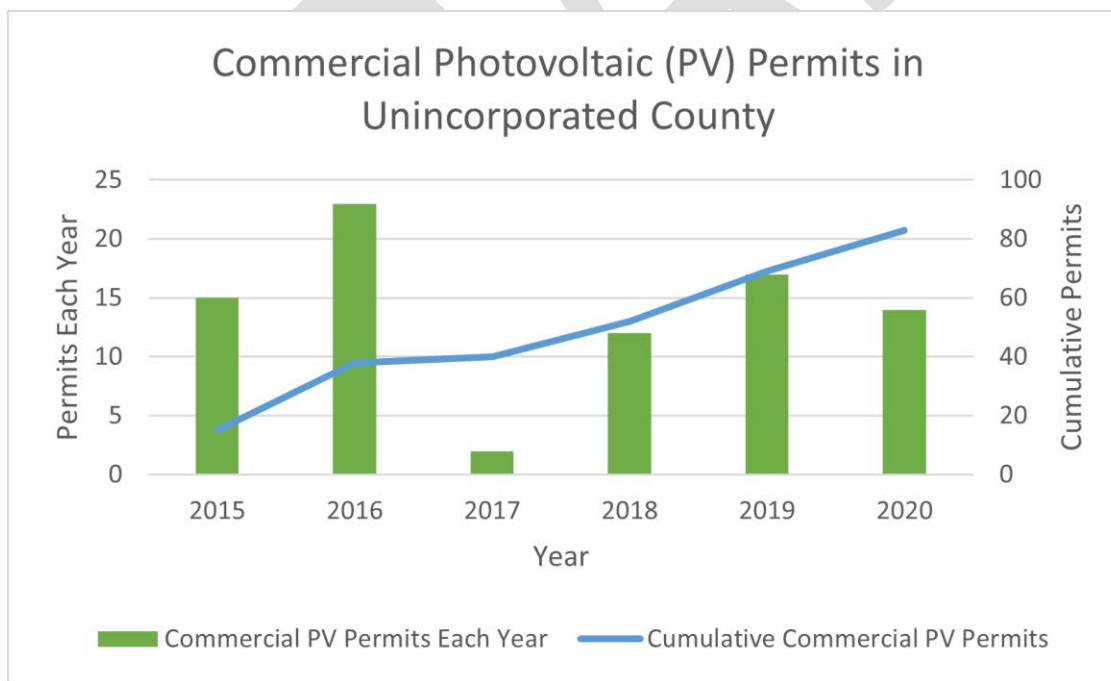


FIGURE D-2: MULTIFAMILY UNIT ENERGY EFFICIENCY PROJECTS COMPLETED IN UNINCORPORATED COUNTY



RENEWABLE ENERGY

The goals set in the 2015 CAP for renewable energy adoption included installing solar arrays to 50 new homes, 10 new businesses, 2,500 existing homes, and 60 existing businesses by 2020. As shown in **Figures D-3 and D-4**, the County has shattered that goal, issuing over 5,000 residential photovoltaic (PV) permits between 2018 and 2020.

FIGURE D-3: RESIDENTIAL PV PERMITS IN UNINCORPORATED COUNTYFIGURE D-4: COMMERCIAL PV PERMITS IN UNINCORPORATED COUNTY

LAND USE AND TRANSPORTATION

Improving mobility and encouraging alternative-fuel vehicle adoption were the biggest areas of focus in the County's 2015 CAP.

Mobility Improvements

The County Board of Supervisors has supported mobility improvements by accepting two mobility-related studies: the Iron Horse Corridor Active Transportation Study and the Marsh Creek Corridor Multi-Use Trail Feasibility Study. The Iron Horse Corridor Active Transportation Study will identify safety, access, and user-experience improvements on the 22-mile corridor. The Marsh Creek Corridor Multi-Use Trail Feasibility Study will inform the County on the feasibility of a new 12+ mile corridor between Clayton and the Round Valley Regional Preserve.

EV Charging Stations

For electric vehicle (EV) charging stations, the County has increased efforts to address the goals in the 2015 CAP.

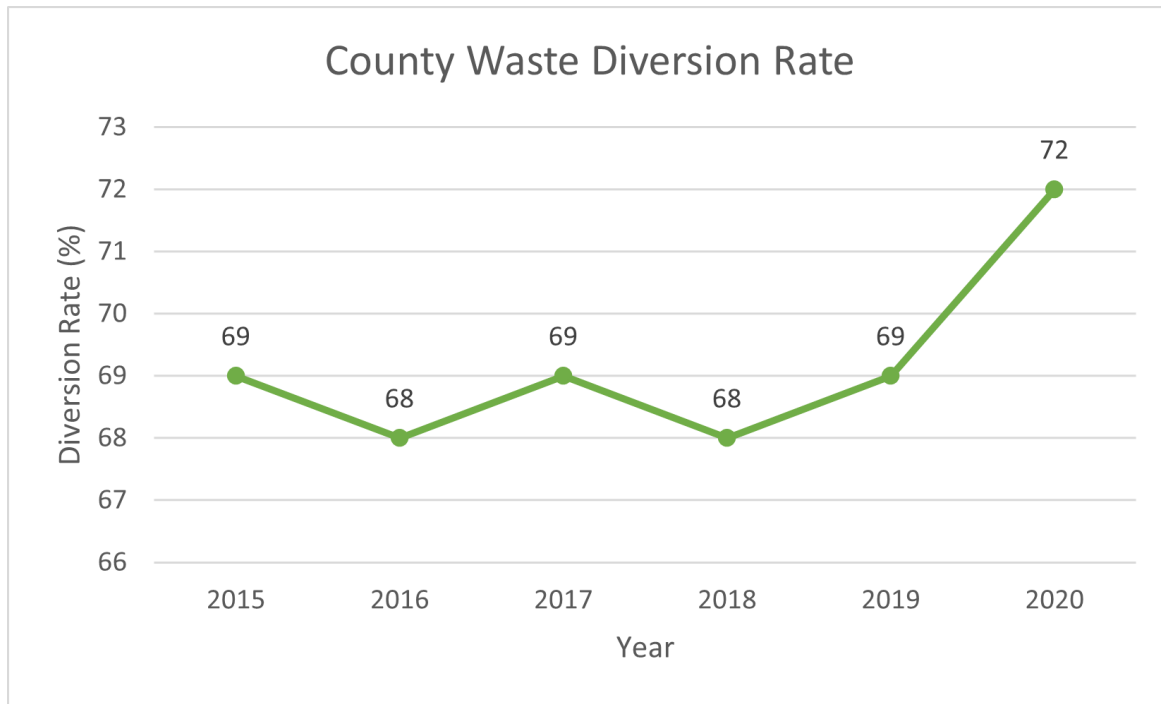
- The Contra Costa Transportation Authority (CCTA) completed its EV Readiness Blueprint in 2019, with help from the County.
- In the same year, the Board of Supervisors streamlined the permitting process for EV chargers.

Both efforts combined led to 1,325 charging stations being distributed throughout the county and an additional 317 stations added through the MCE's rebate program as of December 2020. This influx in charging stations makes it possible to reach the 2015 CAP goals centered around distance traveled per EV.

WASTE REDUCTION

The County set a waste reduction goal of a 75 percent reduction in Pounds of Disposal Per Person Per Day (PPD). The County used 3.9 PPD as the target PPD. In 2020, the County recorded a PPD rate of 2.2, which equates to a 72 percent reduction (**Figure D-5**).

FIGURE D-5: COUNTY WASTE DIVERSION RATE





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APPENDIX B:
REVISIONS TO
SECTION 5.3, AIR
QUALITY, OF THE DEIR

5. Environmental Analysis

5.3 AIR QUALITY

This section describes the potential impacts to air quality due to adoption and implementation of the proposed project. This section describes the regulatory framework and existing conditions, identifies criteria used to determine impact significance, provides an analysis of the potential air quality impacts, and identifies proposed General Plan policies and feasible mitigation measures that could minimize any potentially significant impacts.

This evaluation is based on the methodology recommended by the Bay Air Quality Management District (BAAQMD) for plan-level analyses. The analysis focuses on air pollution from regional emissions and localized pollutant concentrations. Criteria air pollutant emissions modeling is included in Appendix 5.3-1, *Air Quality and Greenhouse Gas Emissions Data*, of this Draft Environmental Impact Report (EIR). Transportation-sector impacts are based on trip generation and vehicle miles traveled (VMT) provided by Fehr and Peers. Note that this quantitative analysis was conducted based on the horizon-year projection for the proposed General Plan, which is summarized in Chapter 3, *Project Description*, of this Draft EIR. Cumulative impacts related to air quality are based on the regional boundaries of the San Francisco Bay Area Air Basin (SFBAAB).

5.3.1 Environmental Setting

5.3.1.1 TERMINOLOGY

- **AAQS.** Ambient Air Quality Standards
- **CES.** CalEnviroScreen. CES is a mapping tool that helps identify the California communities most affected by sources of pollution and where people are often especially vulnerable to pollution's effects.
- **Concentrations.** Refers to the amount of pollutant material per volumetric unit of air. Concentrations are measured in parts per million (ppm), parts per billion (ppb), or micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).
- **Criteria Air Pollutants.** Those air pollutants specifically identified for control under the Federal Clean Air Act (currently seven—carbon monoxide, nitrogen oxides, lead, sulfur oxides, ozone, and coarse and fine particulates).
- **DPM.** Diesel particulate matter.
- **Emissions.** Refers to the actual quantity of pollutant, measured in pounds per day or tons per year.
- **Impacted Community.** Unincorporated communities in Contra Costa County that are disproportionately burdened by pollution as defined by the County in the proposed General Plan using CES data.
- **Overburdened Community.** As defined by BAAQMD, an area in a census tract identified by CES, Version 4, having an overall CES score at or above the 70th percentile, or within 1,000 feet of any such census tract.
- **ppm.** Parts per million.
- **Sensitive receptor.** Land uses that are considered more sensitive to air pollution than others due to the types of population groups or activities involved. These land uses include residential, retirement facilities, hospitals, and schools.
- **TAC.** Toxic air contaminant.
- **$\mu\text{g}/\text{m}^3$.** Micrograms per cubic meter.
- **VMT.** Vehicle miles traveled.

5. Environmental Analysis

AIR QUALITY

5.3.1.2 AIR POLLUTANTS OF CONCERN

Criteria Air Pollutants

The pollutants emitted into the ambient air by stationary and mobile sources are categorized as primary and/or secondary pollutants. Primary air pollutants are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), sulfur dioxide (SO₂), coarse inhalable particulate matter (PM₁₀), fine inhalable particulate matter (PM_{2.5}), and lead (Pb) are primary air pollutants. Of these, CO, SO₂, NO₂, PM₁₀, and PM_{2.5} are “criteria air pollutants,” which means that AAQS have been established for them. VOC and NO_x are criteria pollutant precursors that form secondary criteria air pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O₃) and nitrogen dioxide (NO₂) are the principal secondary pollutants. Table 5.3-1, *Criteria Air Pollutant Health Effects Summary*, summarizes the potential health effects associated with the criteria air pollutants.

Table 5.3-1 Criteria Air Pollutant Health Effects Summary

| Pollutant | Health Effects | Examples of Sources |
|--|--|--|
| Carbon Monoxide (CO) | Chest pain in heart patients Headaches, nausea Reduced mental alertness Death at very high levels | Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves |
| Ozone (O ₃) | Cough, chest tightness Difficulty taking a deep breath Worsened asthma symptoms Lung inflammation | Atmospheric reaction of organic gases with nitrogen oxides in sunlight |
| Nitrogen Dioxide (NO ₂) | Increased response to allergens Aggravation of respiratory illness | Same as carbon monoxide sources |
| Particulate Matter (PM ₁₀ and PM _{2.5}) | Hospitalizations for worsened heart diseases Emergency room visits for asthma Premature death | Cars and trucks (particularly diesels) Fireplaces and woodstoves Windblown dust from overlays, agriculture, and construction |
| Sulfur Dioxide (SO ₂) | Aggravation of respiratory disease (e.g., asthma and emphysema) Reduced lung function | Combustion of sulfur-containing fossil fuels, smelting of sulfur-bearing metal ores, and industrial processes |
| Lead (Pb) | Behavioral and learning disabilities in children Nervous system impairment | Contaminated soil |

Source: CARB 2023b; South Coast AQMD 2005.

A description of each of the primary and secondary criteria air pollutants and their known health effects is presented below.

- **Carbon Monoxide (CO)** is a colorless, odorless gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces its oxygen-carrying capacity. This results in reduced oxygen reaching

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the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia, as well as for fetuses. Even healthy people exposed to high CO concentrations can experience headaches, dizziness, fatigue, unconsciousness, and even death (BAAQMD 2017a).

- **Nitrogen Oxides (NO_x)** are a by-product of fuel combustion and contribute to the formation of ground-level O₃, PM₁₀, and PM_{2.5}. The two major forms of NO_x are nitric oxide (NO) and nitrogen dioxide (NO₂). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. The principal form of NO_x produced by combustion is NO, but NO reacts quickly with oxygen to form NO₂, creating the mixture of NO and NO₂ commonly called NO_x. NO₂ is an acute irritant and more injurious than NO in equal concentrations. At atmospheric concentrations, however, NO₂ is only potentially irritating. NO₂ absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure (BAAQMD 2017a). NO₂ acts as an acute irritant and in equal concentrations is more injurious than NO. At atmospheric concentrations, however, NO₂ is only potentially irritating. There is some indication of a relationship between NO₂ and chronic pulmonary fibrosis. Some increase in bronchitis in children (2 and 3 years old) has also been observed at concentrations below 0.3 parts per million (ppm) (BAAQMD 2017a).
- **Sulfur Dioxide (SO₂)** is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and chemical processes at plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO₂. When sulfur dioxide forms sulfates (SO₄) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_x). Thus, SO₂ is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO₂ may irritate the upper respiratory tract. Current scientific evidence links short-term exposures to SO₂, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. These effects are particularly adverse for asthmatics at elevated ventilation rates (e.g., while exercising or playing) at lower concentrations and when combined with particulates, SO₂ may do greater harm by injuring lung tissue. (BAAQMD 2017a).
- **Suspended Particulate Matter (PM₁₀)** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. In the SFBAAB, most particulate matter is caused by combustion, factories, construction, grading, demolition, agricultural activities, and motor vehicles. Inhalable coarse particles, or PM₁₀, include the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 millionths of a meter or 0.0004 inch) or less.

Extended exposure to particulate matter can increase the risk of chronic respiratory disease. PM₁₀ bypasses the body's natural filtration system more easily than larger particles and can lodge deep in the lungs. These health effects include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (e.g., irritation of the airways, coughing, or difficulty breathing). Motor vehicles are currently responsible for about half of particulates in the SFBAAB. Wood burning in fireplaces and stoves is another large source of fine particulates (BAAQMD 2017a).

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- **Suspended Particulate Matter (PM_{2.5})** is another form of fine particulate matter that has an aerodynamic diameter of 2.5 microns or less (i.e., 2.5 millionths of a meter or 0.0001 inch). Fine particulate matter originates from a variety of sources, including fossil fuel combustion, residential wood burning and cooking, and natural sources, such as wildfires and dust. As mentioned above, extended exposure to particulate matter can cause negative effects on the respiratory system, such as triggering asthma attacks, aggravating bronchitis, and diminishing lung function. PM_{2.5} studies have also found harm to the cardiovascular system and impacts on the brain, such as reduced cognitive function.

Local jurisdictions have the option of developing community risk reduction plans (CRRPs) to cumulatively reduce community wide PM_{2.5} concentrations by following a comprehensive plan. Stationary source screening maps contain all the facilities in the Bay Area where a permit has been issued and that emit one or more TACs. These stationary source screening maps can be used as a basis for community baseline conditions and to evaluate screening-level health risk impacts using the cavity effects equation. An alternative screening methodology is to use the California Air Resources Board's (CARB) gas station screening tool to estimate cancer risk and chronic/acute hazards from gas station emissions (BAAQMD 2017a).

- **Ozone (O₃)** is a key ingredient of “smog” and is a gas that is formed when ROGs and NO_x, both by-products of internal combustion engine exhaust, undergo photochemical reactions in sunlight. O₃ is a secondary criteria air pollutant. O₃ concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for its formation. O₃ poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O₃ can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma; reduce lung function; and inflame the linings of the lungs. Besides causing shortness of breath, it can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema. Chronic exposure to high ozone levels can permanently damage lung tissue. O₃ can also damage plants and trees and materials such as rubber and fabrics (BAAQMD 2017a).
- **Reactive Organic Gases (ROGs)/Volatile Organic Compounds (VOCs)** are compounds composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of ROGs. Other sources of ROGs include evaporative emissions from paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROGs, but rather by reactions of ROGs to form secondary pollutants such as O₃. There are no AAQS established for ROGs. However, because they contribute to the formation of O₃, the BAAQMD has established a significance threshold for this pollutant (BAAQMD 2017a).
- **Lead (Pb)** is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phasing out of leaded gasoline, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers. Because emissions of lead are found only in projects that are permitted by the BAAQMD, lead is not an air quality of concern for the proposed project (BAAQMD 2017a).

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Toxic Air Contaminants

People exposed to TACs at sufficient concentrations and durations may have an increased chance of getting cancer or experiencing other serious health effects. These health effects can include damage to the immune system as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory, and other health problems (USEPA 2020). By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs (CARB 1999). Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. There are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most relevant to the proposed project being particulate matter from diesel-fueled engines.

Diesel Particulate Matter

In 1998, CARB identified DPM as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particles are 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lungs. Long-term (chronic) inhalation of DPM is likely a lung cancer risk. Short-term (i.e., acute) exposure can cause irritation and inflammatory symptoms and may exacerbate existing allergies and asthma symptoms (USEPA 2002).

Placement of New Sensitive Receptors

Because placement of sensitive land uses falls outside CARB's jurisdiction, CARB developed and approved the *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) to address the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. This guidance document was developed to assess compatibility and associated health risks when placing sensitive receptors near existing pollution sources.

CARB's recommendations on the siting of new sensitive land uses identified in Table 5.3-2, *CARB Recommendations for Siting New Sensitive Land Uses*, were based on a compilation of recent studies that evaluated data on the adverse health effects from proximity to air pollution sources.

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Table 5.3-2 CARB Recommendations for Siting New Sensitive Land Uses

| Source/Category | Advisory Recommendations |
|--------------------------------------|---|
| Freeways and High-Traffic Roads | Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. |
| Distribution Centers | Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units [TRUs] per day, or where TRU unit operations exceed 300 hours per week). |
| Rail Yards | Take into account the configuration of existing distribution centers and avoid locating residences and other sensitive land uses near entry and exit points. |
| Ports | Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. Within one mile of a rail yard, consider possible siting limitations and mitigation approaches. |
| Refineries | Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or CARB on the status of pending analyses of health risks. |
| Chrome Platers | Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation. |
| Dry Cleaners Using Perchloroethylene | Avoid siting new sensitive land uses within 1,000 feet of a chrome plater. |
| Gasoline Dispensing Facilities | Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with three or more machines, consult with the local air district. Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations. |

Source: CARB 2005.

The key observation in these studies is that proximity to air pollution sources substantially increases both exposure and the potential for adverse health effects. There are three carcinogenic TACs that constitute the majority of the known health risks from motor vehicle traffic: DPM from trucks and benzene and 1,3-butadiene from passenger vehicles.

In 2017, CARB provided a supplemental technical advisory to the handbook for near-roadway air pollution exposure, *Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways*. Strategies include practices and technologies that reduce traffic emissions, increase dispersion of traffic pollution (or the dilution of pollution in the air), or remove pollution from the air (CARB 2017).

5.3.1.3 REGULATORY BACKGROUND

AAQS have been adopted at the State and federal levels for criteria air pollutants. In addition, both the State and federal government regulate the release of TACs. Land uses in Contra Costa County are subject to the rules and regulations imposed by BAAQMD, the California AAQS adopted by CARB, and National AAQS adopted by the US Environmental Protection Agency (EPA). Federal, State, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized in this section.

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Federal and State

Ambient Air Quality Standards

The Clean Air Act (CAA) was passed in 1963 by the US Congress and has been amended several times. The 1970 CAA amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The CAA allows states to adopt more stringent standards or include other pollutants. The California CAA, signed in 1988, requires all areas of the state to achieve and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS.

The National and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect “sensitive receptors” most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants, which are shown in Table 5.3-3, *Ambient Air Quality Standards for Criteria Pollutants*. These pollutants are ozone (O₃), nitrogen dioxide (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), coarse inhalable particulate matter (PM₁₀), fine inhalable particulate matter (PM_{2.5}), and lead (Pb). In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

Table 5.3-3 Ambient Air Quality Standards for Criteria Air Pollutants

| Pollutant | Averaging Time | California Standard ¹ | Federal Primary Standard ² | Major Pollutant Sources |
|--|------------------------|----------------------------------|---------------------------------------|---|
| Ozone (O ₃) ³ | 1 hour | 0.09 ppm | * | Motor vehicles, paints, coatings, and solvents. |
| | 8 hours | 0.070 ppm | 0.070 ppm | |
| Carbon Monoxide (CO) | 1 hour | 20 ppm | 35 ppm | Internal combustion engines, primarily gasoline-powered motor vehicles. |
| | 8 hours | 9.0 ppm | 9 ppm | |
| Nitrogen Dioxide (NO ₂) | Annual Arithmetic Mean | 0.030 ppm | 0.053 ppm | Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads. |
| | 1 hour | 0.18 ppm | 0.100 ppm | |
| Sulfur Dioxide (SO ₂) | Annual Arithmetic Mean | * | 0.030 ppm | Fuel combustion, chemical plants, sulfur recovery plants, and metal processing. |
| | 1 hour | 0.25 ppm | 0.075 ppm | |
| | 24 hours | 0.04 ppm | 0.14 ppm | |
| Respirable Coarse Particulate Matter (PM ₁₀) | Annual Arithmetic Mean | 20 µg/m ³ | * | Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays). |
| | 24 hours | 50 µg/m ³ | 150 µg/m ³ | |

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Table 5.3-3 Ambient Air Quality Standards for Criteria Air Pollutants

| Pollutant | Averaging Time | California Standard ¹ | Federal Primary Standard ² | Major Pollutant Sources |
|--|-------------------------|---|---------------------------------------|--|
| Respirable Fine Particulate Matter (PM _{2.5}) ⁴ | Annual Arithmetic Mean | 12 µg/m ³ | 12 µg/m ³ | Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays). |
| | 24 hours | * | 35 µg/m ³ | |
| Lead (Pb) | 30-Day Average | 1.5 µg/m ³ | * | Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline. |
| | Calendar Quarter | * | 1.5 µg/m ³ | |
| | Rolling 3-Month Average | * | 0.15 µg/m ³ | |
| Sulfates (SO ₄) ⁵ | 24 hours | 25 µg/m ³ | No Federal Standard | Industrial processes. |
| Visibility Reducing Particles | 8 hours | ExCo =0.23/km visibility of 10≥ miles | No Federal Standard | Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt. |
| Hydrogen Sulfide | 1 hour | 0.03 ppm | No Federal Standard | Hydrogen sulfide (H ₂ S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation. |
| Vinyl Chloride | 24 hours | 0.01 ppm | No Federal Standard | Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents. |

Source: CARB 2016.

Notes: ppm: parts per million; µg/m³: micrograms per cubic meter

* Standard has not been established for this pollutant/duration by this entity.

¹ California standards for O₃, CO (except 8-hour Lake Tahoe), SO₂ (1 and 24 hour), NO₂, and particulate matter (PM₁₀, PM_{2.5}, and visibility reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded. California AAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

² National standards (other than O₃, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O₃ standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

³ On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

⁴ On December 14, 2012, the national annual PM_{2.5} **primary standard was lowered from 15 µg/m³ to 12.0 µg/m³**. The existing national 24-hour PM_{2.5} standards (primary and secondary) were retained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³. The existing 24-hour PM₁₀ standards (primary and secondary) of 150 µg/m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

⁵ On June 2, 2010, a new 1-hour SO₂ standard was established, and the existing 24-hour and annual primary standards were revoked. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

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California has also adopted a host of other regulations that reduce criteria pollutant emissions.

- **AB 1493: Pavley Fuel Efficiency Standards.** Pavley I is a clean-car standard that reduced emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016. In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025.
- **Heavy-Duty (Tractor-Trailer) Greenhouse Gas (GHG) Regulation.** The tractors and trailers subject to this regulation must either use US EPA SmartWay certified tractors and trailers or retrofit their existing fleet with SmartWay-verified technologies. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the heavy-duty tractors that pull them on California highways. These owners are responsible for replacing or retrofitting their affected vehicles with compliant aerodynamic technologies and low-rolling-resistance tires. Sleeper-cab tractors model year 2011 and later must be SmartWay certified. All other tractors must use SmartWay-verified low-rolling-resistance tires. This rule has criteria air pollutant co-benefits.
- **SB 1078 and SB 107: Renewables Portfolio Standards.** A major component of California's Renewable Energy Program is the renewables portfolio standard established under Senate Bills (SB) 1078 (Sher) and 107 (Simitian). Under this standard, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010.
- **California Code of Regulations (CCR) Title 20: Appliance Energy Efficiency Standards.** The 2006 Appliance Efficiency Regulations (20 CCR secs. 1601–1608) were adopted by the California Energy Commission on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non-federally regulated appliances. This Code reduces natural gas use from appliances.
- **24 CCR, Part 6: Building and Energy Efficiency Standards.** Energy conservation standards for new residential and nonresidential buildings adopted by the California Energy Resources Conservation and Development Commission (now the California Energy Commission) in June 1977. This Code reduces natural gas use from buildings.
- **24 CCR, Part 11: Green Building Standards Code.** Establishes planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. This Code reduces natural gas use from buildings.

Tanner Air Toxics Act and Air Toxics Hot Spot Information and Assessment Act

Public exposure to TACs is a significant environmental health issue in California. In 1983, the California legislature enacted a program to identify the health effects of TACs and reduce exposure to them. The California Health and Safety Code defines a TAC as “an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health” (17 CCR sec. 93000). A substance that is listed as a hazardous air pollutant pursuant to Section 112(b) of the federal CAA (42 US Code sec. 7412[b]) is a TAC. Under State law, the California EPA, acting through CARB, is

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authorized to identify a substance as a TAC if it is an air pollutant that may cause or contribute to an increase in mortality or serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics “Hot Spot” Information and Assessment Act of 1987). The Tanner Air Toxics Act set up a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an “airborne toxics control measure” for sources that emit that TAC. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate “toxics best available control technology” to minimize emissions. To date, CARB has established formal control measures for 11 TACs that are identified as having no safe threshold.

Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High-priority facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, are required to communicate the results to the public through notices and public meetings.

CARB has promulgated the following specific rules to limit TAC emissions:

- **13 CCR Chapter 10 Section 2485: Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.** Generally restricts on-road diesel-powered commercial motor vehicles with a gross vehicle weight rating of greater than 10,000 pounds from idling more than five minutes.
- **13 CCR Chapter 10 Section 2480: Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools.** Generally restricts a school bus or transit bus from idling for more than five minutes when within 100 feet of a school.
- **13 CCR Section 2477 and Article 8: Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate.** Regulations established to control emissions associated with diesel-powered TRUs.

Regional

Bay Area Air Quality Management District

BAAQMD is the agency responsible for ensuring that the National and California AAQS are attained and maintained in the SFBAAB. Air quality conditions in the SFBAAB have improved significantly since the BAAQMD was created in 1955. BAAQMD prepares air quality management plans (AQMP) to attain AAQS in the SFBAAB. BAAQMD prepares ozone attainment plans for the National O₃ standard and clean air plans for the California O₃ standard. BAAQMD prepares these AQMPs in coordination with Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) to ensure consistent assumptions about regional growth.

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Bay Area Air Quality Management District 2017 Clean Air Plan

BAAQMD adopted the 2017 “Clean Air Plan: Spare the Air, Cool the Climate” (2017 Clean Air Plan) on April 19, 2017, making it the most recently adopted comprehensive plan. The 2017 Clean Air Plan incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The 2017 Clean Air Plan serves as an update to the adopted Bay Area 2010 Clean Air Plan and continues to provide the framework for SFBAAB to achieve attainment of the California and National AAQS. The 2017 Clean Air Plan updates the Bay Area’s ozone plan, which is based on the “all feasible measures” approach to meet the requirements of the California CAA. It sets a goal of reducing health risk impacts to local communities by 20 percent between 2015 and 2020 and lays the groundwork for reducing GHG emissions in the Bay Area to meet the State’s 2030 GHG reduction target and 2050 GHG reduction goal. It also includes a vision for the Bay Area in a post-carbon year 2050 that encompasses the following:

- Construct buildings that are energy efficient and powered by renewable energy.
- Walk, bicycle, and use public transit for the majority of trips and use electric-powered autonomous public transit fleets.
- Incubate and produce clean energy technologies.
- Live a low-carbon lifestyle by purchasing low-carbon foods and goods in addition to recycling and putting organic waste to productive use.

A comprehensive multipollutant control strategy was developed to be implemented in the next three to five years to address public health and climate change and to set a pathway to achieve the 2050 vision. The control strategy includes 85 control measures to reduce emissions of ozone, particulate matter, TACs, and GHG from a full range of emission sources. These control measures cover the following sectors: (1) stationary (industrial) sources, (2) transportation, (3) energy, (4) agriculture, (5) natural and working lands, (6) waste management, (7) water, (8) super-GHG pollutants, and (9) buildings.

- The proposed control strategy is based on the following key priorities:
- Reduce emissions of criteria air pollutants and TACs from all key sources.
- Reduce emissions of “super-GHGs” such as methane, black carbon, and fluorinated gases.
- Decrease demand for fossil fuels (gasoline, diesel, and natural gas).
 - Increase efficiency of the energy and transportation systems.
 - Reduce demand for vehicle travel, and high-carbon goods and services.
- Decarbonize the energy system.
 - Make the electricity supply carbon-free.
 - Electrify the transportation and building sectors (BAAQMD 2017c).

Community Air Risk Evaluation Program

BAAQMD’s Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposure to outdoor TACs in the Bay Area, primarily DPM. The last update to this program was in 2014. Based on findings of the latest report, DPM was found to account for approximately 85

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percent of the cancer risk from airborne toxins. Carcinogenic compounds from gasoline-powered cars and light duty trucks were also identified as significant contributors: 1,3-butadiene contributed 4 percent of the cancer risk-weighted emissions, and benzene contributed 3 percent. Collectively, five compounds—DPM, 1,3-butadiene, benzene, formaldehyde, and acetaldehyde—were found to be responsible for more than 90 percent of the cancer risk attributed to emissions. All of these compounds are associated with emissions from internal combustion engines. The most important sources of cancer risk-weighted emissions were combustion-related sources of DPM, including on-road mobile sources (31 percent), construction equipment (29 percent), and ships and harbor craft (13 percent). Overall, cancer risk from TAC dropped by more than 50 percent between 2005 and 2015, when emissions inputs accounted for State diesel regulations and other reductions.

The major contributor to acute and chronic non-cancer health effects in the BAAQMD is acrolein (C_3H_4O). Major sources of acrolein are on-road mobile sources and aircraft near freeways and commercial and military airports. Currently CARB does not have certified emission factors or an analytical test method for acrolein. Since the appropriate tools needed to implement and enforce acrolein emission limits are not available, BAAQMD does not conduct health risk screening analysis for acrolein emissions.

Assembly Bill 617 Community Action Plans

AB 617 (C. Garcia, Chapter 136, Statutes of 2017) was signed into law in July 2017 to develop a new community-focused program to reduce exposure more effectively to air pollution and preserve public health in environmental justice communities. AB 617 directs CARB and all local air districts to take measures to protect communities disproportionately impacted by air pollution through monitoring and implementing air pollution control strategies.

On September 27, 2018, CARB approved BAAQMD's recommended communities for monitoring and emission reduction planning. The State approved communities for year 1 of the program as well as communities that would move forward over the next five years. Bay Area recommendations included all the CARE areas, areas with large sources of air pollution (e.g., refineries, seaports, and airports), areas identified via statewide screening tools as having pollution and/or health burden vulnerability, and areas with low life expectancy (BAAQMD 2019a).

■ Year 1 Communities:

- *West Oakland.* The West Oakland community was selected for BAAQMD's first Community Action Plan. In 2017, cancer risk from sources in West Oakland (local sources) was 204 in a million. The primary sources of air pollution in West Oakland include heavy trucks and cars, port and rail sources, large industries, and to a lesser extent other sources such as residential sources (i.e., wood burning). The majority (over 90 percent) of cancer risk is from DPM (BAAQMD 2019b).
- *Richmond.* Richmond was selected for a community monitoring plan in year 1 of the AB 617 program. In December 2023, BAAQMD released the draft Path to Clean Air Community Emissions Reduction Plan (PTCA Plan) for Richmond, North Richmond, and San Pablo communities. It also includes the following unincorporated areas in Contra Costa County: Bay View, East Richmond Heights, Rollingwood, Tara Hills, Montalvin Manor, North Richmond, and El Sobrante. The PTCA Plan

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includes measures and strategies to be implemented over the next ten years by state, regional, and local agencies to reduce pollution exposure and emissions in the community (BAAQMD 2023a).

- Year 2 to 5 Communities: East Oakland/San Leandro, Eastern San Francisco, the Pittsburg-Bay Point area, San Jose, Tri-Valley, and Vallejo are slated for action in years 2 to 5 of the AB 617 program (BAAQMD 2019a).

BAAQMD Rules and Regulations

Regulation 7, Odorous Substances

Sources of objectionable odors may occur within the unincorporated county. BAAQMD's Regulation 7, Odorous Substances, places general limitations on odorous substances and specific emission limitations on certain odorous compounds. Odors are also regulated under BAAQMD Regulation 1, Rule 1-301, *Public Nuisance*, which states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public; or which endangers the comfort, repose, health or safety of any such persons or the public, or which causes, or has a natural tendency to cause, injury or damage to business or property." Under BAAQMD's Rule 1-301, a facility that receives three or more violation notices within a 30-day period can be declared a public nuisance.

Other BAAQMD Regulations

In addition to the plans and programs described above, BAAQMD administers a number of specific regulations on various sources of pollutant emissions that would apply to the proposed project:

- Regulation 2, Rule 2, Permits, New Source Review
- Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants
- Regulation 2, Rule 6, Permits, Major Facility Review
- Regulation 6, Rule 1, General Requirements
- Regulation 6, Rule 2, Commercial Cooking Equipment
- Regulation 8, Rule 3, Architectural Coatings
- Regulation 8, Rule 4, General Solvent and Surface Coatings Operations
- Regulation 11, Rule 2, Asbestos, Demolition, Renovation and Manufacturing

Plan Bay Area 2050

MTC and ABAG adopted Plan Bay Area 2050 on October 21, 2021 (ABAG/MTC 2021). Plan Bay Area provides transportation and environmental strategies to continue to meet the regional transportation-related GHG reduction goals of SB 375, which is described further in Section 5.8, *Greenhouse Gas Emissions*, of this Draft EIR. Strategies to reduce GHG emissions include focusing housing and commercial construction in walkable, transit-accessible places; investing in transit and active transportation; and shifting the location of jobs to encourage shorter commutes. To achieve MTC's/ABAG's sustainable vision for the Bay Area, the Plan Bay Area land use concept plan for the region concentrates the majority of new population and employment growth in the region in Priority Development Areas (PDAs). PDAs are transit-oriented, infill development opportunity areas within existing communities. An overarching goal of the regional plan is to concentrate

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development in areas where there are existing services and infrastructure rather than allocate new growth to outlying areas where substantial transportation investments would be necessary to achieve the per capita passenger vehicle, VMT, and associated GHG emissions reductions.

Local

Contra Costa Transportation Authority Congestion Management Plan

The Contra Costa Transportation Authority (CCTA) prepares and adopts a Congestion Management Program (CMP) for Contra Costa County every two years. The 2021 CMP is the 15th biennial update of the CMP (CCTA 2021). The CMP provides a roadmap to reduce congestion, improve mobility, and increase overall sustainability of the transportation system in the county. The 2021 update also documents changes in the use of level of service (LOS) as a finding of significant impact in the California Environmental Quality Act (CEQA) under SB 743, which is described further in Section 5.16, *Transportation*, of this Draft EIR. Consistent with State law and the MTC's Regional Transportation Plan, the CMP contains the following components: traffic LOS standards, a performance element to evaluate current and future multi-modal system performances, a seven-year capital improvement program (CIP), a program to analyze the impacts of land use decisions, and a travel demand element to promote more transportation alternatives.

Contra Costa County Ordinance Code

The Contra Costa County Ordinance Code includes various directives to minimize adverse impacts to air quality in Contra Costa County.

Most provisions related to air quality impacts are included in Title 7, *Building Regulations*, and Title 8, *Zoning*, as follows:

- Chapter 74-2, *Adoption*, in Title 7, *Building Regulations*, incorporates the CCR Title 24, Part 11, CALGreen.
- Chapter 84-52, *R-B Retail Business District*, in Title 8, *Zoning*, establishes that no odors created by an industrial or processing operation shall be perceptible at the property site boundaries.
- Ordinance No. 2022-02, *All-Electric Ordinance (New Construction)*, recently amended Title 7, *Building Regulations*, to require the following building types to be all-electric:
 - Residential (including single-family and multi-family buildings)
 - Detached Accessory Dwelling Units
 - Hotel
 - Office
 - Retail
- Ordinance No. 450-8, *Industrial Safety Ordinance*, expands on the California Accidental Release Prevention Program (CalARP) in the county, which addresses accidental releases of air toxins. Four facilities in the unincorporated county are currently subject to the County's Industrial Safety Ordinance (ISO): Phillips 66 Rodeo Refinery, Air Liquide-Rodeo Hydrogen Plant, PBF Energy - Martinez Refining Company (MRC) [formerly Shell Oil Martinez Refinery], and Air Products (within the MRC).

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Climate Action Plan

The existing 2015 Climate Action Plan (CAP) identifies how the County will achieve the AB 32 GHG emissions reduction target of 15 percent below baseline levels by the year 2020, in addition to supporting other public health, energy efficiency, water conservation, and air quality goals identified in the County's existing General Plan and other existing policy documents.

5.3.1.4 EXISTING CONDITIONS

San Francisco Bay Area Air Basin Conditions

California is divided geographically into air basins for the purpose of managing the air resources of the State on a regional basis. An air basin generally has similar meteorological and geographic conditions throughout. The State is divided into 15 air basins. Contra Costa County is in the SFBAAB. The discussion below identifies the natural factors in the Air Basin that affect air pollution. Air pollutants of concern are criteria air pollutants and TACs. Federal, State, and local air districts have adopted laws and regulations intended to control and improve air quality.

BAAQMD is the regional air quality agency for the SFBAAB, which comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties; the southern portion of Sonoma County; and the southwestern portion of Solano County. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions (BAAQMD 2017a).

Meteorology

The SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range¹ splits in the Bay Area, creating a western coast gap, the Golden Gate, and an eastern coast gap, the Carquinez Strait, which allows air to flow in and out of the Bay Area and the Central Valley. The climate is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below the surface because of the northwesterly flow produces a band of cold water off the California coast. The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold-water band, resulting in condensation and the presence of fog and stratus clouds along the Northern California coast. In the winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air pollution potential.

¹ The Coast Range traverses California's west coast from Humboldt County to Santa Barbara County.

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Wind Patterns

During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately south of Mount Tamalpais in Marin County, the northwesterly winds accelerate considerably and come more directly from the west as they stream through the Golden Gate. This channeling of wind through the Golden Gate produces a jet that sweeps eastward and splits off to the northwest toward Richmond and to the southwest toward San José when it meets the East Bay hills. Wind speeds may be strong locally in areas where air is channeled through a narrow opening, such as the Carquinez Strait, the Golden Gate, or the San Bruno gap.

The air flowing in from the coast to the Central Valley, called the sea breeze, begins developing at or near ground level along the coast in late morning or early afternoon and the sea breeze deepens and increases in velocity while spreading inland. Under normal atmospheric conditions, the air in the lower atmosphere is warmer than the air above it. In the winter, the SFBAAB frequently experiences stormy conditions with moderate to strong winds, as well as periods of stagnation with very light winds. Winter stagnation episodes (i.e., conditions where there is little mixing, which occurs when there is a lack of or little wind) are characterized by nighttime drainage flows in coastal valleys. Drainage is a reversal of the usual daytime air-flow patterns; air moves from the Central Valley toward the coast and back down toward the Bay from the smaller valleys within the SFBAAB.

Temperature

Summertime temperatures in the Air Basin are determined in large part by the effect of differential heating between land and water surfaces. Because land tends to heat up and cool off more quickly than water, a large-scale gradient (differential) in temperature is often created between the coast and the Central Valley, and small-scale local gradients are often produced along the shorelines of the ocean and bays. The temperature gradient near the ocean is also exaggerated, especially in summer, because of the upwelling of cold water from the ocean bottom along the coast. On summer afternoons, the temperatures at the coast can be 35 degrees Fahrenheit (°F) cooler than temperatures 15 to 20 miles inland; at night, this contrast usually decreases to less than 10°F. In the winter, the relationship of minimum and maximum temperatures is reversed. During the daytime the temperature contrast between the coast and inland areas is small, whereas at night the variation in temperature is large.

Precipitation

The Air Basin is characterized by moderately wet winters and dry summers. Winter rains (November through March) account for about 75 percent of the average annual rainfall. The amount of annual precipitation can vary greatly from one part of the Air Basin to another, even within short distances. In general, total annual rainfall can reach 40 inches in the mountains, but it is often less than 16 inches in sheltered valleys.

During rainy periods, ventilation (rapid horizontal movement of air and injection of cleaner air) and vertical mixing (an upward and downward movement of air) are usually high, and thus pollution levels tend to be low (i.e., air pollutants are dispersed more readily into the atmosphere rather than accumulate under stagnant

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conditions). However, during the winter, frequent dry periods do occur, where mixing and ventilation are low and pollutant levels build up.

Wind Circulation

Low wind speed contributes to the buildup of air pollution because it allows more pollutants to be emitted into the air mass per unit of time. Light winds occur most frequently during periods of low sun (fall and winter, and early morning) and at night. These are also periods when air pollutant emissions from some sources are at their peak, namely, commuter traffic (early morning) and wood-burning appliances (nighttime). The problem can be compounded in valleys, when weak flows carry the pollutants up-valley during the day, and cold air drainage flows move the air mass down-valley at night. Such restricted movement of trapped air provides little opportunity for ventilation and leads to buildup of pollutants to potentially unhealthful levels.

Inversions

An inversion is a layer of warmer air over a layer of cooler air. Inversions affect air quality conditions significantly because they influence the mixing depth (i.e., the vertical depth in the atmosphere available for diluting air contaminants near the ground). There are two types of inversions that occur regularly in the SFBAAB. Elevation inversions² are more common in the summer and fall, and radiation inversions³ are more common during the winter. The highest air pollutant concentrations in the SFBAAB generally occur during inversions.

Attainment Status of the SFBAAB

The AQMP provides the framework for air quality basins to achieve attainment of the State and federal AAQS through the State Implementation Plan. Areas that meet AAQS are classified as attainment areas, and areas that do not meet these standards are classified as nonattainment areas. Severity classifications for O₃ range from marginal, moderate, and serious to severe and extreme.

- **Unclassified:** A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
- **Attainment:** A pollutant is in attainment if the AAQS for that pollutant was not violated at any site in the area during a three-year period.
- **Nonattainment:** A pollutant is in nonattainment if there was at least one violation of an AAQS for that pollutant in the area.
- **Nonattainment/Transitional:** A subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the AAQS for that pollutant.

² When the air blows over elevated areas, it is heated as it is compressed into the side of the hill/mountain. When that warm air comes over the top, it is warmer than the cooler air of the valley.

³ During the night, the ground cools off, radiating the heat to the sky.

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The attainment status for the SFBAAB is shown in Table 5.3-4, *Attainment Status of Criteria Pollutants in the San Francisco Bay Area Air Basin*. The SFBAAB is currently designated a nonattainment area for California and National O₃, California and National PM_{2.5}, and California PM₁₀ AAQS.

Table 5.3-4 Attainment Status of Criteria Air Pollutants in the San Francisco Bay Area Air Basin

| Pollutant | State | Federal |
|-------------------|-------------------------|---------------------------------------|
| Ozone – 1-hour | Nonattainment | Classification revoked (2005) |
| Ozone – 8-hour | Nonattainment (serious) | Nonattainment (marginal) ¹ |
| PM ₁₀ | Nonattainment | Unclassified/Attainment ² |
| PM _{2.5} | Nonattainment | Unclassified/Attainment |
| CO | Attainment | Attainment |
| NO ₂ | Attainment | Unclassified |
| SO ₂ | Attainment | Attainment |
| Lead | Attainment | Attainment |
| Sulfates | Attainment | Unclassified/Attainment |
| All others | Unclassified/Attainment | Unclassified/Attainment |

Source: CARB 2023a.

¹ Severity classification current as of February 13, 2017.

² In December 2014, US EPA issued final area designations for the 2012 primary annual PM_{2.5} National AAQS. Areas designated “unclassifiable/attainment” must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.

Existing Ambient Air Quality

Existing levels of ambient air quality and historical trends and projections in the county are best documented by measurements taken by BAAQMD. BAAQMD has 24 permanent monitoring stations around the Bay Area. The nearest station is the Concord-2975 Treat Blvd Monitoring Station, which monitors O₃, NO₂, and PM_{2.5}. Data from this monitoring station is summarized in Table 5.3-5, *Ambient Air Quality Monitoring Summary*. The data show that the area regularly exceeds the State and federal one-hour, eight-hour O₃ standards and federal PM_{2.5}, and occasionally exceeds the State and federal PM₁₀ in the last five recorded years.

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Table 5.3-5 Ambient Air Quality Monitoring Summary

| Pollutant/Standard | Number of Days Thresholds Were Exceeded and Maximum Levels | | | | |
|--|--|--------|--------|--------|--------|
| | 2017 | 2018 | 2019 | 2020 | 2021 |
| Ozone (O₃) | | | | | |
| State 1-Hour ≥ 0.09 ppm (days exceed threshold) | 0 | 0 | 0 | 2 | 1 |
| State & Federal 8-hour ≥ 0.070 ppm (days exceed threshold) | 0 | 0 | 2 | 3 | 1 |
| Max. 1-Hour Conc. (ppm) | 0.082 | 0.077 | 0.092 | 0.108 | 0.096 |
| Max. 8-Hour Conc. (ppm) | 0.070 | 0.061 | 0.074 | 0.083 | 0.077 |
| Nitrogen Dioxide (NO₂) | | | | | |
| State 1-Hour ≥ 0.18 ppm (days exceed threshold) | 0 | 0 | 0 | 0 | 0 |
| Federal 1-Hour ≥ 0.100 ppm (days exceed threshold) | 0 | 0 | 0 | 0 | 0 |
| Max. 1-Hour Conc. (ppm) | 0.0406 | 0.0383 | 0.0406 | 0.0339 | 0.0290 |
| Coarse Particulates (PM₁₀) | | | | | |
| State 24-Hour > 50 $\mu\text{g}/\text{m}^3$ (days exceed threshold) | 0 | 1 | 0 | 1 | 0 |
| Federal 24-Hour > 150 $\mu\text{g}/\text{m}^3$ (days exceed threshold) | 0 | 0 | 0 | 1 | 0 |
| Max. 24-Hour Conc. ($\mu\text{g}/\text{m}^3$) | 41.2 | 99.3 | 34.8 | 165.4 | 25.0 |
| Fine Particulates (PM_{2.5}) | | | | | |
| Federal 24-Hour > 35 $\mu\text{g}/\text{m}^3$ (days exceed threshold) | 6 | 14 | 0 | 16 | 2 |
| Max. 24-Hour Conc. ($\mu\text{g}/\text{m}^3$) | 89.4 | 180.0 | 28.2 | 119.8 | 43.7 |

Source: CARB 2023c.

ppm = parts per million; parts per billion, $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

Data for O₃, NO₂, PM₁₀ and PM_{2.5} obtained from the Concord-2975 Treat Blvd Monitoring Station.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases. BAAQMD defines sensitive receptors as “Facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals and residential areas” (BAAQMD 2023b).

Residential areas are also considered sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial, commercial, retail, and office areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

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Environmental Justice Communities

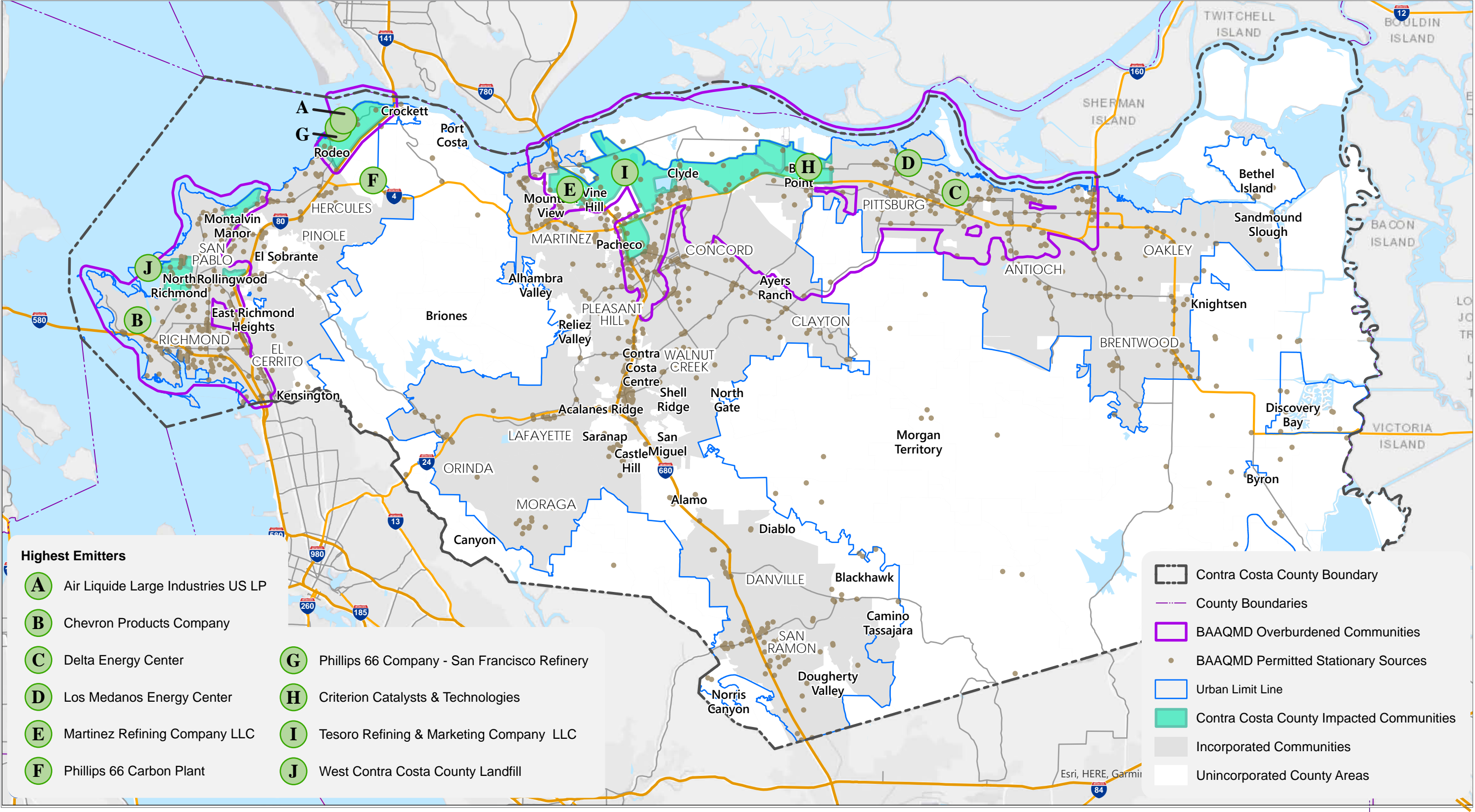
Disadvantaged communities identified by CES (i.e., environmental justice communities) may be disproportionately affected by and vulnerable to poor air quality.^{4, 5} The CES cumulative score is a cumulative measure of overall environmental justice burden based on 24 indicators, including pollution, social, and health indicators, four of which specifically relate to air quality or air pollution. Within Contra Costa County, there are the following identified sensitive community types, which are areas that are disproportionately burdened by pollution:

- Contra Costa County Impacted Communities
- BAAQMD's Overburdened Communities
- BAAQMD's AB 617 Community – Richmond

Figure 5.3-1, *Overburdened and Impacted Communities and Community Emitters*, shows these sensitive community types, the location of the top ten highest emitters, and BAAQMD permitted stationary sources. Both BAAQMD's Overburdened Communities and Contra Costa County's Impacted Communities were mapped using CES Version 4. CES measures pollution and population characteristics using 21 indicators, such as air quality, hazardous waste sites, asthma rates, and poverty. It applies a formula to each census tract in the state to generate a score that ranks the level of cumulative impacts in each area relative to the rest of the census tracts in the state. Contra Costa County's Impacted Communities designation is applied to unincorporated areas that score at or above the 72nd percentile, whereas BAAQMD's Overburdened Communities designation is applied to census tracts that score at or above the 70th percentile, plus areas within 1,000 feet of any such census tract. As a result, BAAQMD's Overburdened Community designation is more encompassing of sensitive populations, and is therefore used in the impact analysis.

⁴ Under SB 535, disadvantaged communities are defined as the top 25 percent scoring areas from CES along with other areas with high amounts of pollution and low populations.

⁵ CES 4.0. Indicator maps can be found at: <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>



Source: BAAQMD, 2013; OEHHA CalEnvironScreen 4.0, 2021; Contra Costa County, 2022.



Figure 5.3-1
Overburdened and Impacted Communities and Community Emitters

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AB 617 Community – Richmond Area

Figure 5.3-1 also identifies the AB 617 community. The Richmond Area includes most of Richmond and San Pablo and adjacent communities such as North Richmond, Montalvin Manor, parts of Tara Hills, El Sobrante, and the Richmond Annex. Residents in the Richmond Area are exposed to a substantial and complex mix of air pollutants. Industrial sources of air pollution include a petroleum refinery, a chemical plant, a coal and petroleum coke terminal, organic liquid storage and distribution facilities, wastewater treatment plants, a landfill, organic waste metal facilities, and industrial and manufacturing plants of various sizes. Also, numerous smaller sources of air pollution are within residential areas, including auto body shops, paint shops, restaurants, and gas stations.

Mobile sources contribute air pollution, including DPM, to the area as well, including traffic on high volume freeways and roadways, such as Interstate (I) 80, I-580, the Richmond Parkway, and San Pablo Avenue; truck operations related to large distribution facilities; seaport operations; railways; and railyards. In total, there are more than 200 permitted emissions sources distributed throughout the Richmond Area (BAAQMD 2020). The community air monitoring program for the Richmond Area identified several areas with higher levels of different VOCs, likely due to specific nearby facilities and operations or a prevalence of combustion-related sources of VOCs like high-traffic corridors and restaurants (BAAQMD 2022).

CalEnviroScreen Air Quality Indicators

CES is a mapping tool that helps identify the California communities most affected by many sources of pollution and where people are especially vulnerable to pollution's effects. People in environmental justice areas identified by CES 4.0 may be disproportionately affected by and vulnerable to poor air quality. CES's "pollution burden" map identifies communities that are exposed to pollution from human activities, such as air pollution (ozone, PM_{2.5}, DPM), water pollution (drinking water contaminants), and hazardous materials (pesticide use, children's lead exposure, toxic releases), and traffic density. Figure 5.3-2, *CalEnviroScreen 4.0 – Pollution Burden Percentile*, shows the pollution burden in the county relative to the rest of the state. In CES, the pollution burden score considers the disproportionate effect of pollution on environmental justice communities, because the score weighs socioeconomic factors (e.g., educational attainment and poverty) and sensitivity of the population (e.g., asthma rates and cardiovascular disease).

Although the causes of asthma are poorly understood, it is well established that exposure to traffic and outdoor air pollutants can trigger asthma attacks. Children, the elderly, and low-income Californians suffer disproportionately from asthma (CalEPA 2017). Figure 5.3-3, *CalEnviroScreen 4.0 – Asthma Percentile*, maps the percentile of spatially modeled, age-adjusted rate of emergency department visits for asthma per 10,000 (averaged over 2015-2017) relative to the rest of the state (OEHHA 2023).

Figure 5.3-4, *CalEnviroScreen 4.0 – Diesel Particulate Matter Percentile*, and Figure 5.3-5, *CalEnviroScreen 4.0 – PM_{2.5} Percentile* provides an estimate of the percentile of DPM and PM_{2.5} in the county relative to the rest of the state. The PM_{2.5} percentile displays the annual mean concentration of PM_{2.5} (weighted average of measured monitor concentrations and satellite observations, µg/m³) over three years (2015 to 2017). DPM percentile is based on spatial distribution of gridded DPM emissions from on-road and non-road sources in 2016 (tons/year). Exposure to DPM has been shown to have numerous adverse health effects including irritation to

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the eyes, throat, and nose; cardiovascular and pulmonary disease; and lung cancer. California regulations enacted since 1990 have led to a steady decline in diesel emissions. Particulate matter pollution, and fine particle (PM_{2.5}) pollution in particular, has been shown to cause numerous adverse health effects, including heart and lung disease (OEHHA 2021).

Other indicators identified by CES can be found in the proposed General Plan Stronger Communities Element, including:

- Figure SC-3, Cardiovascular Disease Rankings Relative to the State
- Figure SC-4, Low Birth Weight Rankings Relative to the State
- Figure SC-5, Children's Lead Risk from Housing Ranking Relative to the State
- Figure SC-6, Poverty Rankings Relative to the State
- Figure SC-7, Adults Without a High School Degree Rankings Relative to the State

Existing Emissions

Table 5.3-6, *Contra Costa County Criteria Air Pollutant Emissions Inventory*, identifies the existing criteria air pollutant emissions inventory using emission rates for year 2019 (baseline). The inventories are based on existing land uses in the county. The Year 2019 inventory represents the projected emissions currently generated by existing land uses using the baseline year 2019 emission factors for on-road vehicles and emissions from off-road construction equipment.

Table 5.3-6 Contra Costa County Criteria Air Pollutant Emissions Inventory

| Sector | Existing Criteria Air Pollutant Emissions (tons per year) | | | |
|--|---|-----------------|------------------|-------------------|
| | VOC | NO _x | PM ₁₀ | PM _{2.5} |
| Transportation ¹ | 41 | 207 | 26 | 10 |
| Energy ² | 11 | 206 | 15 | 15 |
| Residential Fuels (wood, kerosene, propane) ² | 758 | 15 | 115 | 115 |
| Off-Road Equipment ³ | 3 | 3 | 0 | 0 |
| Consumer Products ⁴ | 444 | | | |
| Total | 1,256 | 431 | 156 | 140 |
| Sector | Existing Criteria Air Pollutant Emissions (lbs per day) | | | |
| | VOC | NO _x | PM ₁₀ | PM _{2.5} |
| Transportation ¹ | 234 | 1,193 | 151 | 57 |
| Energy ² | 60 | 1,129 | 84 | 84 |
| Residential Fuels (wood, kerosene, propane) ² | 4,152 | 84 | 629 | 629 |
| Area –Off-Road Equipment ³ | 17 | 16 | 1 | 1 |
| Area – Consumer Products ⁴ | 2,432 | | | |
| Total | 6,895 | 2,422 | 865 | 771 |

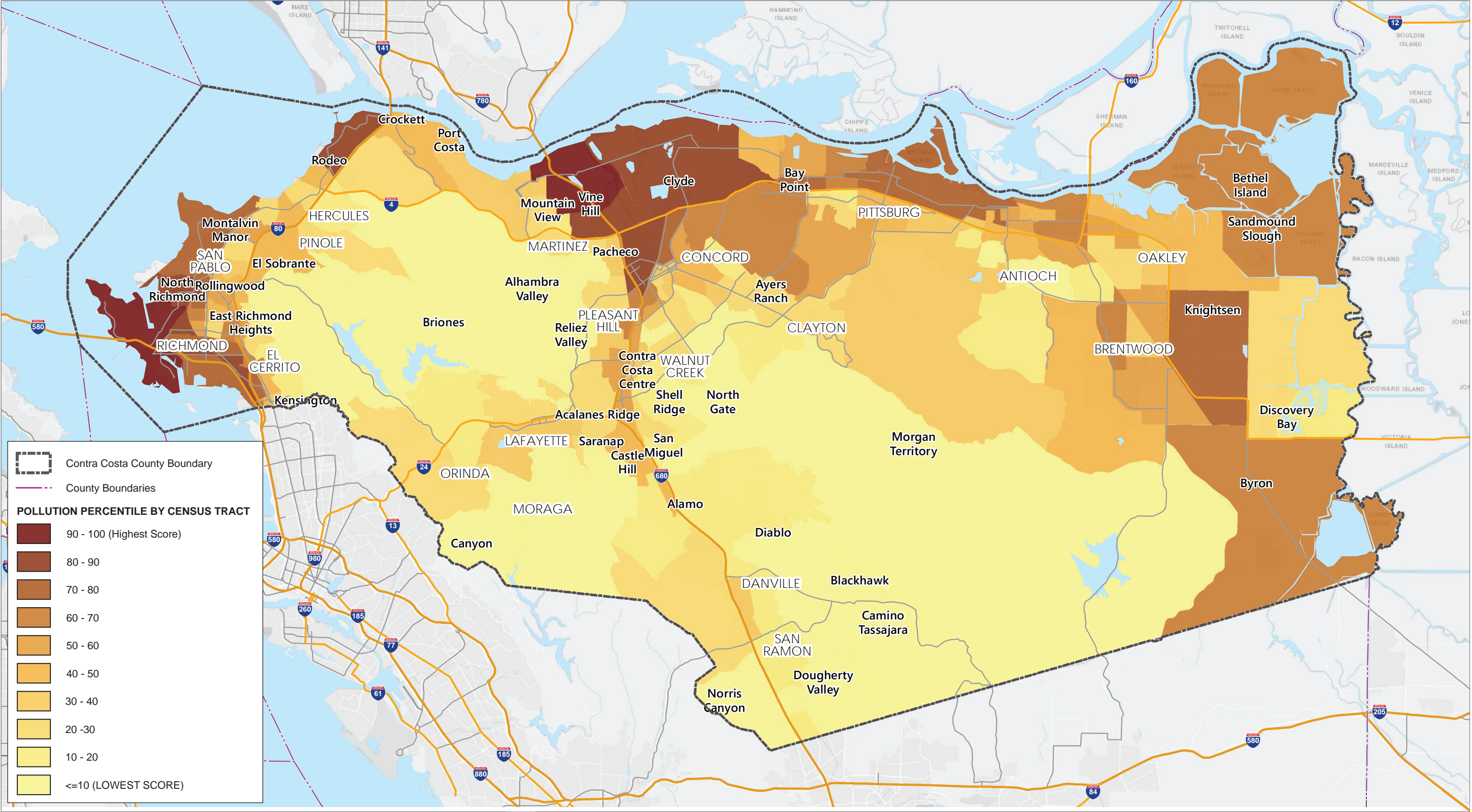
Notes:

¹ EMFAC2021 V.1.0.2. Based on daily VMT provided by Fehr & Peers (see Appendix 5.3-1).

² Based on natural gas use provided by PG&E and residential fuels identified for the CAP Update CAAP.

³ OFFROAD2021 V.1.02.

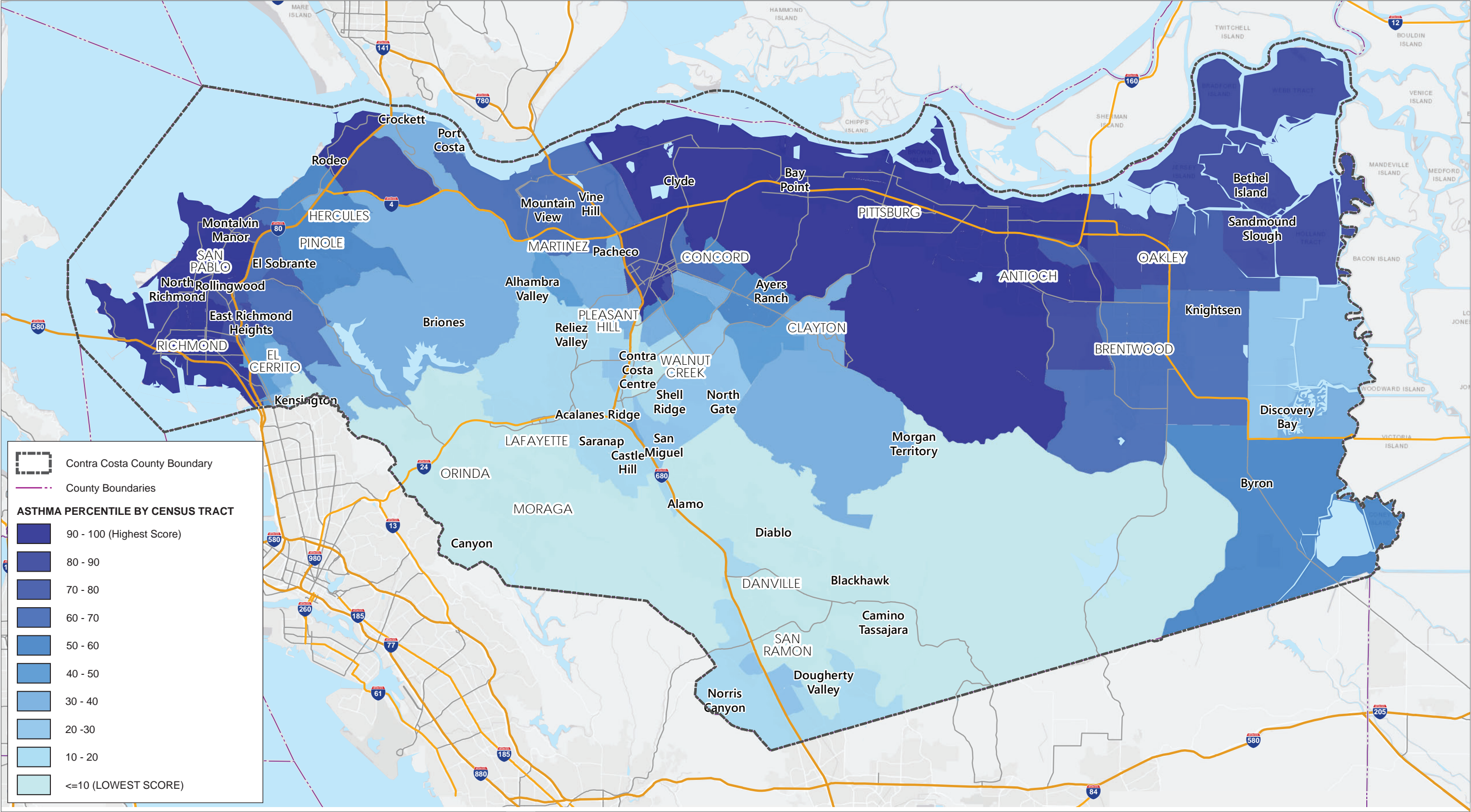
⁴ Based on CalEEMod User's Guide methodology to calculate VOC emissions from use of household consumer cleaning products.



Source: OEHHA CalEnvironScreen 4.0, 2021.



Figure 5.3-2
CalEnvironScreen 4.0 – Pollution Burden Percentile



Source: OEHHA CalEnvironScreen 4.0, 2021.

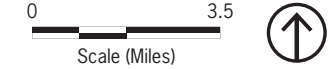
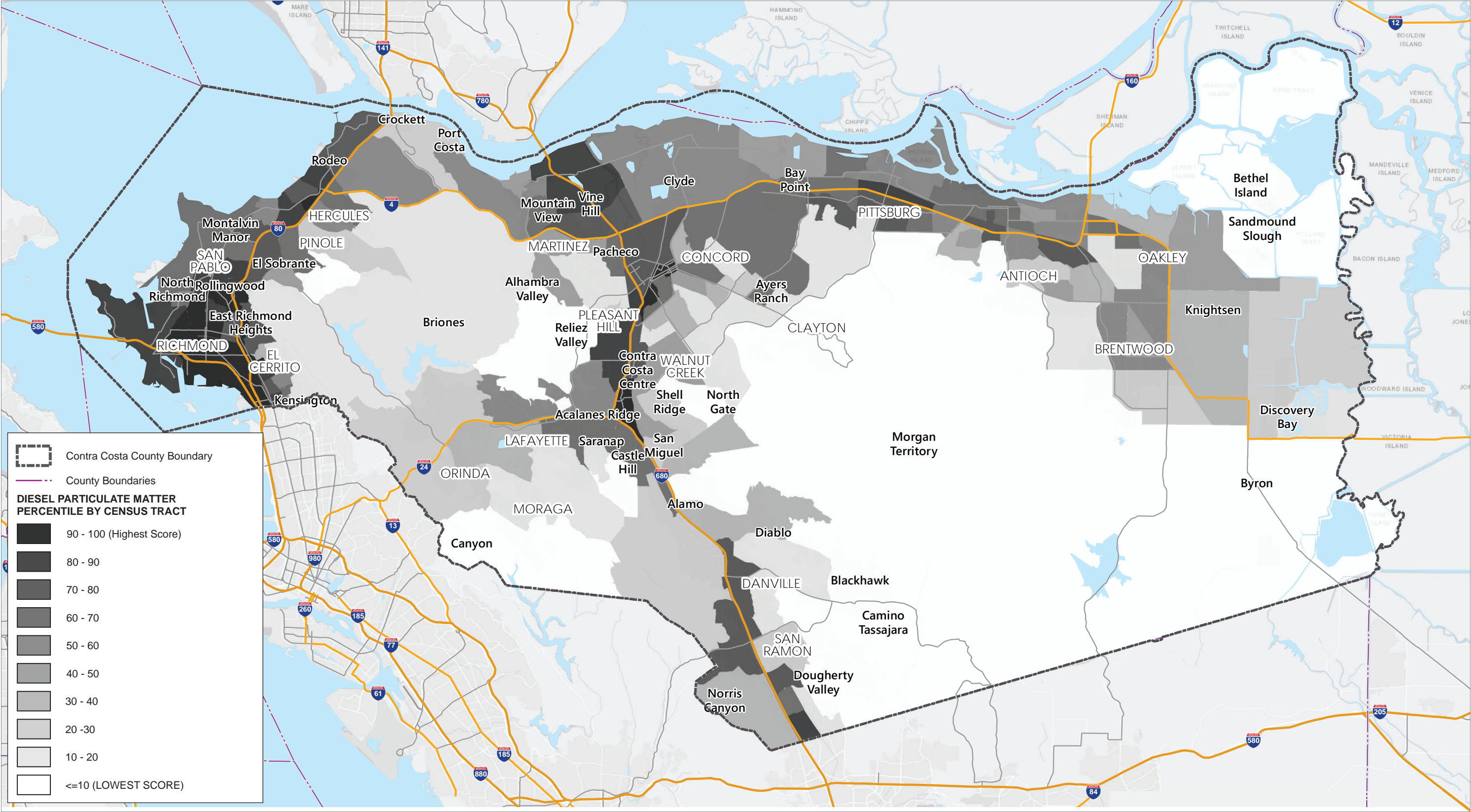


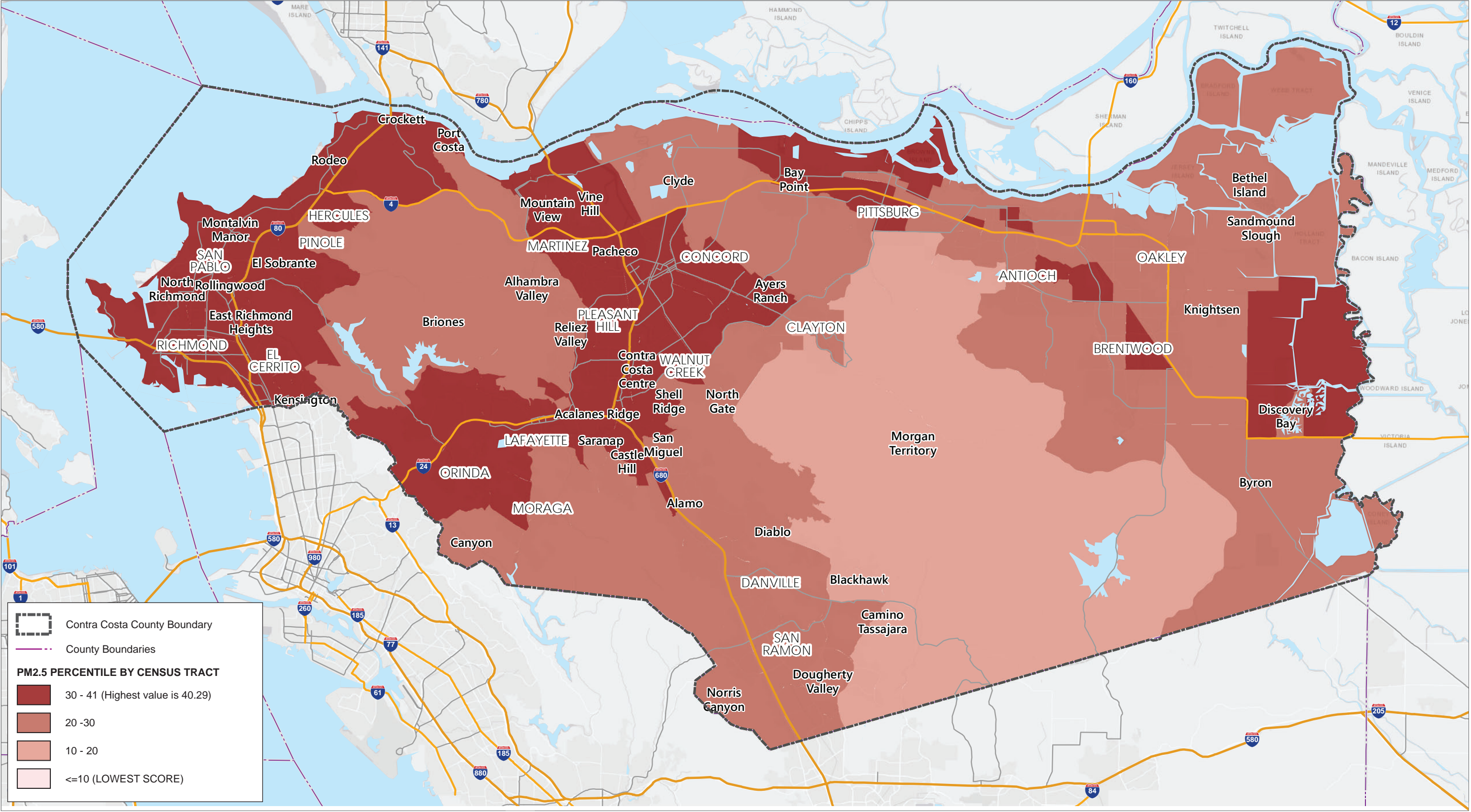
Figure 5.3-3
CalEnvironScreen 4.0 – Asthma Percentile



Source: OEHHA CalEnvironScreen 4.0, 2021.



Figure 5.3-4
CalEnvironScreen 4.0 – Diesel Particulate Matter Percentile



Source: OEHHA CalEnvironScreen 4.0, 2021.



Figure 5.3-5
CalEnvironScreen 4.0 – PM2.5 Percentile

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5.3.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

- AQ-1 Conflict with or obstruct implementation of the applicable air quality plan.
- AQ-2 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State AAQS.
- AQ-3 Expose sensitive receptors to substantial pollutant concentrations.
- AQ-4 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

5.3.2.1 BAY AREA AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

The BAAQMD *CEQA Air Quality Guidelines* were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. They also include recommended assessment methodologies for air toxins, odors, GHG emissions, and environmental justice.

In June 2010, BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of the CEQA Guidelines. These thresholds are designed to establish the level at which the BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA. BAAQMD published a new version of the Guidelines in April 2023. This latest version of the BAAQMD CEQA Guidelines was used to prepare the analysis in this EIR.

Criteria Air Pollutant Emissions and Precursors

Regional Significance Criteria

BAAQMD's regional significance criteria for projects that exceed the screening thresholds are shown in Table 5.3-7, *BAAQMD Regional (Mass Emissions) Criteria Air Pollutant Significance Thresholds*. Criteria for both the construction and operational phases of the project are shown.

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Table 5.3-7 BAAQMD Regional (Mass Emissions) Criteria Air Pollutant Significance Thresholds

| Air Pollutant | Construction Phase | Operational Phase | |
|--|-----------------------------------|-----------------------------------|--------------------------------------|
| | Average Daily Emissions (lbs/day) | Average Daily Emissions (lbs/day) | Maximum Annual Emissions (Tons/year) |
| Project-Level | | | |
| ROG | 54 | 54 | 10 |
| NO _x | 54 | 54 | 10 |
| PM ₁₀ | 82 (Exhaust) | 82 | 15 |
| PM _{2.5} | 54 (Exhaust) | 54 | 10 |
| PM ₁₀ and PM _{2.5} Fugitive Dust | Best Management Practices | None | None |
| Plan-Level | | | |
| All Criteria Air Pollutants | No Net Increase | | |

Source: BAAQMD 2023b.

The proposed project is a regional plan; regional plans would have a less-than-significant impact related to air quality if they demonstrate ‘no net increase’ in criteria air pollutants and risks and hazards. To demonstrate no net increase, BAAQMD’s Guidelines require two comparative analyses for the projected future emissions:

- **Scenario 1: Project to Existing Conditions (base-to-future-year comparison).** Compare the existing (base year) emissions with projected future year emissions plus the regional plan’s emissions (base year/regional plan comparison).
- **Scenario 2: Project to Future No Project Conditions (future baseline comparison)** Compare projected future year emissions with projected future year emissions plus the regional plan’s emissions (no regional plan/regional plan comparison). This scenario isolates changes in emissions due solely to the project since both the scenarios consider emissions reductions from federal and State regulations.

If both comparative analyses demonstrate no net increase in emissions, the air quality and GHG impacts of the regional plan would be less than significant.

Health Effects of Criteria Air Pollutants

If projects exceed the emissions in Table 5.3-7, their emissions would cumulatively contribute to the nonattainment status and would contribute in elevating health effects associated to these criteria air pollutants. Known health effects related to ozone include worsening of bronchitis, asthma, and emphysema and a decrease in lung function. Health effects associated with particulate matter include premature death of people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms. Reducing emissions would further contribute to reducing possible health effects related to criteria air pollutants.

However, for projects that exceed the emissions in Table 5.3-7, it is speculative to determine how exceeding the regional thresholds would affect the number of days the region is in nonattainment since mass emissions are not correlated with concentrations of emissions or how many additional individuals in the air basin would be affected by the health effects cited above. BAAQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals to elevated concentrations of air quality in the Air Basin, and at the present

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time, it has not provided methodology to assess the specific correlation between mass emissions generated and the effect on health in order to address the issue raised in *Sierra Club v. County of Fresno (Friant Ranch, L.P.)* (2018) 6 Cal.5th 502, Case No. S21978 (Friant Ranch).

Ozone concentrations depend on a variety of complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Because of the complexities of predicting ground-level ozone concentrations in relation to the National and California AAQS, it is not possible to link health risks to the magnitude of emissions exceeding the significance thresholds. To achieve the health-based standards established by the EPA, the air districts prepare AQMPs that detail regional programs to attain the AAQS. However, if a project within the Plan Area exceeds the regional significance thresholds, the project could contribute to an increase in health effects in the basin until such time the attainment standards are met in the Air Basin.

CO Hotspots

Congested intersections have the potential to create elevated concentrations of CO, referred to as CO hotspots. The significance criteria for CO hotspots are based on the California AAQS for CO, which are 9.0 ppm (8-hour average) and 20.0 ppm (1-hour average). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology, the SFBAAB is in attainment of the California and National AAQS, and CO concentrations in the SFBAAB have steadily declined. Because CO concentrations have improved, the BAAQMD does not require a CO hotspot analysis if the following criteria are met (BAAQMD 2023b):

- The project is consistent with an applicable congestion management program established by the County Congestion Management Agency for designated roads or highways, the regional transportation plan, and local congestion management agency plans.
- The project would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project traffic would not increase traffic volumes at affected intersection to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, and below-grade roadway).

Community Risk and Hazards

BAAQMD's significance thresholds for local community risk and hazard impacts apply to both the siting of a new source and to the siting of a new receptor. Local community risk and hazard impacts are associated with TACs and PM_{2.5} because emissions of these pollutants can have significant health impacts at the local level. The proposed project would generate TACs and PM_{2.5} during construction activities that could elevate concentrations of air pollutants at the nearby sensitive receptors. The thresholds for construction-related local community risk and hazard impacts are the same as for project operations. BAAQMD has adopted screening tables for air toxics evaluation during construction (BAAQMD 2010b). Construction-related TAC and PM_{2.5} impacts should be addressed on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and proximity to off-site and on-site receptors, as applicable (BAAQMD 2010b and BAAQMD 2017a).

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Community Risk and Hazards: Project

Project-level emissions of TACs or PM_{2.5} from individual sources that exceed any of the thresholds listed below are considered a potentially significant community health risk in the absence of a qualified community risk reduction plan:

- An excess (i.e., increased) cancer risk level of more than 10 in one million⁶
- Noncancer (i.e., chronic or acute) hazard index greater than 1.0
- An incremental increase of greater than 0.3 micrograms per cubic meter (µg/m³) annual average PM_{2.5} (BAAQMD 2023b)

Community Risk and Hazards: Cumulative

Cumulative sources represent the combined total risk values of each of the individual sources within the 1,000-foot evaluation zone. A project would have a cumulatively considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source or location of a receptor, plus the contribution from the project, exceeds any of the following in the absence of a qualified community risk reduction plan:

- An excess cancer risk level of more than 100 in one million (from all sources)
- Chronic noncancer hazard index (from all local sources) greater than 10.0
- 0.8 µg/m³ annual average PM_{2.5} (from all local sources) (BAAQMD 2023b)

In February 2015, the Office of Environmental Health Hazard Assessment (OEHHA) adopted new health risk assessment guidance that includes several efforts to be more protective of children's health. These updated procedures include the use of age sensitivity factors to account for the higher sensitivity of infants and young children to cancer causing chemicals, and age-specific breathing rate (OEHHA 2015).

Odors

BAAQMD's thresholds for odors are qualitative based on BAAQMD's Regulation 7, *Odorous Substances*. This rule places general limitations on odorous substances and specific emission limitations on certain odorous compounds. Odors are also regulated under BAAQMD Regulation 1, Rule 1-301, *Public Nuisance*, which states that no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which endangers the comfort, repose, health, or safety of any such persons or the public, or which cause, or has a natural tendency to cause, injury, or damage to business or property. Under BAAQMD's Rule 1-301. BAAQMD has established odor screening distance thresholds for land uses that have the potential to generate substantial odor complaints, including wastewater treatment plants, landfills or transfer stations, composting facilities, confined animal facilities, food manufacturing, and chemical plants (BAAQMD 2023b, Table 5-4, *Odor Screening Distances*).

⁶ The CEQA thresholds of significance do not reflect recent amendments adopted in 2021 to BAAQMD Regulation 2-5 that lower the cancer risk threshold to 6 cases in a million in overburdened communities.

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For a plan-level analysis, BAAQMD requires:

- Identification of potential existing and planned location of odors sources.
- Policies to reduce potential odor impacts in the plan area.

5.3.2.2 CONTRA COSTA COUNTY THRESHOLDS

Community Risk and Hazard

In addition to the BAAQMD thresholds identified above, the County has proposed the following policy in the General Plan that sets the incremental cancer risk threshold to 6.0 per million in Impacted Communities (compared to 10 in a million) in the unincorporated area:

- **HS-P2.1.** When evaluating health risk impacts of projects in Impacted Communities, use an excess cancer risk of 6.0 per million and a non-cancer (acute and chronic) hazard index greater than 1.0 as thresholds for finding that the project could cause a cumulatively considerable contribution and a significant impact.

5.3.3 Programs, Plans, and Policies

5.3.3.1 PROPOSED GENERAL PLAN GOALS, POLICIES, AND ACTIONS

The following goals, policies, and actions from the proposed General Plan are applicable to air quality. Italicized goals, policies, and actions reduce environmental impacts associated with the proposed project.

Stronger Communities Element

- **Policy SC-P1.1:** In partnership with residents of Impacted Communities, affected workers, business/industry, environmental and environmental justice advocates, community colleges, workforce development and training entities, local government, and other involved agencies, support transition from ~~petroleum refining and other~~ highly polluting industries to a net-zero emission economy based on renewable and sustainable industries that provide living-wage jobs.
- **Policy SC-P1.3:** Support ~~development-creation~~ of walkable districts by facilitating development of that provide a range of neighborhood-serving retail and service uses, public amenities, ~~and essential~~ related infrastructure (such as lighting) ~~to-for~~ residents of Impacted Communities within walking distance of their homes.
- **Policy SC-P2.3:** Within established communities, complete construction of sidewalks and crosswalks and encourage neighborhood design and development that supports safe walking, biking, and other micro-mobility options, convenient access to services and transit, and opportunities for local shopping.

Land Use Element

- **Policy LU-P3.3:** Encourage extremely high-density, mixed-use development that combines employment, housing, and services near major transit facilities. Such development should be planned and designed to encourage walking, micromobility, and transit use; shorter commutes; and reduced dependency on single-occupant vehicles.

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- **Action LU-A4.1:** Amend the County Ordinance Code to include requirements for Low-Impact Development, use of low-carbon concrete, water and energy conservation, reclaimed water, renewable energy use, green building, and other measures that reduce the environmental impacts of development, based on the best available science.
- **Policy LU-P8.4:** Support rehabilitation of commercial centers, encouraging improvements that enhance appearance, sustainability, and non-motorized (pedestrian, bicycle, etc.) access and safety.

Transportation Element

- **Policy TR-P1.2:** Prioritize expansion of bicycle, micromobility, and pedestrian infrastructure (e.g., Class IV separated bikeways) to address the significant latent demand for these active transportation modes.
- **Policy TR-P1.3:** Ensure emerging transportation technologies and travel options, such as autonomous and ZEVs and transportation network companies, support the County's goals for reducing emissions, adapting to climate change, improving public safety, and increasing equitable mobility.
- **Policy TR-P1.4:** Reduce single-occupant vehicle usage and VMT by significantly enhancing the availability and safety of other travel modes through infrastructure investment, policy support (Vision Zero, TDM Ordinance, and other best practices), and support for public transit, at a minimum using strategies defined in the TDM Ordinance.
- **Policy TR-P1.11:** Support transitioning all on-road vehicles, including personal vehicles and business, government, and public transit fleets, to electric power from renewable sources or other zero-emission-free fuels.
- **Policy TR-P1.12:** Continue to improve ZEV ~~(including electric bicycle)~~ charging/ fueling infrastructure within new development and public rights-of-way, incorporating new technologies whenever possible.
- **Policy TR-P1.13:** *Require designs for new parking facilities to incorporate ZEV charging/fueling infrastructure and maximize opportunities for adaptive reuse.*
- **Action TR-A1.11:** Coordinate with CCTA and other local and regional agencies to implement the Contra Costa Electric Vehicle Readiness Blueprint and related policies and apply best practices in ZEV charging/fueling infrastructure requirements.
- **Action TR-A1.12:** Update the County Ordinance Code as necessary to support advances in ZEV charging/fueling infrastructure, ~~including for medium- and heavy-duty vehicles.~~
- **Policy TR-P3.2:** Coordinate planning, construction, and maintenance of streets, transit infrastructure, non-motorized rights-of-way and associated facilities, the countywide bicycle network, and Pedestrian Priority Areas with neighboring jurisdictions and CCTA.
- **Policy TR-P4.1:** Plan, design, and maintain improvement projects involving County roadways in accordance with the County's adopted Complete Streets Policy, other applicable policies (e.g., Vision Zero and other safety initiatives), planning documents such as the County ATP and CCTA Countywide Bicycle and Pedestrian Plan, and best practices (e.g., Caltrans, American Association of State and Highway Transportation Officials, and National Association of City Transportation Officials guidance).

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- **Policy TR-P4.2:** *Require transportation infrastructure serving new development to be designed using best practices, contemplating existing and planned land uses, roadways, bicycle and pedestrian facilities, transit facilities, and connections to adjoining areas.*
- **Policy TR-P5.5:** Maintain pedestrian and active transportation facilities to the same standard as roads and other transportation infrastructure, including repair and cleanup of all bikeway types and shared-use pathways.
- **Policy TR-P5.7:** Encourage walking, bicycling, and micromobility as the travel modes of choice for short to medium-length trips, such as trips to schools, parks, transit stops, local shopping areas, and neighborhood services.
- **Policy TR-P5.8:** Partner with neighboring jurisdictions, transit agencies, community members, and business organizations to plan and construct sustainable streets in business and commercial areas. Consider forming community facilities districts or business improvement districts to help fund and maintain improvements.
- **Policy TR-P5.9:** Support micromobility options such as bike-, e-bike-, and e-scooter-share.
- **Action TR-A5.1:** Partner with CCTA and neighboring jurisdictions to build out the countywide bicycle and pedestrian network, prioritizing completion of the Low-Stress Countywide Bicycle Network and pedestrian safety improvement projects in the County's Pedestrian Priority Areas, as described in the Countywide Bicycle and Pedestrian Plan
- **Action TR-A5.2:** Construct innovative bicycle and pedestrian facilities, including Class IV separated and protected bikeways, bicycle superhighways, and other low-stress facility types, as described in the Countywide Bicycle and Pedestrian Plan and in contemporary, best-practice transportation planning and engineering guidance. Use contextually appropriate green infrastructure and landscaping to separate vehicular lanes from bicycle and pedestrian facilities whenever feasible.

Conservation and Open Space Element

- **Policy COS-P2.2:** Preserve and protect productive agricultural land from conversion to urban uses, especially land designated as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland on the Important Farmland Map prepared by the California Department of Conservation; land containing Class 1 or Class 2 soils; and land designated Agricultural Core.
- **Policy COS-P2.4:** Require new projects adjacent to agriculture to establish buffers on their properties as necessary to minimize conflicts and protect agriculture. Determine appropriate buffers in consultation with the County Agricultural Commissioner.
- **Policy COS-P2.8:** Support public infrastructure projects and programs that will increase, enhance, and protect agricultural land and its production capabilities.
- **Policy COS-P2.11:** Support efforts to protect, maintain, and improve soil health as a carbon sequestration tool.
- **Policy COS-P2.13:** Encourage IPM practices that reduce the use of agricultural pesticides and minimize pesticide drift, and discourage farming practices that may expose residents, water resources, and the environment to fine particulates and harmful chemicals.

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- **Action COS-A2.4:** Amend County Ordinance Code Title 8 – Zoning to include development standards, and possibly adopt accompanying design guidelines, for urban land uses that interface with agricultural uses, addressing, at minimum:
 - a) Setbacks on urban properties to provide a buffer for agricultural uses.
 - b) Location and arrangement of buildings, structures, and uses on urban properties.
 - c) Lighting, fencing, screening, and appropriate landscaping/vegetation.
- **Policy COS-P5.1:** Support protection, restoration, and enhancement of ~~creeks,~~ wetlands, marshes, sloughs, ~~and~~ tidelands, natural watercourses, and riparian corridors, and emphasize the role of these features in climate change resilience, air and water quality, and wildlife habitat.
- **Action COS-A5.1:** Inventory wetlands, floodplains, marshlands, natural watercourses, riparian corridors, and adjacent lands that could potentially support climate adaptation (e.g., through flood management, filtration, or other beneficial ecosystem services) and mitigation (e.g., carbon sequestration).
- **Policy COS-P6.2:** Encourage planting and propagation of California native trees and habitat-supporting native shrubs, forbs, and grasses throughout the county to enhance the natural landscape, provide shade (especially in riparian areas), sustain wildlife, absorb stormwater, and sequester carbon.
- **Policy COS-P7.1:** Require new development to reduce water consumption through use of water-efficient devices and technology, drought-tolerant landscaping strategies, and treated recycled water, where available.
- **Policy COS-P7.2:** Partner with water and wastewater service providers, GSAs, irrigation districts, and private well owners to increase participation in water conservation programs countywide.
- **Policy COS-P7.7:** Require landscaping for new development to filter and retain runoff and support flood management and groundwater recharge.
- **Policy COS-P7.8:** Promote installation of drought-tolerant green infrastructure, including street trees, in landscaped public areas.
- **Policy COS-P7.9:** Support wastewater reclamation and reuse programs that maximize use of treated recycled water.
- **Policy COS-P14.1:** *Implement Climate Action and Adaptation Plan strategies to improve energy efficiency and conservation, promote carbon-free energy sources, and reduce energy-related GHG emissions.*
- **Policy COS-P14.2:** Partner with State and regional agencies (e.g., California Public Utilities Commission, California Energy Commission, and ABAG/MTC) to support energy efficiency and renewable energy planning efforts.
- **Policy COS-P14.3:** Support distributed electricity generation, including development of microgrids, renewable energy sources, storage capacity, and associated technologies. Encourage these throughout urban areas, and in nonurban areas when significant environmental impacts can be avoided or successfully mitigated.
- **Policy COS-P14.6:** Support efforts to convert existing buildings to be low-carbon or carbon neutral.

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- **Action COS-A14.4:** Adopt new or modified reach codes that exceed the California Building Standards Code, as the State updates the Building Code every three years, to require use of low-carbon intensive energy sources, achieve higher levels of energy performance, and achieve lower levels of GHG emissions.
- **Action COS-A14.6:** Create a County policy or program to facilitate making existing residential and nonresidential buildings more energy-efficient and powered by carbon-free energy.
- **Action COS-A14.7:** Create a detailed County roadmap to convert existing homes and businesses to use low-carbon or carbon-free appliances. The roadmap should include steps to support converting buildings to rely on low-carbon or carbon-free energy using an equitable framework that minimizes the risk of displacement or significant disruptions to existing tenants.

Public Facilities and Services Element

- **Policy PFS-P7.12:** Require that new and expanded landfill operations significantly reduce GHG emissions to meet or exceed State targets to the extent feasible, and work toward carbon-neutral landfills.

Health and Safety Element

- **Policy HS-P1.1:** Coordinate air quality planning efforts with State and regional agencies, such as CARB, BAAQMD, and ABAG/MTC.
- **Policy HS-P1.2:** ~~Participate~~ Prioritize participation in emission and exposure reduction, public education, engagement, outreach, and other programs that promote improved air quality, focusing on Impacted Communities.
- **Policy HS-P1.3:** *Require new development to adhere to BAAQMD's Planning Healthy Places guidance when local conditions warrant.*
- **Policy HS-P1.4:** *Require new industrial development to locate significant pollution sources at the maximum distance possible as far away from sensitive receptors as possible.*
- **Policy HS-P1.5:** *Require new sources of air pollution that will generate significant new air quality impacts or expose sensitive receptors to substantial increases in harmful emissions of TAC to prepare a Health Risk Assessment that identifies appropriate mitigation consistent with BAAQMD California Environmental Quality Act (CEQA) Air Quality Guidelines, based on the findings of the Health Risk Assessment.*
- **Policy HS-P1.6:** *Require that any mitigation of air quality impacts occur on-site to the extent feasible to provide the greatest benefit to ~~local~~ residents in neighboring communities most impacted. For mitigation that relies on offsets, require that the offsets be obtained from sources as near to the project site as possible or from sources that would improve air quality in an Impacted Community. If the project site is within or adjacent to an Impacted Community, require offsets/mitigation within that community unless determined infeasible by the County.*
- **Policy HS-P1.7:** *Require construction activities that involve large grading operations to implement additional construction measures identified in BAAQMD's CEQA Guidelines to reduce air pollutant emissions.*

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- **Policy HS-P1.8:** *Require new or expanded commercial and industrial projects ~~exceeding~~ resulting in 25,000 square feet or more of gross habitable floor area, such as warehouses and other large enclosed buildings, to be near zero-emissions (~~NZE~~) operations, including the facilities themselves and the associated fleets. Require all necessary measures, such as the following, to achieve ~~NZE~~ near-zero emissions:*
 - a) *Reduce on-site energy consumption and increase on-site energy generation and energy storage.*
 - b) *Provide adequate on-site ~~ZE~~ zero-emission-vehicle-capable parking for all anticipated truck traffic to prevent idling and off-site queuing.*
 - c) *Provide electrified loading docks with receptacles allowing plug-in of refrigerated trailers.*
 - d) *Use heavy-duty trucks that are model year 2014 or later and expedite a transition to ~~ZE~~ zero-emission trucks by establishing a clear timeline for electrification of trucks as they become commercially available. Ensure contracts with motor carriers include air quality incentives or requirements, such as providing incentives to fleets that meet United States Environmental Protection Agency (EPA) SmartWay standards or requiring use of ~~ZE~~ zero-emission or ~~NZE~~ near-zero-emission trucks.*
 - e) *Use a “clean fleet” of delivery vehicles as they become commercially available, but no later than 2025.*
 - f) *Use ~~ZE~~ zero-emission yard equipment, such as forklifts, pallet trucks and jacks, and stackers.*
 - g) *Implement practices to control and remove fugitive dust and other contaminants from paved areas.**Uses with fewer than five vehicles domiciled on-site are exempt from this policy.*
- **Policy HS-P1.9:** *Prohibit nonessential diesel engine idling countywide and nonessential idling of all vehicles within 100 feet of sensitive receptors.*
- **Policy HS-P1.10:** *Support efforts to provide HVAC upgrades and portable clean air filters to persons who live in Impacted Communities and other areas burdened by disproportionate exposure to poor air quality.*
- **Action HS-A1.1.** *Consult with BAAQMD and community stakeholders and prepare an Air Quality Community Risk Reduction Plan that applies to areas with high levels of cancer risk, providing a comprehensive strategy to protect community members from the negative health effects of air pollution.*
- **Action HS-A1.2.** *Consult with BAAQMD and community stakeholders and amend County Ordinance Code Title 8 – Zoning to create an Air Pollution Exposure Overlay Zone around freeways that requires new construction in these areas to install enhanced ventilation systems and other strategies to protect people from respiratory, heart, and other health effects associated with breathing polluted air.*
- **Action HS-A1.3.** *Consult with BAAQMD and community stakeholders and amend County Ordinance Code Title 8 – Zoning to include an Industrial-Sensitive Receptor Interface Overlay Zone applied to areas where residential land uses and other sensitive receptors interface or directly abut heavy industrial land uses. In the overlay zone, require industrial uses to reduce pollution and employ strategies to mitigate air quality, noise, vibration, odor, light, visual, and safety impacts on nearby sensitive receptors. In addition, require new sensitive receptors to install enhanced ventilation systems and implement other strategies, paid for by neighboring sources of pollution to the extent possible, to protect residents from health and quality of life impacts.*
- **Action HS-A1.4:** *Consult with BAAQMD and community stakeholders and amend County Ordinance Code Title 7 – Building Regulations to include a clean construction ordinance that requires projects to*

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implement extra measures to reduce emissions at construction sites in or near places that are already overburdened by air pollution, such as Impacted Communities.

- **Action HS-A1.5:** Adopt an ordinance at least as stringent as the State's maximum idling law, and coordinate with CARB and law enforcement to achieve compliance.
- **Action HS-A1.6:** Develop a plan to provide convenient and accessible clean air refuges during times when outdoor air quality is deemed unhealthy.
- **Policy HS-P2.1:** *When evaluating health risk impacts of projects in Impacted Communities, use an excess cancer risk of 6.0 per million and a non-cancer (acute and chronic) hazard index greater than 1.0 as thresholds for finding that the project could cause a cumulatively considerable contribution and a significant impact.*
- **Action HS-A2.1:** Partner with community members and regulatory agencies such as BAAQMD to conduct data collection and monitoring of pollution exposure, prepare community-scale plans for reducing and mitigating air pollutant emissions and industrial hazards, such as pipeline risks, accidents, potential water or soil contamination, and impacts to sensitive ecological resources, for each Impacted Community, or group of Impacted Communities, as appropriate. Require future projects to demonstrate consistency with those plans.
- **Action HS-A2.4.** Coordinate with BAAQMD to determine where to focus a targeted permit inspection program in Impacted Communities to help ensure enforcement of air quality permits.
- **Policy HS-P3.2.** Facilitate carbon-neutral development projects and communities that support a circular economy, zero-emission modes of transportation, reliable and renewable energy resources, energy-efficient buildings, zero waste, water efficiency and conservation, green infrastructure, soil conservation, and a system of natural and working lands that support natural carbon sequestration and climate resilience.

5.3.3.2 PROPOSED CLIMATE ACTION AND ADAPTATION PLAN STRATEGIES AND ACTIONS

The following proposed Climate Action and Adaptation Plan (CAAP) strategies and actions pertain to air quality:

Clean and Efficient Built Environment (BE)

Strategy BE-1: Require and incentivize new buildings and additions built in unincorporated Contra Costa County to be low-carbon or carbon neutral.

Strategy BE-1 Actions:

- ~~Consider~~ Continue adopting new or modified reach codes and consider future updates that exceed the California Building Standards Code as the State updates the Building Code every three years, to require the use of lower-carbon intensive energy sources, to achieve higher ~~feasible~~ levels of energy ~~conservation and efficiency performance~~, and to achieve lower ~~feasible~~ levels of GHG emissions.
- ~~Maintain, update, publicize,~~ Publicize County ordinances and programs and enforce the County Ordinance Code Title 7—Building Regulations amendment requiring new residential buildings, hotels,

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offices, and retail to be ~~all-electric~~ more energy efficient, with lower levels of GHG emissions. Evaluate the feasibility of including other building types as appropriate.

- Design and construct new County facilities to be zero net energy to the extent feasible.
- Study the feasibility of establishing a low-carbon concrete requirement for all new construction and retrofit activities and consider additional strategies to reduce embedded carbon in construction materials. The intent is to determine what the County can and should do to support or exceed State requirements for net-zero emissions for cement use by 2045.

Strategy BE-2: Retrofit existing buildings and facilities in the unincorporated County, and County infrastructure, to reduce energy use and convert to low-carbon or carbon-~~neutral~~ free fuels.

Strategy BE-2 Actions:

- Create a County policy or program to facilitate making existing residential and nonresidential buildings more energy-efficient and powered by carbon-free energy.
- ~~Require replacement and new water heaters and space heating and cooling systems to be electric if the building electric panel has sufficient capacity in accordance with BAAQMD Regulation 9, Rule 4, and Regulation 9, Rule 6.~~
- Create a detailed County roadmap to convert existing homes and businesses to use low-carbon or ~~zero-carbon-free~~ appliances. The roadmap should include steps to support converting buildings to rely on low-carbon or ~~zero-carbon-free~~ energy using an equitable framework that minimizes the risk of displacement or significant disruptions to existing tenants.
- Work to continue to obtain funding with partners such as BayREN and MCE to implement a program or programs to provide reduced-cost or free energy-efficiency and zero-carbon retrofits to local small businesses and households earning less than the area median income, in support of the Contra Costa County Asthma Initiative, Contra Costa County Weatherization Program, similar County programs, other nonprofit partners, and other health equity efforts for Impacted Communities. Support the use of low-emitting materials, including paints and carpeting, in retrofits to improve indoor air quality.
- In partnership with MCE and BayREN, continue to support voluntary home and business energy efficiency retrofits, including all-electric measures.
- Continue to conduct energy and water tracking activities, audits, and upgrades of County facilities, including conversion of feasible County facilities to all-electric space and water heating.
- Implement requirements for cool roofs and light-colored, nonreflective permeable paving materials as part of retrofit, repair, and replacement activities, using recycled materials or other materials with low embedded carbon as feasible and as established by the Building Standards Code.

Strategy BE-3: Increase the amount of electricity used and generated from renewable sources in the county.

Strategy BE-3 Actions:

- Require new commercial parking lots with 50 or more spaces to mitigate heat gain through installation of shade trees, solar arrays, or other emerging cooling technologies. Prioritize the use of solar arrays where feasible and appropriate.

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- Work with MCE to increase enrollment, especially in the Deep Green tier.
- Continue to enroll all eligible, non-solar-equipped County facility electricity accounts in MCE territory in the Deep Green tier.
- Encourage installation of battery storage systems in new and existing buildings, especially buildings with solar energy systems and buildings that provide essential community services.
- Pursue implementation of recommendations of the 2018 Renewable Resource Potential Study.
- Evaluate the least-conflict feasible locations for stand-alone battery storage systems and modify land use regulations to enable such use in these locations.

No Waste Contra Costa (NW)

Strategy NW-4: Reduce emissions from landfill gas.

Strategy NW-4 Actions:

- Encourage efforts at Acme, Keller Canyon, and West Contra Costa landfills to install or enhance existing methane capture technology and associated monitoring systems with a goal of increasing the methane capture rate to the greatest extent feasible.
- Explore opportunities for partnering with agricultural and industrial operations to generate energy from methane gas generated by their ongoing activities.
- Support landfill operators in efforts to transition away from landfill gas flaring.

Clean Transportation Network (TR)

Strategy TR-1: Improve the viability of walking, biking, zero-emission commuting, and using public transit to travel within, to, and from the county.

Strategy TR-1 Actions:

- Prioritize expansion of bicycle, micromobility, and pedestrian infrastructure (e.g., Class IV separated bikeways) to address the significant latent demand for these active transportation modes.
- Develop and promote mobility alternatives to single-occupancy vehicles, including but not limited to public transit, micromobility, carbon-free rideshare strategies, and nonmotorized modes.
- Implement programs to encourage transit use, bicycling, walking, telecommuting, and use of alternative vehicle fuels by County employees.
- Reduce single-occupant vehicle usage and VMT, by significantly enhancing the availability and safety of other travel modes through infrastructure investment, policy support (Vision Zero, and other best practices), and support for public transit.
- Plan, design, construct, and maintain facilities for walking, bicycling, and rolling to serve people of all ages, abilities, and income levels, including children, seniors, families, and people with limited mobility.
- Partner with CCTA and neighboring jurisdictions to build out the countywide bicycle and pedestrian network, prioritizing completion of the Low-Stress Countywide Bicycle Network and pedestrian safety

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improvement projects in the County's Pedestrian Priority Areas, as described in the Countywide Bicycle and Pedestrian Plan.

- Require transportation infrastructure serving new development to be designed using best practices, contemplating existing and planned land uses, roadways, bicycle and pedestrian facilities, transit facilities, and connections to adjoining areas.
- Create connections between unincorporated communities and neighborhoods in unincorporated areas and adjacent jurisdictions to improve multimodal access to local destinations, such as schools, parks, shopping, health services, and workplaces.
- Track over time projects that add pedestrian and bicycle facilities to document the County's implementation of the County Road Improvement and Preservation Program (CRIPP); Complete Streets checklist; Vision Zero Report and Action Plan; Active Transportation Plan; and equity-focused plans, programs, and policies.
- Improve the safety and comfort of bicycle, pedestrian, and public transit facilities using best practices to encourage more people to use such facilities.
- ~~Work with CCTA to fill gaps in the countywide Low Stress Bike Network, as outlined in the 2018 Countywide Bicycle and Pedestrian Plan. Prioritize providing access for Impacted Communities and constructing protected bicycle facilities. Coordinate with Caltrans, CCTA, the Regional Transportation Planning Committees, and neighboring jurisdictions to plan, design, and implement Complete Streets concepts on Routes of Regional Significance.~~
- In collaboration with key partners, support efforts to establish or join a shared mobility program that provides access to conventional bicycles, e-bikes, and other micromobility modes, prioritizing access for low-income residents who do not have bicycles. Support efforts to establish and/or maintain bike repair programs.
- Support efforts to expand the service area and frequency of regional transit agencies, and reduced fares for students, seniors, and low-income residents on systems, including AC Transit, BART, Capitol Corridor, County Connection, Tri Delta Transit, the San Francisco Bay Ferry, and WestCAT. Encourage programs that support "last mile" transportation connection and options.
- Maximize development of jobs and affordable housing near high-quality transit service to support a jobs-housing balance.
- Maintain in place and enforce a Transportation Demand Management (TDM) Ordinance that reflects best practices, and, at a minimum, conforms to Contra Costa Transportation Authority's adopted model TDM ordinance or resolution.
- Improve county-wide safety for bicyclists by advocating for the passage of Vulnerable Road User Laws.
- Secure additional funding for the maintenance and expansion of bicycle and pedestrian infrastructure improvements. Support efforts to obtain additional funding to maintain and expand public transit operations and infrastructure improvements.
- Support CCTA to develop and implement methods for tracking EV and e-bike charging and availability across jurisdictions.

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- Support CCTA and regional transit agencies in providing “last mile” transportation connections and options.
- Encourage and support increased regional integration of transit systems to promote more equitable fare structures, fare integration, easier transfers, including coordinated transfers between different transit systems and reduced wait times, improved information sharing, and generally a more seamless and modern system.
- Ensure emerging transportation technologies and travel options, such as autonomous and ZEVs and transportation network companies, support the County’s goals for reducing emissions, adapting to climate change, improving public safety, and increasing equitable mobility.

Strategy TR-2: Increase the use of zero-emissions vehicles. Transition to a zero-emission County fleet by 2035 and a community fleet that is at least 50 percent zero-emission by 2030.

Strategy TR-2 Actions:

- Require new County vehicles to be zero emission to the extent a viable vehicle is available on the market, that charging or zero-emission fueling equipment is conveniently located where the vehicle will be stored, and as required by the Advanced Clean Fleet regulations, with the goal that all County vehicles will be zero-emission by 2035.
- Continue adopting new or modified reach codes and consider future updates that exceed the California Building Standards Code as the State updates the Building Code, including the Green Building Code, to require zero-emission charging infrastructure in new multifamily and nonresidential buildings. Explore expanding it to include new single-family homes.
- Install electric vehicle charging equipment and other infrastructure needed to support the transition to a zero-emission County fleet at County facilities. Consider the appropriate locations, number, and capacity of infrastructure to facilitate the transition of the County fleet to zero-emission vehicles.
- Provide incentives for zero-emission vehicles in partnership with MCE, BAAQMD, and other agencies.
- Work with property owners and other potential partners to pursue installation of zero-emission vehicle charging stations in and near multi-family dwelling units.
- Update off-street parking ordinance to include a requirement for zero-emission vehicle charging infrastructure. Consider including incentives for developers to exceed minimum requirements (i.e., density bonus).
- Increase installation of electric vehicle charging stations for all vehicle types, including bicycles and scooters, at public facilities, emphasizing increased installation in Impacted Communities.
- In partnership with regional agencies, explore providing subsidies for households making less than the area median income to purchase or lease zero-emission vehicles and associated infrastructure.
- Pursue fees and regulatory efforts to convert transportation network company (TNC), taxi, and similar car-hire services to zero-emission vehicles.
- Explore opportunities for implementing electric vehicle sharing programs.
- Work with BAAQMD and other regional agencies to convert off-road equipment to zero-emission clean fuels.

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- Work with contractors, fleet operations, logistics companies, and other operators of heavy-duty vehicles to accelerate the transition to zero-emission heavy-duty vehicles.
- In cases where battery-electric, hybrid-electric, and sustainably sourced hydrogen fuel-cell sources are not available, W-work with Public Works to pursue the use of renewable natural gas (sourced from recovered organic waste) for transportation fuel, electricity, or heating applications ~~in cases where battery-electric, hybrid-electric, and sustainably sourced hydrogen fuel-cell sources are not available.~~
- Encourage efforts to maximize EV charging during solar peak hours.
- Support ~~Coordinate with CCTA and other local and regional agencies to implementation of the Contra Costa County Electric Vehicle Readiness Blueprint and related policies and apply best practices in ZEV charging/fueling infrastructure requirements.~~

Resilient Communities and Natural Infrastructure (NI)

Strategy NI-4: Sequester carbon on natural and working lands in Contra Costa County

Strategy NI-4 Actions:

- Pursue implementation of recommendations from carbon sequestration feasibility study, Healthy Lands, Healthy People.
- Continue to support and work with key partners to maintain existing and establish new pilot programs for carbon sequestration on agricultural land.
- Promote ~~restorative~~ regenerative agricultural and landscaping techniques that incorporate cover crops, mulching, compost application, field borders, alley cropping, conservation crop rotation, prescribed grazing, and reduced tillage to promote healthy soil and soil conservation.
- Support soil conservation and restoration programs. Encourage agricultural landowners to work with agencies such as the USDA's NRCS and Contra Costa RCD to reduce erosion and soil loss.
- Coordinate with farming groups, ranchers, the Contra Costa Resource Conservation District, and the University of California Cooperative Extension to identify and promote varieties of feedstock, livestock, and crops that are resilient to rising temperatures and changing precipitation patterns and that increase carbon sequestration.
- Explore ways to increase carbon sequestration on County-owned ~~facilities~~ properties.
- Partner with regional landowners and agencies to establish carbon sequestration programs and incentives.
- Consider the development of carbon offset protocols and guidance ~~for use by carbon sequestration program~~ to provide technical support to applicants and County permitting staff to promote appropriate natural sequestration on natural and developed lands.
- Ensure that any local or regional carbon sequestration program that the County establishes, promotes, supports, or joins must provide benefits to unincorporated communities that face environmental justice issues.
- Explore the potential for the public to support tree planting and maintenance of existing trees.

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- Establish a mechanism to support expanded tree planting and maintenance activities, particularly in areas with few trees.
- Support protection, restoration, and enhancement of creeks, wetlands, marshes, sloughs, and tidelands, and emphasize the role of these features in climate change resilience, air and water quality, and wildlife habitat.
- Inventory wetlands, floodplains, marshlands, natural watercourses, riparian corridors, and adjacent lands that could potentially support climate adaptation (e.g., through flood management, filtration, or other beneficial ecosystem services) and mitigation (e.g., carbon sequestration).
- Explore ~~the new funding and financing opportunities for climate adaptation and resilience projects, including the creation of a Climate Resilience District, issuance of bonds—including bonds that can be marketed as “green bonds”—as a potential financing mechanism, and similar opportunities.~~
- Require that any mitigation of air quality impacts occur on-site to the extent feasible to provide the greatest benefit to ~~local residents in unincorporated communities.~~ For mitigation that relies on offsets, require that the offsets be obtained from sources as near to the project site as possible or from sources that would improve air quality in an Impacted Community. If the project site is within or adjacent to an Impacted Community, require offsets or mitigation within that community unless determined infeasible by the County.

5.3.4 Environmental Impacts

5.3.4.1 METHODOLOGY

Emissions Sectors

The air quality analysis was prepared in accordance with the requirements of CEQA to determine if significant air quality impacts are likely to occur in conjunction with future development that would be accommodated by the proposed project. BAAQMD has published the CEQA Air Quality Guidelines that provides local governments with guidance for analyzing and mitigating air quality impacts and was used in this analysis. The County’s criteria air pollutant emissions inventory includes the following sectors:

- **Transportation.** Transportation emissions forecasts were modeled using CARB’s EMFAC2021, version 1.0.1, web database. Model runs were based on Origin Destination (OD) Method using VMT data provided by Fehr & Peers and calendar year 2019 (existing) and 2045 emission rates. VMT that have an origin or destination in the county use a transportation origin-destination methodology. Accounting of VMT is based on the recommendations of CARB’s Regional Targets Advisory Committee (RTAC) created under SB 375. For accounting purposes, there are three types of trips:
 - **Internal-Internal.** Vehicle trips that originated and terminated within the county (Internal-Internal, I-I). Using the accounting rules established by RTAC, 100 percent of the length of these trips and their emissions are attributed to the county.
 - **Internal-External/External-Internal.** Vehicle trips that either originated or terminated (but not both) in the county (Internal-External or External-Internal, I-X and X-I). Using the accounting rules established by RTAC, 50 percent of the trip length for these trips is attributed to the county.

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- **External-External.** Vehicle trips that neither originated nor terminated in the county. These trips are commonly called pass-through trips (External-External, X-X). Using the accounting rules established by RTAC, these trips are not counted toward the county's VMT or emissions.
- **Energy:** Emissions associated with natural gas use for residential land uses in the county were modeled based on energy use gathered as part of the proposed CAAP (see Appendix 5.3-1 and Appendix 5.8-1). Forecasts were adjusted for increases in population in the county and based on the State actions energy forecast conducted for the CAAP (see Appendix 5.3-1 and Appendix 5.8-1).
- **Off-Road Equipment:** Emission rates from CARB's OFFROAD2021, version 1.0.2, web database were used to estimate criteria air pollutant emissions from lawn and garden equipment. OFFROAD is a database of equipment use and associated emissions for each county compiled by CARB. Annual emissions for each of the sectors were compiled using OFFROAD for Contra Costa County for year 2019 and forecasted based on the increase in population.
- **Area Sources:** Area sources are based on the emission factors from the CalEEMod Users Guide for emissions generated from use of consumer products and cleaning supplies.

5.3.4.2 IMPACTS OF THE ENVIRONMENT ON A PROJECT

BAAQMD's CEQA Guidelines include methodology for jurisdictions wanting to evaluate the potential impacts from placing sensitive receptors proximate to major air pollutant sources. For assessing community risk and hazards for siting a new receptor, sources within a 1,000-foot radius of a project site are typically considered. Sources are defined as freeways, high volume roadways (at least 10,000 vehicles/day), major rail or truck yards, ports, rail lines, ferry terminal, large commercial distribution centers, and permitted stationary pollutant sources (BAAQMD 2023b).

Development under the proposed project could result in siting sensitive uses (e.g., residential) near sources of emissions (e.g., freeways and industrial uses). Developing new sensitive land uses near sources of emissions could expose persons that inhabit these sensitive land uses to potential air quality-related impacts. However, the purpose of this environmental evaluation is to identify the significant effects of the proposed project on the environment, not the significant effects of the environment on the proposed project. *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369 (Case No. S213478). Thus, CEQA does not require analysis of the potential environmental effects from siting sensitive receptors near existing sources, and this type of analysis is not provided below in the Impact Analysis section.

While it is generally not within the purview of CEQA to analyze impacts of the environment on a project, the proposed project includes policies that would ensure priority of the health of Contra Costa County residents through enforcement of County Codes and incorporation of design features to minimize air quality impacts and to achieve appropriate health standards. The following proposed policies and actions would serve to protect air quality in the unincorporated county:

- **Policy HS-P1.3.** Require new development to adhere to BAAQMD's Planning Healthy Places guidance when local conditions warrant.
- **Action HS-A1.1.** Consult with BAAQMD and community stakeholders and prepare an Air Quality Community Risk Reduction Plan that applies to areas with high levels of cancer risk, providing a

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comprehensive strategy to protect community members from the negative health effects of air pollution.

- **Action HS-A1.2.** Consult with BAAQMD and community stakeholders and amend County Ordinance Code Title 8 – Zoning to create an Air Pollution Exposure Overlay Zone around freeways that requires new construction in these areas to install enhanced ventilation systems and other strategies to protect people from respiratory, heart, and other health effects associated with breathing polluted air.
- **Action HS-A1.3.** Consult with BAAQMD and community stakeholders and amend County Ordinance Code Title 8 – Zoning to include an Industrial-Sensitive Receptor Interface Overlay Zone applied to areas where residential land uses and other sensitive receptors interface or directly abut heavy industrial land uses. In the overlay zone, require industrial uses to reduce pollution and employ strategies to mitigate air quality, noise, vibration, odor, light, visual, and safety impacts on nearby sensitive receptors. In addition, require new sensitive receptors to install enhanced ventilation systems and implement other strategies, paid for by neighboring sources of pollution to the extent possible, to protect residents from health and quality of life impacts.

Impact 5.3-1: Implementation of the proposed project would not conflict with or obstruct implementation of the BAAQMD Clean Air Plan. [Threshold AQ-1]

The following describes potential air quality impacts of consistency with the AQMP from the implementation of the proposed project.

Proposed General Plan

Bay Area 2017 Clean Air Plan – Criteria Air Pollutants and Precursors

The proposed General Plan plays an important role in local agency project review by linking local planning and individual projects to the *2017 Clean Air Plan*. It fulfills the CEQA goal of informing decision-makers of the environmental efforts of the project under consideration at an early enough stage to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to clean air goals in the Bay Area.

BAAQMD requires a consistency evaluation of a plan with its current AQMP. To have a less than significant impact related to criteria air pollutant and precursor impacts, the long-range plan must satisfy following BAAQMD requirements.

1) Consistency evaluation of the long-range plan with its current air quality plan (AQP) control measures as follows:

- Does the project support the primary goals of the AQP?
- Does the project include applicable control measures from the AQP?
- Does the project disrupt or hinder implementation of any AQP control measures?

2) Long-range plans must demonstrate consistency with the projected growth rate of vehicle activity in VMT or vehicle trips under the plan, as follows:

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- Is the project VMT or vehicle trip increase less than or equal to the projected population increase?

Bay Area Air Quality Management District 2017 Clean Air Plan Goals

The primary goals of the 2017 Clean Air Plan are to attain the State and federal AAQS, reduce population exposure and protect public health in the Bay Area, reduce GHG emissions, and protect the climate. Furthermore, the 2017 Clean Air Plan lays the groundwork for reducing GHG emissions in the Bay Area to meet the State's 2030 GHG reduction target and 2050 GHG reduction goal.

Attain Air Quality Standards

BAAQMD's 2017 Clean Air Plan strategy is based on regional population and employment projections in the Bay Area compiled by ABAG, which are based in part on County's General Plan land use designations. These demographic projections are incorporated into Plan Bay Area. Demographic trends incorporated into Plan Bay Area determine VMT in the Bay Area, which BAAQMD uses to forecast future air quality trends. The SFBAAB is currently designated a nonattainment area for O₃, PM_{2.5}, and PM₁₀ (State AAQS only).

As discussed in Section 5.14, *Population and Housing*, implementation of the proposed General Plan would exceed current regional projections for housing by 26 percent and population by 18 percent. However, the Land Use Element includes goals, policies, and actions aimed to focus the development in areas where current buildings are aging, vacant, or not maintained and approved/pending projects. Therefore, implementation of the proposed General Plan itself would not introduce a substantial amount of unplanned population in the EIR Study Area and is instead the overriding policy document that plans for such growth.

Thus, the population projections of the proposed General Plan would be consistent with regional projections. The emissions resulting from potential future development associated with the proposed General Plan are included in BAAQMD projections, and future development accommodated under the proposed General Plan would not hinder BAAQMD's ability to attain the California or National AAQS. Accordingly, impacts would be less than significant.

Reduce Population Exposure and Protect Public Health

Development under the proposed General Plan could result in new sources of TACs and PM_{2.5}. Stationary sources, including smaller stationary sources (e.g., emergency generators and boilers) are subject to review by BAAQMD as part of the permitting process. Adherence to BAAQMD permitting regulations would ensure that new stationary sources of TACs do not expose populations to significant health risk. Mobile sources of air toxins (e.g., truck idling) are not regulated directly by BAAQMD. Development associated with the proposed General Plan may generate truck traffic; however, CARB regulates limits on diesel truck and bus idling to 5 minutes. Furthermore, individual development projects would be required to achieve the incremental risk thresholds established by BAAQMD. Thus, implementation of the proposed General Plan would not result in introducing new sources of TACs that on a cumulative basis, could expose sensitive populations to significant health risk. Therefore, impacts would be less than significant.

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Reduce GHG Emissions and Protect the Climate

Consistency of the proposed General Plan with State, regional, and local plans adopted for the purpose of reducing GHG emissions are discussed under Impact 5.8-2 in Section 5.8, *Greenhouse Gas Emissions*, of this Draft EIR. Future development allowed by the proposed General Plan would be required to adhere to statewide measures that have been adopted to achieve the GHG reduction targets of AB 32 and SB 32, and a trajectory consistent with the carbon neutrality targets of AB 1279. The proposed General Plan is consistent with regional strategies for infill development identified in *Plan Bay Area 2050* and the existing Contra Costa County CAP. While Impact GHG 5.8-1 identifies that the proposed General Plan would generate a substantial increase in emissions, Impact GHG 5.8-2 identifies that the proposed General Plan is consistent with State, regional, and local plans to reduce GHG emissions. Therefore, the proposed General Plan is consistent with the goal of the 2017 *Clean Air Plan* to reduce GHG emissions and protect the climate, and the impact would be less than significant.

2017 Clean Air Plan Control Measures

Table 5.3-8, *Control Measures from the BAAQMD 2017 Clean Air Plan*, identifies the control measures included in the 2017 *Clean Air Plan* that are required by BAAQMD to reduce emissions for a wide range of both stationary and mobile sources. As shown in Table 5.3-8, the proposed General Plan would not conflict with the 2017 *Clean Air Plan* and would not hinder BAAQMD from implementing the control measures in the 2017 *Clean Air Plan*. Accordingly, impacts would be less than significant.

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Table 5.3-8 Control Measures from the BAAQMD 2017 Clean Air Plan

| Type | Measure Number / Title | Consistency |
|---------------------------------------|--|---|
| Stationary Source Control Measures | <ul style="list-style-type: none"> • SS 1 – Fluid Catalytic Cracking in Refineries • SS 2 – Equipment Leaks • SS 3 – Cooling Towers • SS 4 – Refinery Flares • SS 5 – Sulfur Recovery Units • SS 6 – Refinery Fuel Gas • SS 7 – Sulfuric Acid Plants • SS 8 – Sulfur Dioxide from Coke Calcining • SS 9 – Enhanced NSR Enforcement for Changes in Crude Slate • SS 10 – Petroleum Refining Emissions Tracking • SS 11 – Petroleum Refining Facility-Wide Emission Limits • SS 12 – Petroleum Refining Climate Impacts Limit • SS 13 – Oil and Gas Production, Processing and Storage • SS 14 – Methane from Capped Wells • SS 15 – Natural Gas Processing and Distribution • SS 16 – Basin-Wide Methane Strategy • SS 17 – GHG BACT Threshold • SS 18 – Basin-Wide Combustion Strategy • SS 19 – Portland Cement • SS 20 – Air Toxics Risk Cap and Reduction from Existing Facilities • SS 21 – New Source Review for Toxics • SS 22 – Stationary Gas Turbines • SS 23 – Biogas Flares • SS 24 – Sulfur Content Limits of Liquid Fuels • SS 25 – Coatings, Solvents, Lubricants, Sealants and Adhesives • SS 26 – Surface Prep and Cleaning Solvent • SS 27 – Digital Printing • SS 28 – LPG, Propane, Butane • SS 29 – Asphaltic Concrete • SS 30 – Residential Fan Type Furnaces • SS 31 – General Particulate Matter Emission Limitation • SS 32 – Emergency Backup Generators • SS 33 – Commercial Cooking Equipment • SS 34 – Wood Smoke • SS 35 – PM from Bulk Material Storage, Handling and Transport, Including Coke and Coal • SS 36 – PM from Trackout • SS 37 – PM from Asphalt Operations • SS 38 – Fugitive Dust • SS 39 – Enhanced Air Quality Monitoring • SS 40 – Odors | <p>Stationary and area sources are regulated directly by BAAQMD; therefore, as the implementing agency, new stationary and area sources within the county would be required to comply with BAAQMD's regulations. BAAQMD routinely adopts/revises rules or regulations to implement the stationary source (SS) control measures to reduce SS emissions.</p> <p>Major stationary source are more commonly associated with industrial manufacturing or warehousing. However, BAAQMD and the County have existing regulations in place to ensure any potential future development under the proposed General Plan would not conflict with the applicable SS control measures. Other non-residential land uses may generate small quantities of stationary source emissions during project operation (e.g., emergency generators, dry cleaners, and gasoline dispensing facilities); however, these small-quantity generators would require review by BAAQMD for permitted sources of air toxics, which would ensure consistency with the 2017 Clean Air Plan.</p> |

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Table 5.3-8 Control Measures from the BAAQMD 2017 Clean Air Plan

| Type | Measure Number / Title | Consistency |
|-------------------------------------|---|---|
| Transportation Control Measures | <ul style="list-style-type: none"> • TR 1 – Clean Air Teleworking Initiative • TR 2 – Trip Reduction Programs • TR 3 – Local and Regional Bus Service • TR 4 – Local and Regional Rail Service • TR 5 – Transit Efficiency and Use • TR 6 – Freeway and Arterial Operations • TR 7 – Safe Routes to Schools and Safe Routes to Transit • TR 8 – Ridesharing, Last-Mile Connection • TR 9 – Bicycle and Pedestrian Access and Facilities • TR 10 – Land Use Strategies • TR 11 – Value Pricing • TR 12 – Smart Driving • TR 13 – Parking Policies • TR 14 – Cars and Light Trucks • TR 15 – Public Outreach and Education • TR 16 – Indirect Source Review • TR 17 – Planes • TR 18 – Goods Movement • TR 19 – Medium and Heavy Duty Trucks • TR 20 – Ocean Going Vessels • TR 21 – Commercial Harbor Craft • TR 22 – Construction, Freight and Farming Equipment • TR 23 – Lawn and Garden Equipment | <p>Transportation (TR) control measures are strategies to reduce vehicle trips, vehicle use, VMT, vehicle idling, and traffic congestion for the purpose of reducing motor vehicle emissions. Although most of the TR control measures are implemented at the regional level—that is, by MTC or Caltrans—the 2017 Clean Air Plan relies on local communities to assist with implementation of some measures.</p> <p>The development under the proposed General Plan would be reviewed for consistency with proposed General Plan policies. The Transportation Element contains the following policies and actions to expand the pedestrian and bicycle network: Policies TR-P1.2, <u>TR-P1.4</u>, TR-P1.12, TR-P3.2, TR-P4.1 through <u>TR-P4.2</u>, and TR-P5.5, <u>TR-P5.7</u>, <u>TR-P5.9</u> through <u>TR-P5.11</u>, and Actions TR-A5.1 through TR-A5.2.</p> |
| Energy and Climate Control Measures | <ul style="list-style-type: none"> • EN 1 – Decarbonize Electricity Production • EN 2 – Renewable Energy Decrease Electricity Demand | <p>The energy and climate (EN) control measures are intended to reduce energy use as a means of reducing adverse air quality emissions.</p> <p>Development under the proposed General Plan would be reviewed for consistency with proposed General Plan policies. The Health and Safety Element, Conservation, Open Space, and Working Lands Element, and Public Facilities and Services Element contain the following policies that align with the County's goals to meet the State's carbon neutrality initiatives: Policies HS-P3.2, COS-P14.1 through COS-P14.3, <u>COS-P14.6</u>, Actions COS-A14.6 through <u>COS-A14.7</u>, and <u>PFS-P7.14</u>.</p> <p>Furthermore, new development accommodated under the proposed General Plan would be built to comply with the latest Building Energy Efficiency Standards and CALGreen standards. On January 18, 2022, the County also adopted an All-Electric Ordinance requirement for new construction to amend the 2019 California Energy Code and requires residential (including single-family and multi-family buildings) to be all-electric. Therefore, implementation of the proposed General Plan would not conflict with these EN control measures.</p> |

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Table 5.3-8 Control Measures from the BAAQMD 2017 Clean Air Plan

| Type | Measure Number / Title | Consistency |
|------------------------------|--|---|
| Buildings Control Measures | <ul style="list-style-type: none"> • BL 1 – Green Buildings • BL 2 – Decarbonize Buildings • BL 3 – Market-Based Solutions • BL 4 – Urban Heat Island Mitigation | <p>The buildings (BL) control measures focus on working with local governments to facilitate adoption of best GHG emissions control practices and policies.</p> <p>Development under the proposed General Plan would be reviewed for consistency with proposed General Plan policies. The Conservation, Open Space, and Working Lands Element, Health and Safety Element, and Land Use Element contain the following policies and actions to promote energy efficiency and sustainability: Policies <u>COS-P7.8</u>, COS-P14.1, <u>COS-P14.2</u>, <u>COS-P14.6</u>, <u>Action COS-A14.4</u>, <u>Action COS-A14.6</u> and HS-P3.2, and Action LU-A4.1.</p> <p>In addition, as stated, new development under the proposed General Plan would be built to comply with the latest Building Energy Efficiency Standards and CALGreen standards. On January 18, 2022, the County also adopted an All-Electric Ordinance requirement for new construction to amend the 2019 California Energy Code and requires residential (including single-family and multi-family buildings) to be all-electric. Thus, the proposed General Plan would not conflict with these BL control measures.</p> |
| Agriculture Control Measures | <ul style="list-style-type: none"> • AG 1 – Agricultural Guidance and Leadership • AG 2 – Dairy Digesters • AG 3 – Enteric Fermentation • AG 4 – Livestock Waste | <p>Agricultural practices in the Bay Area account for a small portion, roughly 1.5 percent, of the Bay Area GHG emissions inventory. The GHGs from agriculture include methane and nitrous oxide, in addition to carbon dioxide. Section 3.6.1.3, <i>Land Use Designations and Map</i>, describes the various agricultural land uses allowed under the proposed General Plan Agriculture Core and Agricultural Lands designations. The Agriculture (AG) control measures target larger scale farming practices, such as the prime agricultural land within the region.</p> <p>Development under the proposed General Plan would be reviewed for consistency with proposed General Plan policies. The Conservation, Open Space, and Working Lands Element contains the following policies and actions that align with the County's goals to support agricultural land conservation and reduce potential impacts to adjacent sensitive receptors: Policies COS-P2.2 and COS-P2.4, <u>COS-P2.8</u>, <u>COS-P2.11</u>, through COS-P2.13, and Action COS-A2.4.</p> <p>The County also promotes the use of integrated pest management (IPM) strategies to support healthy crops while reducing the use of harmful chemicals on the environment, as well as the Right-to-Farm Ordinance, which protects farms</p> |

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Table 5.3-8 Control Measures from the BAAQMD 2017 Clean Air Plan

| Type | Measure Number / Title | Consistency |
|--|--|---|
| | | from nuisance complaints. Therefore, implementation of the proposed General Plan would not conflict with these AG control measures. |
| Natural and Working Lands Control Measures | <ul style="list-style-type: none"> NW 1 -- Carbon Sequestration in Rangelands NW 2 -- Urban Tree Planting NW 3 -- Carbon Sequestration in Wetlands | <p>The control measures for the natural and working lands sector focus on increasing carbon sequestration on rangelands and wetlands.</p> <p>Development under the proposed General Plan would be reviewed for consistency with proposed General Plan policies. The Conservation, Open Space, and Working Lands Element contains the following policies and actions to promote carbon sequestration: Policies COS-P2.11, COS-P6.2, and COS-P7.8, and Action COS-A5.1.</p> |
| Water Control Measures | <ul style="list-style-type: none"> WR 1 -- Limit GHGs from publicly owned treatment works (POTWs) WR 2 -- Support Water Conservation | <p>The 2017 Clean Air Plan includes measures to reduce water use.</p> <p>Development under the proposed General Plan would be reviewed for consistency with proposed General Plan policies. The Conservation, Open Space, and Working Lands Element contains the following policies to increase plumbing water efficiency and reduce landscape water use: Policies COS-P7.1, COS-P7.2, COS-P7.7, and COS-P7.9.</p> |
| Super-GHG Control Measures | <ul style="list-style-type: none"> SL 1 -- Short-Lived Climate Pollutants SL 2 -- Guidance for Local Planners SL 3 -- GHG Monitoring and Emissions Measurements Network | <p>Super-GHGs include methane, black carbon, and fluorinated gases. The compounds are sometimes referred to as short-lived climate pollutants because their lifetime in the atmosphere is generally fairly short. Measures to reduce super GHGs are addressed on a sector-by-sector basis in the 2017 Clean Air Plan. Through ongoing implementation of the County's CAAP, the County will continue to reduce local GHG emissions and meet State, regional, and local reduction targets, which would ensure implementation of the proposed General Plan would not conflict with these SL control measures.</p> <p>Development under the proposed General Plan would be reviewed for consistency with proposed General Plan policies. The Health and Safety Element and Conservation, Open Space, and Working Lands Element contain the following policies for encouraging use of renewable energy: Policies HS-P3.2 and COS-P14.1 through COS-P14.3.</p> |
| Further Study Control Measures | <ul style="list-style-type: none"> FSM SS 1 -- Internal Combustion Engines FSM SS 2 -- Boilers, Steam Generator and Process Heaters FSM SS 3 -- GHG Reductions from Non Cap-and Trade Sources | <p>The majority of the further study control measures apply to sources regulated directly by BAAQMD. Because BAAQMD is the implementing agency, new and existing sources of stationary and area sources in the project area would be required to</p> |

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Table 5.3-8 Control Measures from the BAAQMD 2017 Clean Air Plan

| Type | Measure Number / Title | Consistency |
|------|--|---|
| | <ul style="list-style-type: none"> FSM SS 4 – Methane Exemptions from Wastewater Regulation FSM SS 5 – Controlling start-up, shutdown, maintenance, and malfunction (SSMM) Emissions FSM SS 6 – Carbon Pollution Fee FSM SS 7 – Vanishing Oils and Rust Inhibitors FSM SS 8 – Dryers, Ovens and Kilns FSM SS 9 – Omnibus Rulemaking to Achieve Continuous Improvement FSM BL 1 – Space Heating FSM AG 1 – Wineries | comply with these additional further study control measures in the 2017 Clean Air Plan. |

Source: BAAQMD 2017c.

Regional Growth Projections for VMT and Population

Future potential development allowed by the proposed General Plan would result in additional sources of criteria air pollutants. Growth accommodated by the proposed General Plan could occur throughout the 2045 planning horizon. BAAQMD's approach to evaluating impacts from criteria air pollutants generated by a plan's long-term growth is done by comparing population estimates to the VMT estimates. This is because BAAQMD's AQMP plans for growth in the SFBAAB are based on regional growth projections identified by ABAG and growth in VMT identified by CCTA. Changes in regional, community-wide emissions in the project area could affect the ability of BAAQMD to achieve the air quality goals in the AQMP. Therefore, air quality impacts for a plan-level analysis are based on consistency with the regional growth projections. Table 5.3-9, *Comparison of the Change in Population and VMT in Contra Costa County*, compares the proposed General Plan growth forecast with the projected increase in total VMT.

Table 5.3-9 Comparison of the Change in Population and VMT in Contra Costa County

| Category | Existing | 2045 With Project | Change from Existing | |
|-------------------------|----------------------------|----------------------------|--------------------------|------|
| | | | Change | % |
| Population | 174,145 174,150 | 239,718 239,720 | 65,573 65,570 | 38% |
| Employment | 38,757 38,760 | 48,153 48,150 | 9,396 9,390 | 24% |
| Service Population | 212,902 212,910 | 287,874 287,870 | 74,969 74,960 | 35% |
| Daily VMT ¹ | 3,530,197 | 4,272,206 | 742,009 | 21% |
| VMT/person ² | 20.3 | 17.8 | -2.4 | -12% |
| VMT/SP | 16.6 | 14.8 | -1.7 | -10% |

Notes:

¹ Modeling of VMT is provided by Fehr and Peers is based on CCTA's Contra Costa Transportation Analysis Guidelines. VMT is from passenger vehicles and trucks that have an origin or destination in the county using a transportation origin-destination methodology. Accounting of VMT is based on the recommendations of CARB's RTAC created under SB 375.

² VMT per person includes VMT from all trip types, including employment and other service-based trips. This methodology differs from that in Section 5.17, *Transportation*, which is used to evaluate SB 743 transportation impacts.

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BAAQMD's AQMP requires that the VMT increase by less than or equal to the projected population increase from the proposed General Plan (i.e., generate the same or less VMT per population). However, because the proposed General Plan accommodates both residential and nonresidential growth, a better indicator of how efficiently the county is growing can be made by comparing the increase in VMT to the increase in service population (e.g., generate the same or less VMT per service population). This approach is similar to the efficiency metrics for GHG emissions, which consider the total service population when calculating project efficiency.

VMT estimates based on data provided by Fehr & Peers were calculated for Contra Costa County. As shown in Table 5.3-9, implementation of the proposed General Plan would result in an increase of daily VMT by 742,009 vehicle miles per day in the unincorporated county (about a 21-percent increase), but lead to a lower VMT per capita than under existing conditions (approximately a 12-percent decrease) and lower VMT per service population than existing conditions (approximately a 10-percent decrease). Thus, the proposed General Plan would be consistent with the goals of the 2017 *Clean Air Plan* and impacts would be less than significant.

Environmental Justice

BAAQMD's CEQA Air Quality Guidelines also require an analysis of consistency of the proposed General Plan with applicable Community Emission Reduction Plans (CERPs) and local Environmental Justice policies. Environmentally overburdened, underserved, and economically distressed communities may be subject to a higher risk of pollutant-related health effects than the general population because they may be exposed to higher pollutant concentrations; they may experience a larger health impact at a given pollutant concentration; or they may be adversely affected by lower pollutant concentrations than the general population. The most critical air pollutant affecting health in the Bay Area is PM_{2.5}, which includes DPM. The burden of breathing unhealthy air is often disproportionately borne by low-income communities and communities of color, many of which are situated closer to busy highways, ports, factories, and other pollution sources (BAAQMD 2023b).

Community Emissions Reduction Plans in Unincorporated Contra Costa County

The Richmond-North Richmond-San Pablo AB 617 community (Richmond Area) is partially within the EIR Study Area. The Draft PTCA Plan (Community Emissions Reduction Plan) for the Richmond Area was released for public review in December 2023 (BAAQMD 2023a). The PTCA Plan includes various strategies and actions to address the needs of people who have been disproportionately harmed by environmental injustice. Implementation of Mobile Strategy 6, *Public Transit, Bike, and Pedestrian Infrastructure*, would help to expand access to shared modes of travel and benefit the people who have been historically burdened with lack of viable transportation alternatives. Land Use Strategy 1, *Land Use*, provides recommended strategies to protect sensitive receptors and residential areas from existing and potential future pollution sources and exposure, with an intended outcome of improving community health for all, especially disproportionately impacted communities. Marine & Rail Strategy 1, *Reduce Cancer and Chronic Health Risk from Rail Operations and Facilities*, would directly benefit overburdened communities living adjacent to rail lines and/or operations, such as the Iron Triangle neighborhood in the City of Richmond. Requirements for cleaner rail equipment would improve the health of those most acutely impacted, as well as for the greater community.

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Thus, the PTCA Plan considers measures to reduce emissions and improve community health within Overburdened and AB 617 Communities consistent with BAAQMD's environmental justice goals. The proposed General Plan integrates goals, policies, and actions that seek to lessen the environmental burden on disadvantaged populations. Thus, the proposed project would be consistent with the draft PTCA Plan and BAAQMD's environmental justice goals; and impacts would be less than significant.

Contra Costa County Environmental Justice Policies

The proposed General Plan integrates goals, policies, and actions that seek to lessen the environmental burden on disadvantaged populations. The process to develop environmental justice policy guidance involved extensive discussions and many meetings with community members and other stakeholders who live in, work in, or engage with communities that are most impacted by environmental justice issues to ensure the Plan directly responds to the specific needs of Impacted Communities. Engagement included two collaboration meetings with environmental justice stakeholders to identify Impacted Communities and key environmental justice issues, three to four meetings with community members from each Impacted Community in the county, about 15 meetings with community-based organizations who work with Impacted Communities, a three-part meeting series with environmental justice stakeholders to review and refine draft policy guidance, and several meetings with the Board of Supervisors Sustainability Committee and the County's Sustainability Commission and Hazardous Materials Commission to discuss draft policy guidance. The County also conducted a hard copy and online survey to solicit feedback on draft environmental justice policy guidance, working with community partners to distribute hard copies at strategic locations to reach people during the COVID-19 pandemic, including at schools, libraries, farmers markets, food banks, and soup kitchens.

Contra Costa County is home to a high concentration of refineries and other large industrial facilities. To improve the health and safety impacts of these industrial facilities, the County adopted an Industrial Safety Ordinance. This Ordinance requires additional safety measures that go beyond State requirements that protect public health and safety.

In 2022, the County established the Office of Racial Equity and Social Justice to address local racial inequality and social injustice issues. The Office of Racial Equity and Social Justice is envisioned to enact and sustain principles, policies, practices, and investments that are racially just and equitable across all the County's departments and divisions.

State law, enacted through SB 1000, requires that general plans address environmental justice and respond to this inequity by both alleviating pollution and health impacts and compelling cities and counties to include the voices of previously marginalized residents in planning decisions. Therefore, the proposed General Plan contains certain goals, policies, and actions that help aim to promote environmental justice, especially within Impacted Communities.

Proposed policies within the Stronger Communities and Health and Safety Element would reduce and/or avoid environmental effects on vulnerable populations, include:

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- Stronger Communities Element Policies SC-P1.1 through SC-P1.6 and Actions SC-A1.1 through SC-A1.8, which ensure an equitable distribution of resources so that Impacted Communities are not disproportionately burdened by environmental pollution and other hazards.
- Health and Safety Element Policies HS-P1.1 through HS-P1.10 and Actions HS-A1.1 through HS-A1.6, that support community and environmental health.
- Health and Safety Element Policies HS-P2.1 through HS-P2.3 and Actions HS-A2.1 through HS-A2.5 that aim to reduce the disproportionate burden of environmental hazards and health risks in the county.

Thus, the proposed General Plan considers measures to reduce emissions and improve community health within Overburdened and AB 617 Communities consistent with BAAQMD's environmental justice goals. Thus, the proposed General Plan would be consistent with BAAQMD's environmental justice goals and impacts would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions. The proposed CAAP includes the "Clean Transportation Network" group of strategies, including Strategy TR-1, which provides actions for reducing VMT and associated transportation related emissions. As discussed under Impact 5.16-1, this strategy supports the County's existing plans to ensure accessibility and safety for alternative transportation options. Thus, implementation of the proposed CAAP would result in beneficial impacts to air quality. Because the proposed CAAP does not involve any land uses changes that would result in indirect growth or change in building density and intensity, implementation of the proposed CAAP would not conflict with or obstruct implementation of the 2017 *Clean Air Plan* and impacts would be less than significant.

Level of Significance Before Mitigation: Impact 5.3-1 would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation: Impact 5.3-1 would be less than significant.

Impact 5.3-2: Short-term construction activities associated with the proposed project would result in a cumulatively considerable net increase of criteria pollutants for which the project region is in non-attainment under applicable federal or State ambient air quality standards. [Threshold AQ-2]

This section analyzes potential impacts related to air quality that could occur from development under the proposed project in combination with the regional growth in the SFBAAB. The SFBAAB is currently designated a nonattainment area for California and National O₃, California and National PM_{2.5}, and California PM₁₀ AAQS. At a plan level, air quality impacts are measured by the potential for a project to exceed BAAQMD's significance criteria and contribute to the State and federal nonattainment designations in the SFBAAB. Any project that produces a significant regional air quality impact in an area that is in nonattainment

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adds to the cumulative impact. As described in Impact 5.3-1, the proposed project would be consistent with the 2017 Clean Air Plan. However, the proposed project could generate a substantial increase in criteria air pollutant emissions from construction activities that could exceed the BAAQMD regional significance thresholds.

Proposed General Plan

Construction

Construction activities would temporarily increase criteria air pollutant emissions within the SFBAAB. The primary source of NO_x emissions is the operation of construction equipment. The primary sources of particulate matter (PM₁₀ and PM_{2.5}) emissions are activities that disturb the soil, such as grading and excavation, road construction, and building demolition and construction. The primary sources of VOC emissions are the application of architectural coating and off-gas emissions associated with asphalt paving. A discussion of health impacts associated with air pollutant emissions generated by construction activities is included under “Air Pollutants of Concern” in Section 5.3.1.2 of this section.

Construction activities associated with the proposed General Plan would occur over the forecast year, causing short-term emissions of criteria air pollutants. Information regarding specific development projects, soil types, and the locations of receptors would be needed in order to quantify the level of impact associated with construction activity. Due to the scale of development activity associated with the proposed General Plan, emissions would likely exceed the BAAQMD regional significance thresholds. In accordance with the BAAQMD methodology, emissions that exceed the regional significance thresholds would cumulatively contribute to the nonattainment designations of the SFBAAB. Emissions of VOC and NO_x are precursors to the formation of O₃. In addition, NO_x is a precursor to the formation of particulate matter (PM₁₀ and PM_{2.5}). Therefore, the proposed General Plan would cumulatively contribute to the nonattainment designations of the SFBAAB for O₃ and particulate matter (PM₁₀ and PM_{2.5}).

Future development under the proposed General Plan would be subject to separate environmental review pursuant to CEQA in order to identify and mitigate potential air quality impacts. Subsequent environmental review of development projects would be required to assess potential impacts under BAAQMD’s project-level thresholds based on site-specific construction phasing and buildout characteristics. For the proposed General Plan, which is a broad-based policy plan, it is not possible to determine whether the scale and phasing of individual projects would exceed the BAAQMD’s short-term regional or localized construction emissions thresholds. As a result, construction activities associated with implementation of the proposed General Plan could potentially violate an air quality standard or contribute substantially to an existing or projected air quality violation.

Existing federal, State, and local regulations and the policies and programs of the proposed General Plan described throughout this section protect local and regional air quality. Continued compliance with these regulations would reduce construction-related impacts and proposed policies would help to reduce construction emissions even further. The following proposed General Plan policies and actions would serve to minimize potential adverse impacts related to particulate matter air pollution:

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- **Policy HS-P1.5:** Require new sources of air pollution that will generate significant new air quality impacts or expose sensitive receptors to substantial increases in harmful emissions of TACs to prepare a Health Risk Assessment that identifies appropriate mitigation consistent with BAAQMD California Environmental Quality Act (CEQA) Air Quality Guidelines, based on the findings of the Health Risk Assessment.
- **Policy HS-P1.7:** Require construction activities that involve large grading operations to implement additional construction measures identified in BAAQMD's CEQA Guidelines to reduce air pollutant emissions.
- **Policy HS-P1.9:** Prohibit nonessential diesel engine idling countywide and nonessential idling of all vehicles within 100 feet of sensitive receptors.
- **Action HS-A1.4:** Consult with BAAQMD and community stakeholders and amend County Ordinance Code Title 7 – Building Regulations to include a clean construction ordinance that requires projects to implement extra measures to reduce emissions at construction sites in or near places that are already overburdened by air pollution, such as Impacted Communities.
- **Policy HS-P2.1:** When evaluating health risk impacts of projects in Impacted Communities, use an excess cancer risk of 6.0 per million and a non-cancer (acute and chronic) hazard index greater than 1.0 as thresholds for finding that the project could cause a cumulatively considerable contribution and a significant impact.

While these existing and proposed regulations, policies, and programs have the potential to reduce emissions, potential future development projects accommodated under the proposed General Plan (individually or cumulatively) could still exceed the BAAQMD significance thresholds for construction. Therefore, implementation of the proposed General Plan could result in potentially significant construction-related regional air impacts.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions. Since implementation of the proposed CAAP would not involve any land use changes that would result in indirect growth or change in building density or intensity, its implementation would not directly result in the generation of construction-related criteria air pollutant emissions. Furthermore, the proposed CAAP would be subject to the same County standards that apply to development under the proposed General Plan, such as the 2017 *Clean Air Plan*. The 2017 *Clean Air Plan* includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as particulate matter, ozone, and TACs. It also includes control measures to reduce emissions of methane and other GHGs that are potent climate pollutants in the near-term and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

Therefore, the proposed CAAP would contribute to reducing construction-phase criteria air pollutant emissions and result in beneficial air quality impacts. Implementation of the proposed CAAP would not result in a cumulatively considerable net increase of a criteria pollutant for which the project region is in

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nonattainment under applicable federal or State ambient air quality standard, and impacts would be less than significant.

Level of Significance Before Mitigation: Impact 5.3-2 would be potentially significant.

Mitigation Measures

AQ-1 Prior to discretionary approval by the County for development projects subject to CEQA (California Environmental Quality Act) review (i.e., nonexempt projects), future development involving construction on 1 acre or more shall prepare and submit a technical assessment evaluating potential project construction-related air quality impacts to the County Department of Conservation and Development for review and approval. The evaluation shall be prepared in conformance with the Bay Area Air Quality Management District (BAAQMD) methodology for assessing air quality impacts identified in their *CEQA Air Quality Guidelines*. If construction-related criteria air pollutants are determined to have the potential to exceed the BAAQMD-adopted construction screening criteria and thresholds of significance, the Department of Conservation and Development shall require feasible mitigation measures to reduce air quality emissions. Potential measures may include:

- Require implementation of the BAAQMD Best Management Practices for fugitive dust control, such as:
 - All exposed surfaces (e.g., parking areas, staging areas, soil piles, grading areas, and unpaved access roads) shall be watered two times per day.
 - All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
 - All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
 - All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
 - All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
 - All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
 - All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
 - Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel.

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- Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

Measures shall be incorporated into appropriate construction documents (e.g., construction management plans) submitted to the County and shall be verified by the Department of Conservation and Development.

Level of Significance After Mitigation: Impact 5.3-2 would remain significant and unavoidable.

| | |
|---------------|--|
| Impact 5.3-3: | Development under the proposed project would result in a cumulatively considerable net increase of criteria pollutants for which the project region is in non-attainment under applicable federal or State AAQS. [Thresholds AQ-2] |
|---------------|--|

This section analyzes potential impacts related to air quality that could occur from development associated with the proposed project in combination with the regional growth in the SFBAAB. The SFBAAB is currently designated a nonattainment area for California and National O₃, California and National PM_{2.5}, and California PM₁₀ AAQS. At a plan level, air quality impacts are measured by the potential for a project to exceed BAAQMD's significance criteria and contribute to the State and federal nonattainment designations in the SFBAAB. Any project that produces a significant regional air quality impact in an area that is in nonattainment adds to the cumulative impact. As described in Impact 5.3-1, the proposed project would be consistent with the 2017 Clean Air Plan. However, the proposed project could generate a substantial increase in criteria air pollutant emissions from operational activities that could exceed the BAAQMD regional significance thresholds.

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Operation

BAAQMD has identified thresholds of significance for criteria pollutant emissions and criteria air pollutant precursors, including VOC, NO, PM₁₀ and PM_{2.5}. Development projects below the significance thresholds are not expected to generate sufficient criteria pollutant emissions to violate any air quality standard or contribute substantially to an existing or projected air quality violation. According to BAAQMD's CEQA Guidelines, long-range plans, such as the proposed General Plan, present unique challenges for assessing impacts. Due to the SFBAAB's nonattainment status for ozone and PM and the cumulative impacts of growth on air quality, these plans almost always have significant, unavoidable adverse air quality impacts.

Implementation and adoption of the proposed General Plan would result in an increase in development intensity in the county. Development under the proposed General Plan would result in direct and indirect criteria air pollutant emissions from transportation, energy (e.g., natural gas use), and area sources (e.g., aerosols and landscaping equipment). Mobile-source criteria air pollutant emissions are based on the traffic analysis conducted by Fehr and Peers (see Appendix 5.16-1, *Transportation Data*, of this Draft EIR). The emissions forecast for the county under the proposed General Plan compared to existing conditions is shown in Table

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5.3-10, *Scenario 1: Criteria Air Pollutant Emissions Forecast Compared to Existing Conditions*, and Table 5.3-11, *Scenario 2: Criteria Air Pollutant Emissions Forecast Compared to the Future No Project Conditions*. As shown in these tables, implementation of the proposed General Plan would result in an increase in criteria air pollutant emissions from existing conditions and the future no project conditions, respectively. As stated previously, Scenario 2 isolates the effects of the proposed General Plan because both the future no project and future with project conditions include emissions reductions from federal and State regulations.

As shown in these tables, development under the proposed General Plan would generate an increase in criteria air pollutant emission from both existing conditions (Scenario 1) as well as the future no project conditions (Scenario 2). Compliance with applicable policies and programs would contribute towards minimizing long-term emissions. However, implementation of the proposed General Plan would still exceed the BAAQMD significance threshold (no net increase) for operation. Therefore, implementation of the proposed General Plan could result in potentially significant long-term regional air quality impacts.

Table 5.3-10 Scenario 1. Criteria Air Pollutant Emissions Forecast Compared to Existing Conditions

| Sectors | Criteria Air Pollutant Emissions (Tons per year) | | | |
|--|--|-----------------|------------------|-------------------|
| | VOC | NO _x | PM ₁₀ | PM _{2.5} |
| Existing Land Uses (Year 2019) | | | | |
| Transportation ¹ | 41 | 207 | 26 | 10 |
| Energy ² | 11 | 206 | 15 | 15 |
| Residential Fuels (wood, kerosene, propane) ² | 758 | 15 | 115 | 115 |
| Off-Road Equipment ³ | 3 | 3 | 0 | 0 |
| Consumer Products ⁴ | 444 | — | — | — |
| Total Average (Tons/year) | 1,254 1,256 | 431 | 156 | 140 |
| Proposed General Plan Land Uses (Year 2045) | | | | |
| Transportation ¹ | 10 | 43 | 28 | 9 |
| Energy ² | 13 | 239 | 18 | 18 |
| Residential Fuels (wood, kerosene, propane) ² | 758 | 15 | 115 | 115 |
| Off-Road Equipment ³ | 4 | 3 | 0 | 0 |
| Consumer Products ⁴ | 681 | — | — | — |
| Total Average (Tons/year) | 1,465 | 300 | 161 | 142 |
| Change from Existing Land Uses | 214 209 | -131 | 5 | 2 |
| Increase? | Yes | No | Yes | Yes |
| Sectors | Criteria Air Pollutant Emissions (lbs per day) | | | |
| | VOC | NO _x | PM ₁₀ | PM _{2.5} |
| Existing Land Uses (Year 2019) | | | | |
| Transportation ¹ | 234 | 1,193 | 151 | 57 |
| Energy ² | 60 | 1,129 | 84 | 84 |
| Residential Fuels (wood, kerosene, propane) ² | 4,152 | 84 | 629 | 629 |
| Off-Road Equipment ³ | 17 | 16 | 1 | 1 |
| Consumer Products ⁴ | 2,432 | — | — | — |

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Table 5.3-10 Scenario 1. Criteria Air Pollutant Emissions Forecast Compared to Existing Conditions

| Sectors | Criteria Air Pollutant Emissions (Tons per year) | | | |
|--|--|-----------------|------------------|-------------------|
| | VOC | NO _x | PM ₁₀ | PM _{2.5} |
| Total Average (Tons/year) | 6,895 | 2,422 | 865 | 771 |
| Proposed General Plan Land Uses (Year 2045) | | | | |
| Transportation ¹ | 57 | 247 | 164 | 53 |
| Energy ² | 70 | 1,307 | 98 | 98 |
| Residential Fuels (wood, kerosene, propane) ² | 4,152 | 84 | 629 | 629 |
| Off-Road Equipment ³ | 23 | 17 | 1 | 1 |
| Consumer Products ⁴ | 3,730 | — | — | — |
| Total Average (lbs/day) | 8,032 | 1,656 | 891 | 780 |
| Change from Existing Land Uses | 1,137 | -766 | 26 | 9 |
| Increase? | Yes | No | Yes | Yes |

Notes: Emissions may not total to 100 percent due to rounding.

¹ EMFAC2021 V.1.0.2. Based on daily VMT provided by Fehr & Peers (see Appendix 5.16-1).

² Based on natural gas use provided by PG&E and residential & nonresidential fuels identified for the proposed CAAP.

³ OFFROAD2021 V.1.02.

⁴ Based on CalEEMod **User's Guide methodology** to calculate VOC emissions from use of household consumer cleaning products.

Table 5.3-11 Scenario 2. Criteria Air Pollutant Emissions Forecast Compared to the Future No Project Conditions

| Sectors | Criteria Air Pollutant Emissions (Tons per year) | | | |
|--|--|-----------------|------------------|-------------------|
| | VOC | NO _x | PM ₁₀ | PM _{2.5} |
| Existing Land Uses (Year 2045) | | | | |
| Transportation ¹ | 8 | 35 | 24 | 8 |
| Energy ² | 11 | 206 | 15 | 15 |
| Residential Fuels (wood, kerosene, propane) ² | 758 | 15 | 115 | 115 |
| Off-Road Equipment ³ | 3 | 3 | 0 | 0 |
| Consumer Products ⁴ | 444 | — | — | — |
| Total Average (Tons/year) | 1,224 | 259 | 154 | 138 |
| Proposed General Plan Land Uses (Year 2045) | | | | |
| Transportation ¹ | 10 | 43 | 28 | 9 |
| Energy ² | 13 | 239 | 18 | 18 |
| Residential Fuels (wood, kerosene, propane) ² | 758 | 15 | 115 | 115 |
| Off-Road Equipment ³ | 4 | 3 | 0 | 0 |
| Consumer Products ⁴ | 681 | — | — | — |
| Total Average (Tons/year) | 1,465 | 300 | 161 | 142 |
| Change from Existing Land Uses | 241 | 41 | 7 | 4 |
| Increase? | Yes | Yes | Yes | Yes |
| Sectors | Criteria Air Pollutant Emissions (lbs per day) | | | |
| | VOC | NO _x | PM ₁₀ | PM _{2.5} |
| Existing Land Uses (Year 2045) | | | | |
| Transportation ¹ | 47 | 201 | 136 | 44 |
| Energy ² | 60 | 1,129 | 84 | 84 |

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Table 5.3-11 Scenario 2. Criteria Air Pollutant Emissions Forecast Compared to the Future No Project Conditions

| Sectors | Criteria Air Pollutant Emissions (Tons per year) | | | |
|--|--|--------------------|------------------|-------------------|
| | VOC | NO _x | PM ₁₀ | PM _{2.5} |
| Residential Fuels (wood, kerosene, propane) ² | 4,152 | 84 | 629 | 629 |
| Off-Road Equipment ³ | 17 | 16 | 1 | 1 |
| Consumer Products ⁴ | 2,432 | — | — | — |
| Total Average (Tons/year) | 6,708 6,709 | 1,430 | 850 | 758 |
| Proposed General Plan Land Uses (Year 2045) | | | | |
| Transportation ¹ | 57 | 247 | 164 | 53 |
| Energy ² | 70 | 1,307 | 98 | 98 |
| Residential Fuels (wood, kerosene, propane) ² | 4,152 | 84 | 629 | 629 |
| Off-Road Equipment ³ | 23 | 17 | 1 | 1 |
| Consumer Products ⁴ | 3,730 | — | — | — |
| Total Average (lbs/year) | 8,032 | 1,656 | 891 | 780 |
| Change from Existing Land Uses | 1,324 1,323 | 226 225 | 44 42 | 22 23 |
| Increase? | Yes | Yes | Yes | Yes |

Notes: Emissions may not total to 100 percent due to rounding.

¹ EMFAC2021 V.1.0.2. Based on daily VMT provided by Fehr & Peers (see Appendix 5.16-1).

² Based on natural gas use provided by PG&E and residential fuels identified for the proposed CAAP.

³ OFFROAD2021 V.1.02.

⁴ Based on CalEEMod User's Guide methodology to calculate VOC emissions from use of household consumer cleaning products.

Proposed CAAP

As discussed under Impact 5.3-2, implementation of the proposed CAAP would not involve any land use changes that would result in indirect growth or change in building density or intensity; therefore, its implementation would not directly result in the generation of operation-related criteria air pollutant emissions. Furthermore, as discussed under Impact 5.3-2, the proposed CAAP would be subject to the same County standards that apply to development under the proposed General Plan, including the 2017 *Clean Air Plan*, which includes a wide range of control measures designed to decrease emissions of air pollutants, potent climate pollutants, and carbon dioxide by reducing fossil fuel combustion.

Additionally, the proposed CAAP would have co-benefits with regard to operation-related criteria air pollutant emissions. Building energy efficiency improvements (e.g., proposed CAAP Strategies BE-1 through BE-3) would promote sustainable building practices and would result in a decrease in natural gas use and associated criteria air pollutants (i.e., VOC, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}). Likewise, transportation strategies that reduce VMT (e.g., Strategy TR-1) would result in a reduction in criteria air pollutants from the transportation sector.

Therefore, the proposed CAAP would contribute to reducing operation-phase criteria air pollutant emissions and result in beneficial air quality impacts. Implementation of the proposed CAAP would not result in a cumulatively considerable net increase of a criteria pollutant for which the project region is in nonattainment under applicable federal or State ambient air quality standard, and impacts would be less than significant.

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Level of Significance Before Mitigation: Impact 5.3-3 would be potentially significant.

Mitigation Measures

AQ-2 Prior to discretionary approval by the County for development projects subject to CEQA (California Environmental Quality Act) review (i.e., nonexempt projects), future project applicants shall prepare and submit a technical assessment evaluating potential project operation-phase-related air quality impacts to the Department of Conservation and Development for review and approval. The evaluation shall be prepared in conformance with Bay Area Air Quality Management District (BAAQMD) methodology in assessing air quality impacts identified in their *CEQA Air Quality Guidelines*. If operation-related air pollutants are determined to have the potential to exceed the BAAQMD-adopted operational screening criteria and thresholds of significance, the Department of Conservation and Development shall require that applicants for new development projects incorporate mitigation measures to reduce air pollutant emissions during operational activities. The identified measures shall be included as part of the conditions of approval. Possible mitigation measures to reduce long-term emissions could include, but are not limited to the following:

- Implementing commute trip reduction programs.
- Unbundling residential parking costs from property costs.
- Expanding bikeway networks.
- Expanding transit network coverage or hours.
- Using cleaner-fueled vehicles.
- Exceeding the current Title 24 Building Envelope Energy Efficiency Standards.
- Establishing on-site renewable energy generation systems.
- Requiring all-electric buildings.
- Replacing gas-powered landscaping equipment with zero-emission alternatives.
- Expanding urban tree planting.

Level of Significance After Mitigation: Impact 5.3-3 would remain significant and unavoidable.

Impact 5.3-4: Construction activities associated with the proposed project could expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-3]

Implementation of the proposed project would cause or contribute significantly to elevated pollutant concentration levels such that it would expose sensitive receptors to elevated pollutant concentrations. Unlike regional emissions, localized emissions are typically evaluated in terms of air concentration rather than mass so they can be more readily correlated to potential health effects.

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Construction Community Risk and Hazards

Future construction under the proposed General Plan would temporarily elevate concentrations of TACs and DPM in the vicinity of sensitive land uses during construction activities. Since the details regarding future construction activities are not known at this time due to this analysis being conducted at a program level—including phasing of future individual projects, construction duration and phasing, and preliminary construction equipment—construction emissions are evaluated qualitatively in accordance with BAAQMD’s plan-level guidance. Subsequent environmental review of future development projects would be required to assess potential impacts under BAAQMD’s project-level thresholds. However, construction emissions associated with the proposed General Plan could exceed BAAQMD’s project level and cumulative significance thresholds for community risk and hazards. Therefore, construction-related health risk impacts associated with the proposed General Plan are considered potentially significant.

Proposed CAAP

As discussed under Impact 5.3-2, implementation of the proposed CAAP would not involve any land use changes that would result in indirect growth or change in building density or intensity; therefore, its implementation would not directly result in the generation of TAC and DPM emissions. In addition, as stated under Impact 5.3-3, implementation of the CAAP could result in beneficial long-term air quality impacts from the increase in energy efficiency, usage of clean energy, and reduction in VMT. Therefore, implementation of the proposed CAAP would not expose sensitive receptors to substantial pollutant concentrations of TACs, and impacts would be less than significant.

Level of Significance Before Mitigation: Impact 5.3-4 would be potentially significant.

Mitigation Measures

AQ-3 Prior to discretionary approval by the County for development projects subject to CEQA (California Environmental Quality Act) review (i.e., nonexempt projects), future development involving construction on 1 acre or more and within 1,000 feet of residential and other sensitive land uses (e.g., hospitals, nursing homes, schools, and day care centers) in the unincorporated county⁷, shall submit a health risk assessment (HRA) to the County Department of Conservation and Development for review and approval. The HRA shall be prepared in accordance with policies and procedures of the Office of Environmental Health Hazard Assessment (OEHHA) and the Bay Area Air Quality Management District (BAAQMD). The latest OEHHA guidelines shall be used for the analysis, including age sensitivity factors, breathing rates, and body weights appropriate for children ages 0 to 16 years. If the HRA shows that the incremental cancer risk exceeds the respective threshold established by the BAAQMD—project-level risk of six in one million in Impacted Communities, BAAQMD’s Overburdened Communities, and within 1,000 feet of a BAAQMD

⁷ As measured from the property line of the project site to the property line of the source/edge of the nearest travel lane.

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Overburdened Community; ten in a million in all other areas; PM_{2.5} emissions that exceed 0.3 µg/m³; or the appropriate noncancer hazard index exceeds 1.0—the applicant will be required to identify and demonstrate that mitigation measures are capable of reducing potential cancer and non-cancer risks below the respective threshold, including appropriate enforcement mechanisms. Measures to reduce risk may include, but are not limited to:

- Use of construction equipment rated as US EPA Tier 4 Interim or higher for equipment of 50 horsepower or more.
- Use of construction equipment fitted with Level 3 Diesel Particulate Filters for all equipment of 50 horsepower or more.

Measures identified in the HRA shall be included in the environmental document and/or incorporated into the site development plan as a component of the proposed project. Prior to issuance of any construction permit, the construction contractor shall ensure that all construction plans submitted to the Department of Conservation and Development clearly show incorporation of all applicable mitigation measures.

Level of Significance After Mitigation: Impact 5.3-4 would be less than significant. Mitigation Measure AQ-3 would ensure that discretionary development projects with construction proximate to sensitive receptors would reduce potential off-site health risks to less than BAAQMD significance criteria of six in one million (6E-06) cancer risk in Impacted Communities and ten in one million (10E-06) in all other areas, PM_{2.5} concentrations of 0.3 µg/m³, or the noncancer hazard index of 1.0. Mitigation Measure AQ-3 would require the use of newer, lower emitting construction equipment, and therefore, the proposed project would not expose sensitive receptors to substantial pollutant concentrations.

Impact 5.3-5: Operational-phase emissions associated with the proposed project could expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-3]

Implementation of the proposed project would cause or contribute significantly to elevated pollutant concentration levels such that it would expose sensitive receptors to elevated pollutant concentrations. Unlike regional emissions, localized emissions are typically evaluated in terms of air concentration rather than mass so they can be more readily correlated to potential health effects. Types of land uses that typically generate substantial quantities of TACs and PM_{2.5} include industrial and manufacturing (stationary sources) and warehousing land uses that have the potential to generate DPM from onsite equipment and mobile sources (trucks). Additionally, operation of new land uses consistent with the proposed project could generate new sources of criteria air pollutants and TACs in the county associated with CO hotspots. The following describes potential localized operational air quality impacts from implementation of the proposed project.

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CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO, called hotspots. These pockets have the potential to exceed the State 1-hour standard of 20 ppm or the 8-hour standard of 9.0 ppm. Since CO is produced in the greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to AAQS is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds.

The CCTA CMP must be consistent with the ABAG/MTC's Plan Bay Area, which is updated periodically. An overarching goal of the Plan Bay Area 2050 is to concentrate development in areas where there are existing services and infrastructure rather than allocate new growth in outlying areas where substantial transportation investments would be necessary to achieve the per capita passenger vehicle VMT and associated GHG emissions reductions.

The proposed General Plan would be consistent with the overall goals of the Plan Bay Area 2050. Additionally, the proposed General Plan would not hinder the capital improvements outlined in the CMP. Thus, the proposed General Plan would not conflict with the CCTA CMP. Furthermore, under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection to more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited—in order to generate a significant CO impact (BAAQMD 2023b). The proposed General Plan would not increase traffic volumes at affected intersections to more than BAAQMD screening criteria of 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (ArcGIS 2023). Therefore, overall, the proposed General Plan would not have the potential to substantially increase CO hotspots at intersections in the county and vicinity. Overall, these components of the proposed General Plan would contribute to reducing congestion and associated emissions. Localized air quality impacts related to mobile-source emissions would therefore be less than significant.

Stationary (Permitted) Sources

Various industrial and commercial processes (e.g., manufacturing and dry cleaning) allowed under the proposed General Plan would be expected to release TACs. TAC emissions generated by stationary and point sources of emissions within the Air Basin are regulated and controlled by BAAQMD. Land uses that would require a permit from BAAQMD for emissions of TACs include chemical processing facilities, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. Emissions of TACs from stationary sources would be controlled by BAAQMD through permitting and would be subject to further study and health risk assessment prior to the issuance of any necessary air quality permits under Regulation 2, *New Source Review*, as well as Regulation 11, Rule 18, *Reduction of Risk from Air Toxic Emissions at Existing Facilities*.

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Review under New Source Review ensures that stationary source emissions (permitted sources) would be reduced or mitigated below BAAQMD community risk and hazards thresholds. Though these sources would incrementally contribute to emissions in the unincorporated county individually, they would be mitigated to BAAQMD standards.

The following proposed General Plan policies and actions would serve to minimize potential adverse impacts on air quality by increasing standards and promoting cooperation with outside agencies:

- **Policy HS-P1.4.** Require new industrial development to locate significant pollution sources at maximum distance possible ~~as far away from sensitive receptors as possible~~.
- **Action HS-A1.3.** Consult with BAAQMD and community stakeholders and amend County Ordinance Code Title 8 – Zoning to include an Industrial-Sensitive Receptor Interface Overlay Zone applied to areas where residential land uses and other sensitive receptors interface or directly abut heavy industrial land uses. In the overlay zone, require industrial uses to reduce pollution and employ strategies to mitigate air quality, noise, vibration, odor, light, visual, and safety impacts on nearby sensitive receptors. In addition, require new sensitive receptors to install enhanced ventilation systems and implement other strategies, paid for by neighboring sources of pollution to the extent possible, to protect residents from health and quality of life impacts.
- **Action HS-A2.4.** Coordinate with BAAQMD to determine where to focus a targeted permit inspection program in Impacted Communities to help ensure enforcement of air quality permits.

The policies and actions listed above would minimize potential health risk impacts to sensitive receptors. Though the proposed General Plan includes policies to reduce exposure of sensitive receptors to pollution, and BAAQMD would ensure that on a project-by-project basis emission achieve their permit thresholds, emissions cannot be determined or modeled until specific development projects are proposed. Therefore, implementation of the proposed General Plan may result in projects that emit TACs and PM_{2.5} throughout the unincorporated county and result in potentially significant localized air quality impacts.

Nonpermitted Sources

TACs and PM_{2.5} from mobile sources when operating at a property (e.g., truck idling) are regulated by statewide rules and regulations, not by BAAQMD, and have the potential to generate substantial concentrations of air pollutants. The primary mobile source of TACs within the unincorporated county includes truck idling and use of off-road equipment.

New warehousing operations could generate substantial DPM and PM_{2.5} emissions from off-road cargo-handling equipment use and truck idling. In addition, some warehousing and industrial facilities may include use of TRUs for cold storage. New land uses in the unincorporated county that would be permitted under the proposed General Plan that use trucks, including trucks with TRUs, could generate an increase in DPM that would contribute to cancer and noncancer health risk in the Air Basin. Additionally, these types of facilities could also generate particulate matter (PM₁₀ and PM_{2.5}) that may cause an exceedance or contribute to the continuing exceedance of the federal and State AAQS. These new land uses could be near existing sensitive

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receptors. In addition, trucks would travel on regional transportation routes through the Bay Area, contributing to near-roadway DPM concentrations.

The proposed General Plan would potentially result in an increase of 5 million square feet of industrial land uses. The areas intended for industrial uses would be primarily associated with existing planned and/or permitted industrial development. Additionally, existing residences are close to existing and planned Industrial designations, and overlap with many of the Overburdened and Impacted Communities. As identified in the Figure 3-3, *Proposed General Plan Land Use Map*, industrial areas are proximate to residential areas in several areas of the unincorporated county, including:

- | | |
|------------------|-------------|
| ■ North Richmond | ■ Clyde |
| ■ Bay Point | ■ Vine Hill |
| ■ Byron | ■ Crockett |
| ■ Discovery Bay | ■ Rodeo |
| ■ Pacheco | |

These areas are proximate to sensitive receptors. Until specific future development projects are proposed, the associated emissions and concentrations cannot be determined or modeled.

The County will require project applicants to prepare project-specific analyses of qualifying projects and incorporate project-specific mitigation measures to reduce TACs, per the following policies:

- **Policy HS-P1.5.** Require new sources of air pollution that will generate significant new air quality impacts or expose sensitive receptors to substantial increases in harmful emissions of TACs to prepare a Health Risk Assessment that identifies appropriate mitigation consistent with BAAQMD California Environmental Quality Act (CEQA) Air Quality Guidelines, based on the findings of the Health Risk Assessment.
- **Policy HS-P2.1.** When evaluating health risk impacts of projects in Impacted Communities, use an excess cancer risk of 6.0 per million and a non-cancer (acute and chronic) hazard index greater than 1.0 as thresholds for finding that the project could cause a cumulatively considerable contribution and a significant impact.

If the results show that the incremental cancer risk exceeds ten in one million (or the risk thresholds in effect at the time a project is considered) or six in one million in Impacted Communities, the appropriate noncancer hazard index exceeds 1.0, or $0.3 \mu\text{g}/\text{m}^3$ of $\text{PM}_{2.5}$, or the thresholds as determined by the BAAQMD at the time a project is considered, the applicant is required to mitigate the potential cancer and noncancer risks to an acceptable level.

The following policy in the proposed General Plan would reduce the exposure of sensitive receptors in Impacted Communities and Overburdened Communities to TACs and $\text{PM}_{2.5}$:

- **Policy HS-P1.8.** Require new or expanded commercial and industrial projects ~~exceeding~~ resulting in 25,000 square feet or more of gross habitable floor area, such as warehouses and other large enclosed

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buildings, to be near zero-emissions (~~NZE~~) operations, including the facilities themselves and the associated fleets. Require all necessary measures, such as the following, to achieve ~~NZE~~ near zero emissions:

- (a) Reduce on-site energy consumption and increase on-site energy generation and energy storage.
- (b) Provide adequate on-site zero-emission ~~ZE~~-vehicle-capable parking for all anticipated truck traffic to prevent idling and off-site queuing.
- (c) Provide electrified loading docks with receptacles allowing plug-in of refrigerated trailers.
- (d) Use heavy-duty trucks that are model year 2014 or later and expedite a transition to ~~ZE~~ zero-emission trucks by establishing a clear timeline for electrification of trucks as they become commercially available. Ensure contracts with motor carriers include air quality incentives or requirements, such as providing incentives to fleets that meet United States Environmental Protection Agency (EPA) SmartWay standards or requiring use of ~~ZE~~ zero-emission or near-zero-emission ~~NZE~~ trucks.
- (e) Use a “clean fleet” of delivery vehicles as they become commercially available, but no later than 2025.
- (f) Use ~~ZE~~ zero-emission yard equipment, such as forklifts, pallet trucks and jacks, and stackers.
- (g) Implement practices to control and remove fugitive dust and other contaminants from paved areas.

Uses with fewer than five vehicles domiciled on-site are exempt from this policy.

The policies listed above aim to reduce pollution from industrial development to nearby sensitive receptors and would require more project-specific mitigation measures to reduce TACs, especially in Impacted Communities. Policy HS-P1.8 also pushes to reduce truck idling, promotes the replacement of older heavy-duty trucks, and supports near zero emissions operations.

Though the proposed General Plan includes policies and actions to reduce air pollutant emissions exposure within Impacted Communities, the proposed General Plan could result in specific development projects that could emit TACs and PM_{2.5}. The emissions associated with these facilities cannot be determined or modeled until specific development projects are proposed. Therefore, implementation of the proposed General Plan may result in projects that emit TACs and PM_{2.5} in the vicinity of Impacted Communities and sensitive receptors and result in potentially significant localized air quality impacts.

Therefore, without project-specific analysis health risk impacts from nonpermitted sources associated with development of industrial and commercial land uses are considered potentially significant.

Proposed CAAP

As discussed under Impact 5.3-2, implementation of the proposed CAAP would not involve any land use changes that would result in indirect growth or change in building density or intensity; therefore, its implementation would not directly result in the generation of operation-related criteria air pollutants, TAC and PM_{2.5} emissions, or generation of vehicle trips to produce CO hotspots. In addition, as stated under Impact

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5.3-3, implementation of the CAAP could result in beneficial long-term air quality impacts from the increase in energy efficiency, usage of clean energy, and reduction in VMT. A reduction in vehicle trips would contribute to further minimizing the potential creation of CO hotspots. Therefore, implementation of the proposed CAAP would not expose sensitive receptors to substantial pollutant concentrations of TACs, and impacts would be less than significant.

Level of Significance Before Mitigation: Impact 5.3-5 would be potentially significant.

Mitigation Measures

AQ-4 Prior to discretionary approval by the County, project applicants for new industrial or warehousing development projects that 1) have the potential to generate 100 or more diesel truck trips per day or have 40 or more trucks with operating diesel-powered transport refrigeration units, and 2) are within 1,000 feet of a sensitive land use (e.g., residential, schools, hospitals, nursing homes) or Impacted Community, as measured from the property line of the project to the property line of the nearest sensitive use, shall submit a health risk assessment (HRA) to the Department of Conservation and Development for review and approval. The HRA shall be prepared in accordance with policies and procedures of the State Office of Environmental Health Hazard Assessment (OEHHA) and the Bay Area Air Quality Management District (BAAQMD). The latest OEHHA guidelines shall be used for the analysis, including age sensitivity factors, breathing rates, and body weights appropriate for children ages 0 to 16 years. If the HRA shows that the cumulative and project-level incremental cancer risk, noncancer hazard index, and/or PM_{2.5} exceeds the respective threshold, as established by BAAQMD (all areas of the unincorporated county) and project-level risk of six in one million in Impacted Communities, BAAQMD's Overburdened Communities, and within 1,000 feet of a BAAQMD Overburdened Community; ten in a million in all other areas; PM_{2.5} emissions that exceed 0.3 µg/m³; or the appropriate noncancer hazard index exceeds 1.0, the project applicant will be required to identify best available control technologies for toxics (T-BACTs) and appropriate enforcement mechanisms, and demonstrate that they are capable of reducing potential cancer, noncancer risks, and PM_{2.5} to an acceptable level. T-BACTs may include but are not limited to:

- Restricting idling on-site beyond Air Toxic Control Measures idling restrictions
- Electrifying warehousing docks
- Requiring use of newer equipment
- Requiring near-zero or zero-emission trucks for a portion of the vehicle fleet based on opening year
- Truck Electric Vehicle (EV) Capable trailer spaces
- Restricting off-site truck travel through the creation of truck routes

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T-BACTs identified in the HRA shall be identified as mitigation measures in the environmental document and/or incorporated into the site plan.

Level of Significance After Mitigation: Impact 5.3-5 would remain significant and unavoidable. Development allowed by the proposed project could result in new sources of TACs or PM_{2.5} near existing or planned sensitive receptors. Review of development projects by BAAQMD for permitted sources of air toxics (e.g., industrial facilities, dry cleaners, and gasoline dispensing facilities) in addition to proposed General Plan policies and actions would ensure that health risks are minimized. Additionally, Mitigation Measure AIR-4 would ensure mobile sources of TACs not covered under BAAQMD permits are considered during subsequent project-level review by the County. Individual development projects would be required to achieve the incremental risk thresholds established by BAAQMD, and TAC and PM_{2.5} project-level impacts would be less than significant. However, these projects could contribute to significant cumulative risk in the Bay Area that could affect sensitive populations and Overburdened and Impacted Communities. As a result, the proposed project's contribution to cumulative health risk is considered significant and unavoidable.

Impact 5.3-6: The proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. [Threshold AQ-4]

Proposed General Plan

Construction-Related Odors

During construction activities of future development in the county, construction equipment exhaust and application of asphalt and architectural coatings would temporarily generate odors. Any construction-related odor emissions would be temporary and intermittent. Additionally, noxious odors would be confined to the immediate vicinity of the construction equipment. By the time such emissions reach any sensitive receptor sites, they would be diluted to well below any level of air quality concern, and impacts would be less than significant.

Operational-Related Odors

Industrial Land Uses

Industrial land uses are the primary types of land uses that have the potential to generate objectionable odors. Future environmental review could be required for industrial projects listed in BAAQMD's CEQA Guidelines Table 4 Project Screening Trigger Levels for Potential Odor Sources to ensure that sensitive land uses are not exposed to nuisance odors (BAAQMD 2023b). Consequently, review of projects using BAAQMD's odor screening distances is necessary to ensure that odor impacts are minimized. Odor impacts could be significant for new projects that have the potential to generate odors within the odor screening distances.

Residential and Other Land Uses

Residential and other nonresidential, nonindustrial land uses that would be accommodated by the proposed General Plan could result in the generation of odors such as exhaust from landscaping equipment and from cooking. Unlike industrial land uses, these are not considered potential generators of odor that could affect a substantial number of people.

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Furthermore, nuisance odors are regulated under BAAQMD Regulation 7, Odorous Substances, which requires abatement of any nuisance generating an odor complaint. In addition, odors are also regulated under BAAQMD Regulation 1, Rule 1-301, *Public Nuisance*. Compliance with BAAQMD Regulation 7 would ensure that odor impacts associated with the proposed General Plan are minimized to a less than significant level.

Proposed CAAP

As discussed under Impact 5.3-2, implementation of the proposed CAAP would not involve any land use changes that would result in indirect growth or change in building density or intensity; therefore, its implementation would not directly result in the generation of odors or other emissions. Therefore, implementation of the proposed CAAP would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people, and impacts would be less than significant.

Level of Significance Before Mitigation: Impact 5.3-6 would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation: Impact 5.3-6 would be less than significant.

5.3.5 Cumulative Impacts

Construction

The cumulative setting for air quality is the Air Basin. The BAAQMD is designated nonattainment for O₃, PM_{2.5}, and PM₁₀ under the California and/or National AAQS. Construction of cumulative projects would further degrade the regional and local air quality. Air quality would be temporarily impacted during construction activities. Implementation of mitigation measures for related projects would reduce cumulative impacts. However, project-related construction emissions could still potentially exceed the BAAQMD significance thresholds on a project and cumulative basis. Consequently, the proposed project's contribution to cumulative air quality impacts would be cumulatively considerable and would therefore be significant.

Operation

For operational air quality emissions, any project that does not exceed or can be mitigated to less than the daily regional threshold values is not considered by BAAQMD to be a substantial source of air pollution and does not add significantly to a cumulative impact. Operation of the proposed project would result in emissions in excess of the BAAQMD regional emissions thresholds for long-term operation. Therefore, the proposed project's air pollutant emissions would be cumulatively considerable and therefore significant.

Health Risk (TACs and PM_{2.5})

Development allowed by the proposed General Plan could result in new sources of criteria air pollutant emissions and/or TACs near existing or planned sensitive receptors as well as proximate to other existing and planned major sources of air pollution including high volume roadways, truck distribution centers, ports,

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railyards and rail lines, refineries, airports, chrome plating facilities, crematoriums, dry cleaners using perchloroethylene, generators, and gasoline dispensing facilities. Review of new development projects by BAAQMD for permitted sources of air toxics (e.g., industrial facilities, dry cleaners, and gasoline dispensing facilities), in addition to proposed General Plan policies and actions, would ensure that health risks are minimized. Additionally, Mitigation Measure AQ-4 would ensure mobile sources of TACs not covered under BAAQMD permits are considered during subsequent project-level review by the County. Individual development projects would be required to achieve the incremental risk thresholds established by BAAQMD; therefore, project-level impacts would be less than significant. However, cumulative construction plus operation of these projects in areas with high background risk could contribute to significant cumulative risk in the Bay Area that could affect sensitive populations and disadvantaged communities. As a result, the proposed General Plan's contribution to cumulative health risk is considered significant.

5.3.6 Level of Significance Before Mitigation

After implementation of regulatory requirements and standard conditions of approval, some impacts would be less than significant: Impacts 5.3-1, 5.3-5, and 5.3-6.

Without mitigation, these impacts would be **potentially significant**:

- **Impact 5.3-2:** Short-term construction activities associated with the proposed project would result in a cumulatively considerable net increase of criteria pollutants for which the project region is in non-attainment under applicable federal or State ambient air quality standards.
- **Impact 5.3-3:** Development under the proposed project would result in a cumulatively considerable net increase of criteria pollutants for which the project region is in non-attainment under applicable federal or State AAQS.
- **Impact 5.3-4:** Construction activities associated with the proposed project could expose sensitive receptors to substantial pollutant concentrations.
- **Impact 5.3-5:** Operational-phase emissions associated with the proposed project could expose sensitive receptors to substantial pollutant concentrations and cumulatively contribute to elevated health risk in the Air Basin.

5.3.7 Mitigation Measures

Impact 5.3-2

AQ-1 Prior to discretionary approval by the County for development projects subject to CEQA (California Environmental Quality Act) review (i.e., nonexempt projects), future development involving construction on 1 acre or more shall prepare and submit a technical assessment evaluating potential project construction-related air quality impacts to the County Department of Conservation and Development for review and approval. The evaluation shall be prepared in conformance with the Bay Area Air Quality Management District (BAAQMD) methodology for assessing air quality impacts identified in their *CEQA Air Quality Guidelines*. If construction-related criteria air pollutants are determined to have the potential to exceed

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the BAAQMD–adopted construction screening criteria and thresholds of significance, the Department of Conservation and Development shall require feasible mitigation measures to reduce air quality emissions. Potential measures may include:

- Require implementation of the BAAQMD Best Management Practices for fugitive dust control, such as:
 - All exposed surfaces (e.g., parking areas, staging areas, soil piles, grading areas, and unpaved access roads) shall be watered two times per day.
 - All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
 - All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
 - All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
 - All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
 - All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
 - All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
 - Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel.
 - Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD’s General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

Measures shall be incorporated into appropriate construction documents (e.g., construction management plans) submitted to the County and shall be verified by the Department of Conservation and Development.

Impact 5.3-3

AQ-2

Prior to discretionary approval by the County for development projects subject to CEQA (California Environmental Quality Act) review (i.e., nonexempt projects), future project applicants shall prepare and submit a technical assessment evaluating potential project operation-phase-related air quality impacts to the Department of Conservation and

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Development for review and approval. The evaluation shall be prepared in conformance with Bay Area Air Quality Management District (BAAQMD) methodology in assessing air quality impacts identified in their *CEQA Air Quality Guidelines*. If operation-related air pollutants are determined to have the potential to exceed the BAAQMD-adopted operational screening criteria and thresholds of significance, the Department of Conservation and Development shall require that applicants for new development projects incorporate mitigation measures to reduce air pollutant emissions during operational activities. The identified measures shall be included as part of the conditions of approval. Possible mitigation measures to reduce long-term emissions could include, but are not limited to the following:

- Implementing commute trip reduction programs.
- Unbundling residential parking costs from property costs.
- Expanding bikeway networks.
- Expanding transit network coverage or hours.
- Using cleaner-fueled vehicles.
- Exceeding the current Title 24 Building Envelope Energy Efficiency Standards.
- Establishing on-site renewable energy generation systems.
- Requiring all-electric buildings.
- Replacing gas-powered landscaping equipment with zero-emission alternatives.
- Expanding urban tree planting.

Impact 5.3-4

AQ-3

Prior to discretionary approval by the County for development projects subject to CEQA (California Environmental Quality Act) review (i.e., nonexempt projects), future development involving construction on 1 acre or more and within 1,000 feet of residential and other sensitive land uses (e.g., hospitals, nursing homes, schools, and day care centers) in the unincorporated county⁸, shall submit a health risk assessment (HRA) to the County Department of Conservation and Development for review and approval. The HRA shall be prepared in accordance with policies and procedures of the Office of Environmental Health Hazard Assessment (OEHHA) and Bay Area Air Quality Management District (BAAQMD). The latest OEHHA guidelines shall be used for the analysis, including age sensitivity factors, breathing rates, and body weights appropriate for children ages 0 to 16 years. If the HRA shows that the incremental cancer risk exceeds the respective threshold, as established by the BAAQMD —project-level risk of six in one million in Impacted Communities, BAAQMD's Overburdened Communities, and within 1,000 feet of a BAAQMD Overburdened

⁸ As measured from the property line of the project site to the property line of the source/edge of the nearest travel lane.

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Community; ten in a million in all other areas; PM_{2.5} emissions that exceed 0.3 µg/m³; or the appropriate noncancer hazard index exceeds 1.0—the applicant will be required to identify and demonstrate that mitigation measures are capable of reducing potential cancer and non-cancer risks below the respective threshold, including appropriate enforcement mechanisms. Measures to reduce risk may include, but are not limited to:

- Use of construction equipment rated as US EPA Tier 4 Interim for equipment of 50 horsepower or more.
- Use of construction equipment fitted with Level 3 Diesel Particulate Filters for all equipment of 50 horsepower or more.

Measures identified in the HRA shall be included in the environmental document and/or incorporated into the site development plan as a component of the proposed project. Prior to issuance of any construction permit, the construction contractor shall ensure that all construction plans submitted to the Department of Conservation and Development clearly show incorporation of all applicable mitigation measures.

Impact 5.3-5

AQ-4

Prior to discretionary approval by the County, project applicants for new industrial or warehousing development projects that 1) have the potential to generate 100 or more diesel truck trips per day or have 40 or more trucks with operating diesel-powered transport refrigeration units, and 2) are within 1,000 feet of a sensitive land use (e.g., residential, schools, hospitals, nursing homes) or Impacted Community, as measured from the property line of the project to the property line of the nearest sensitive use, shall submit a health risk assessment (HRA) to the Department of Conservation and Development for review and approval. The HRA shall be prepared in accordance with policies and procedures of the State Office of Environmental Health Hazard Assessment (OEHHA) and the Bay Area Air Quality Management District (BAAQMD). The latest OEHHA guidelines shall be used for the analysis, including age sensitivity factors, breathing rates, and body weights appropriate for children ages 0 to 16 years. If the HRA shows that the cumulative and project-level incremental cancer risk, noncancer hazard index, and/or PM_{2.5} exceeds the respective threshold, as established by BAAQMD (all areas of the unincorporated County) and project-level risk of six in one million in Impacted Communities, BAAQMD's Overburdened Communities, and within 1,000 feet of a BAAQMD Overburdened Community; ten in a million in all other areas; PM_{2.5} emissions that exceed 0.3 µg/m³; or the appropriate noncancer hazard index exceeds 1.0, the project applicant will be required to identify best available control technologies for toxics (T-BACTs) and appropriate enforcement mechanisms, and demonstrate that they are capable of reducing potential cancer, noncancer risks, and PM_{2.5} to an acceptable level. T-BACTs may include but are not limited to:

- Restricting idling on-site beyond Air Toxic Control Measures idling restrictions

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- Electrifying warehousing docks
- Requiring use of newer equipment
- Requiring near-zero or zero-emission trucks for a portion of the vehicle fleet based on opening year.
- Truck Electric Vehicle (EV) Capable trailer spaces.
- Restricting off-site truck travel through the creation of truck routes.

T-BACTs identified in the HRA shall be identified as mitigation measures in the environmental document and/or incorporated into the site plan.

5.3.8 Level of Significance After Mitigation

Impact 5.3-2

Development in accordance with the proposed project would generate short-term emissions that would exceed BAAQMD's regional significance thresholds and cumulatively contribute to the nonattainment designations of the SFBAAB. Mitigation Measure AQ-1 would reduce construction-related air pollutant emissions to the extent feasible. However, individual projects accommodated under the proposed project may exceed the BAAQMD regional significance thresholds. Therefore, Impact 5.3-2 would remain ***significant and unavoidable***.

Impact 5.3-3

Development in accordance with the proposed project would generate long-term emissions that would exceed BAAQMD's regional significance thresholds and cumulatively contribute to the nonattainment designations of the SFBAAB. Mitigation Measure AQ-2 would reduce air pollutant emissions to the extent feasible. However, Impact 5.3-3 would remain ***significant and unavoidable***.

Contributing to the nonattainment status would also contribute to elevating health effects associated to these criteria air pollutants. Known health effects related to ozone include worsening of bronchitis, asthma, and emphysema and a decrease in lung function. Health effects associated with particulate matter include premature death of people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms. Reducing emissions would further contribute to reducing possible health effects related to criteria air pollutants.

It is speculative for this broad-based policy plan to determine how exceeding the regional thresholds would affect the number of days the region is in nonattainment since mass emissions are not correlated with concentrations of emissions, or how many additional individuals in the air basin would be affected by the health effects cited above.

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This EIR quantifies the increase in criteria air pollutants emissions in the unincorporated county. However, at a programmatic level analysis, it is not feasible to quantify the increase in TACs from stationary sources associated with the proposed project or meaningfully correlate how regional criteria air pollutant emissions above the BAAQMD significance thresholds correlate with basinwide health impacts.

To determine cancer and noncancer health risk, the location, velocity of emissions, meteorology and topography of the area, and locations of receptors are equally important as model parameters as the quantity of TAC emissions. The white paper in Appendix C “We Can Model Regional Emissions, But Are the Results Meaningful for CEQA” describe several of the challenges of quantifying local effects—particularly health risks—for large-scale, regional projects, and these are applicable to both criteria air pollutants and TACs. Similarly, the two amicus briefs filed by the air districts on the Friant Ranch case (see Appendix 5.3-1) describe two positions regarding CEQA requirements, modeling feasibility, variables, and reliability of results for determining specific health risks associated with criteria air pollutants. The discussions also include the distinction between criteria air pollutant emissions and TACs with respect to health risks. The following summarizes major points about the infeasibility of assessing health risks of criteria air pollutant emissions and TACs associated with implementation of a general plan.

To achieve and maintain air quality standards, BAAQMD has established numerical emission indicators of significance for regional and localized air quality impacts for both construction and operational phases of a local plan or project. BAAQMD has established the thresholds based on “scientific and factual data that is contained in the federal and state Clean Air Acts” and recommends “that these thresholds be used by lead agencies in making a determination of significance.” The numerical emission indicators are based on the recognition that the air basin is a distinct geographic area with a critical air pollution problem for which ambient air quality standards have been promulgated to protect public health. The thresholds represent the maximum emissions from a plan or project that are expected not to cause or contribute to an exceedance of the most stringent applicable national or state ambient air quality standard. By analyzing the plan’s emissions against the thresholds, an EIR assesses whether these emissions directly contribute to any regional or local exceedances of the applicable ambient air quality standards and exposure levels.

BAAQMD currently does not have methodologies that would provide the County with a consistent, reliable, and meaningful analysis to correlate specific health impacts that may result from a proposed project’s mass emissions.⁹ For criteria air pollutants, exceedance of the regional significance thresholds cannot be used to correlate a project to quantifiable health impacts unless emissions are sufficiently high to use a regional model. BAAQMD has not provided methodology to assess the specific correlation between mass emissions generated

⁹ In April 2019, the Sacramento Metropolitan Air Quality Management District (SMAQMD) published an Interim Recommendation on implementing *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 (“Friant Ranch”) in the review and analysis of proposed projects under CEQA in Sacramento County. Consistent with the expert opinions submitted to the court in Friant Ranch by the San Joaquin Valley Air Pollution Control District (SJVAPCD) and South Coast AQMD, the SMAQMD guidance confirms the absence of an acceptable or reliable quantitative methodology that would correlate the expected criteria air pollutant emissions of projects to likely health consequences for people from project-generated criteria air pollutant emissions. The SMAQMD guidance explains that while it is in the process of developing a methodology to assess these impacts, lead agencies should follow the Friant Court’s advice to explain in meaningful detail why this analysis is not yet feasible. Since this interim memorandum SMAQMD has provided methodology to address health impacts. However, a similar analysis is not available for projects within the Bay Area.

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and their effect on health (see Appendix C: San Joaquin Valley Air Pollution Control District’s amicus brief, and South Coast AQMD’s amicus brief).

Ozone concentrations depend on a variety of complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Secondary formation of particulate matter (PM) and ozone can occur far from sources as a result of regional transport due to wind and topography (e.g., low-level jet stream). Photochemical modeling depends on all emission sources in the entire domain (i.e., modeling grid). Low resolution and spatial averaging produce “noise” and modeling errors that usually exceed individual source contributions. Because of the complexities of predicting ground-level ozone concentrations in relation to the National and California AAQS, it is not possible to link health risks to the magnitude of emissions exceeding the significance thresholds.

Current models used in CEQA air quality analyses are designed to estimate potential project construction and operation emissions for defined projects. The estimated emissions are compared to significance thresholds, which are keyed to reducing emissions to levels that will not interfere with the region’s ability to attain the health-based standards. This serves to protect public health in the overall region, but there is currently no CEQA methodology to determine the impact of emissions (e.g., pounds per day) on future concentration levels (e.g., parts per million or micrograms per cubic meter) in specific geographic areas. CEQA thresholds, therefore, are not specifically tied to potential health outcomes in the region.

The EIR must provide an analysis that is understandable for decision making and public disclosure. Regional-scale modeling may provide a technical method for this type of analysis, but it does not necessarily provide a meaningful way to connect the magnitude of a project’s criteria pollutant emissions to health effects without speculation. Additionally, this type of analysis is not feasible at a general plan level because the location of emissions sources and quantity of emissions are not known. However, because cumulative development within the county would exceed the regional significance thresholds, the proposed project could contribute to an increase in health effects in the basin until the attainment standards are met in the Air Basin.

Impact 5.3-4

Mitigation Measure AQ-3 would require preparation of a construction health risk assessment (HRA) that would identify measures that would reduce DPM and PM_{2.5} emissions below the BAAQMD significance thresholds by requiring use of newer, lower emitting construction equipment, and would not expose sensitive receptors to substantial pollutant concentrations. Therefore, Impact 5.3-4 would be *less than significant* with mitigation incorporated.

Impact 5.3-5

Development allowed by the proposed General Plan could result in new sources of criteria air pollutant emissions and/or TACs near existing or planned sensitive receptors. Review of development projects by BAAQMD for permitted sources of air toxics (e.g., industrial facilities, dry cleaners, and gasoline dispensing facilities), in addition to proposed General Plan policies and actions, would ensure that health risks are minimized. Additionally, Mitigation Measure AQ-4 would ensure mobile sources of TACs not covered under BAAQMD permits are considered during subsequent project-level review by the County. Individual

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development projects would be required to achieve the incremental risk thresholds established by BAAQMD; therefore, project-level impacts would be less than significant. However, cumulative construction and operation of these projects in areas with high background risk could contribute to significant cumulative risk in the Bay Area that could affect sensitive populations and disadvantaged communities. As a result, Impact 5.3-5 would remain ***significant and unavoidable***.

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APPENDIX C:
REVISED APPENDIX
5.3-1, *AIR QUALITY AND*
GREENHOUSE GAS
EMISSIONS DATA
OF THE DEIR

Land Use Statistics - Contra Costa County

| | Existing Conditions | Buildout Estimates | Projected Growth (Proposed Project) | |
|---------------------------|---------------------|--------------------|--|------------|
| | 2019 | 2045 | 2019-2045 | % |
| Housing Units | 60,320 | 83,500 | 23,180 | 38% |
| Population | 174,150 | 239,720 | 65,570 | 38% |
| Employment | 38,760 | 48,150 | 9,390 | 24% |
| Service Population | 212,910 | 287,870 | 74,960 | 35% |

AQMP Consistency Analysis

Comparison of the Change in Population and VMT in Contra Costa (O-D Method)

| Category | Existing | 2045 Proposed | 2045 Change from Existing | |
|-------------|-----------|------------------|---------------------------|---------|
| | | | Change | Percent |
| Population | 174,150 | 239,720 | 65,570 | 38% |
| Employment | 38,760 | 48,150 | 9,390 | 24% |
| SP | 212,910 | 287,870 | 74,960 | 35% |
| VMT per Day | 3,530,197 | 4,272,206 | 742,009 | 21% |
| VMT/person | 20.3 | 17.8 | -2.4 | -12% |
| VMT/SP | 16.6 | 14.8 | -1.7 | -10% |

Note Origin-Destination (O-D) Methodology is not the same methodology for SB 743, which considers only commute-trip VMT.

Modeling of vehicle miles traveled (VMT) is provided by Fehr and Peers is based on the Contra Costa County Transportation Authority's Contra Costa Transportation Analysis Guidelines. VMT from passenger vehicles and trucks that have an origin or destination in the County using a transportation origin-destination methodology. Accounting of VMT is based on the recommendations of CARB's Regional Targets Advisory Committee (RTAC) created under Senate Bill 375 (SB 375). For accounting purposes, there are three types of trips:

- » Vehicle trips that originated and terminated within the County (Internal-Internal, I-I). Using the accounting rules established by RTAC, 100 percent of the length of these trips, and their emissions, are attributed to the County.
- » Vehicle trips that either originated or terminated (but not both) within the County (Internal-External or External-Internal, I-X and X-I). Using the accounting rules established by RTAC, 50 percent of the trip length for these trips is attributed to the County.
- » Vehicle trips that neither originated nor terminated within the County. These trips are commonly called pass-through trips (External-External, X-X). Using the accounting rules established by RTAC, these trips are not counted towards the County's VMT or emissions.

Contra Costa Community GHG Emissions Inventory and Forecast

| Category | | | | | Business-As-Usual | | | | Business-As-Usual | | | |
|--|-----------|------|-----------------|------|-------------------|-----------------------|-----------------------------|--|-------------------|-----------------------|-----------------------------|------|
| 2005 | | | Existing (2019) | | 2030 | | Change from Existing (2030) | | 2045 | | Change from Existing (2045) | |
| TOTAL | | | TOTAL | | TOTAL | | TOTAL | | TOTAL | | TOTAL | |
| On-Road Transportation | 628,200 | 49% | 464,040 | 47% | 542,020 | 48% | 77,980 | | 605,080 | 47% | 141,040 | 30% |
| Residential Energy | 294,930 | 23% | 191,780 | 19% | 217,710 | 19% | 25,930 | | 259,380 | 20% | 67,600 | 35% |
| Nonresidential Energy | 118,740 | 9% | 85,390 | 9% | 93,590 | 8% | 8,200 | | 106,070 | 8% | 20,680 | 24% |
| Solid Waste | 243,940 | 19% | 220,760 | 22% | 229,450 | 20% | 8,690 | | 260,490 | 20% | 39,730 | 18% |
| Agriculture | 33,350 | 3% | 36,130 | 4% | 34,770 | 3% | -1,360 | | 33,410 | 3% | -2,720 | -8% |
| Off-road Equipment | 34,160 | 3% | 54,010 | 5% | 69,520 | 6% | 15,510 | | 76,100 | 6% | 22,090 | 41% |
| Water and Wastewater | 8,080 | 1% | 4,870 | 0% | 5,530 | 0% | 660 | | 6,590 | 1% | 1,720 | 35% |
| BART | 1,040 | 0% | 190 | 0% | 220 | 0% | 30 | | 260 | 0% | 70 | 37% |
| Land Use and Sequestration | -70,860 | -5% | -70,860 | -7% | -67,580 | -6% | 3,280 | | -58,890 | -5% | 11,970 | -17% |
| Total Community Emissions (BAU) | 1,291,580 | 100% | 986,310 | 100% | 1,125,230 | 100% | 138,920 | | 1,288,490 | 100% | 302,180 | 31% |
| Total Community Emissions with State Actions | NA | | NA | | 961,860 | | -24,450 | | 877,010 | | -109,300 | |
| Residents | 154,270 | | 174,150 | | 199360 | | | | 239,720 | | 65,570 | 38% |
| MTCO ₂ e/capita | 8.4 | | 5.7 | | 5.6 | | | | 5.4 | | -0.3 | -5% |
| Trajectory to AB 32, SB 32 and AB 1279 | | | | | 658,700 | 40% below 1990 levels | | | 164,680 | 85% below 1990 levels | | |
| Achieves Target without State Actions? | | | | | No | | | | No | | | |
| Reductions from State Actions | | | | | -163,370 | | | | -411,480 | | | |
| Reductions from existing local actions | | | | | -4,390 | | | | -2,590 | | | |
| Reductions from CAP GHG Reduction Strategies | | | | | -318,010 | | | | -711,290 | | | |
| Total GHG emissions with Existing and Planned Actions & CAP GHG Reduction Strategies | | | | | 639,460 | | | | 163,130 | | | |
| MTCO ₂ e/capita | | | | | 3.21 | | | | 0.68 | | | |
| Achieves Target with Existing and Planned Actions? | | | | | Yes | | | | Yes | | | |

Source: Based on the emissions inventory and forecast being conducted for the County's Climate Action and Adaptation Plan.

Notes: Emissions may not total to 100 percent due to rounding. Based on GWPs in the IPCC Sixth Assessment Report (AR6). BAU = Business-As-Usual.

The emissions inventory and forecast is based on activity data for Contra Costa County. This emissions inventory methodology identifies GHG emissions produced within a jurisdiction and captures direct and indirect emissions generated by land uses in a community. The activity data methodology allows a direct comparison between a community's GHG emissions and that identified by CARB in the SB 32 and AB 1279 inventory and forecast prepared for the scoping plan. Unlike a "consumption-based" GHG emissions inventory, an activity-based emissions inventory does not capture lifecycle emissions associated with consumptions of goods. While a consumption-based emissions inventory approach may document GHG emissions associated with the final demand (regardless of where they were generated), a consumption-based emissions inventory excludes emissions associated with products produced within the jurisdiction but consumed elsewhere. For these reasons, an activity-based emissions inventory was determined to be most applicable for determining significant impacts under CEQA.

Unincorporated Contra Costa County GHG emissions in 2005 were 1,291,580 MTCO₂e, translating to a 1990 GHG emissions level of 1,097,840 MTCO₂e

Note: Excludes GHG emissions natural gas use from Permitted Sources within the County

County of Contra Costa Community Criteria Air Pollutant Emissions Inventory and Forecast

Sources

¹ Source: Fehr and Peers 2023; EMFAC2021 Version 1.0.2 Emissions Database (County - Contra Costa)

² Sources: Natural Gas Use based on the Climate Action and Adaptation Plan. CalEEMod User's Guide for natural gas criteria air pollutant emission rates. Excludes criteria air pollutant emissions natural gas use from Permitted Sources within the County.

³ Source: OFFROAD 2021¹

⁴ Source: CalEEMod User's Guide

EXISTING (2019)

| Phase | Existing Criteria Air Pollutant Emissions (lbs/day) | | | | Existing Criteria Air Pollutant Emissions (tons/year) | | | |
|---|---|-----------------|------------------|-------------------|---|-----------------|------------------|-------------------|
| | VOC | NO _x | PM ₁₀ | PM _{2.5} | VOC | NO _x | PM ₁₀ | PM _{2.5} |
| Transportation ¹ | 234 | 1,193 | 151 | 57 | 41 | 207 | 26 | 10 |
| Energy ² | 60 | 1,129 | 84 | 84 | 11 | 206 | 15 | 15 |
| Residential Fuels (wood, kerosene, propane) | 4,152 | 84 | 629 | 629 | 758 | 15 | 115 | 115 |
| Offroad Equipment ³ | 17 | 16 | 1 | 1 | 3 | 3 | 0 | 0 |
| Consumer Products ⁴ | 2,432 | | | | 444 | | | |
| Total | 6,895 | 2,422 | 865 | 771 | 1,256 | 431 | 156 | 140 |

EXISTING LAND USES (2045 Emission Rates)

| Phase | Existing (2045) Criteria Air Pollutant Emissions (lbs/day) | | | | Existing (2045) Criteria Air Pollutant Emissions (tons/year) | | | |
|---|--|-----------------|------------------|-------------------|--|-----------------|------------------|-------------------|
| | VOC | NO _x | PM ₁₀ | PM _{2.5} | VOC | NO _x | PM ₁₀ | PM _{2.5} |
| Transportation ¹ | 47 | 201 | 136 | 44 | 8 | 35 | 24 | 8 |
| Energy ² | 60 | 1,129 | 84 | 84 | 11 | 206 | 15 | 15 |
| Residential Fuels (wood, kerosene, propane) | 4,152 | 84 | 629 | 629 | 758 | 15 | 115 | 115 |
| Offroad Equipment ³ | 17 | 16 | 1 | 1 | 3 | 3 | 0 | 0 |
| Consumer Products ⁴ | 2,432 | | | | 444 | | | |
| Total | 6,709 | 1,430 | 850 | 758 | 1,224 | 259 | 154 | 138 |

Year 2045

| Phase | Project (2045) Criteria Air Pollutant Emissions(lbs/day) | | | | Project (2045) Criteria Air Pollutant Emissions (tons/year) | | | |
|---|--|-----------------|------------------|-------------------|---|-----------------|------------------|-------------------|
| | VOC | NO _x | PM ₁₀ | PM _{2.5} | VOC | NO _x | PM ₁₀ | PM _{2.5} |
| Transportation ¹ | 57 | 247 | 164 | 53 | 10 | 43 | 28 | 9 |
| Energy ² | 70 | 1,307 | 98 | 98 | 13 | 239 | 18 | 18 |
| Residential Fuels (wood, kerosene, propane) | 4,152 | 84 | 629 | 629 | 758 | 15 | 115 | 115 |
| Offroad Equipment ³ | 23 | 17 | 1 | 1 | 4 | 3 | 0 | 0 |
| Consumer Products ⁴ | 3,730 | | | | 681 | | | |
| Total | 8,032 | 1,656 | 891 | 780 | 1,465 | 300 | 161 | 142 |

County of Contra Costa Community Criteria Air Pollutant Emissions Inventory and Forecast

Net Change (No Project)

| Phase | Net Change (2040-2040 No Project) Criteria Air Pollutant Emissions (lbs/day) | | | | Net Change (2040-2040 No Project) Criteria Air Pollutant Emissions (tons/year) | | | |
|---|--|-----------------|------------------|-------------------|---|-----------------|------------------|-------------------|
| | VOC | NO _x | PM ₁₀ | PM _{2.5} | VOC | NO _x | PM ₁₀ | PM _{2.5} |
| Transportation ¹ | 10 | 46 | 28 | 9 | 2 | 8 | 5 | 2 |
| Energy ² | 10 | 178 | 13 | 13 | 2 | 33 | 2 | 2 |
| Residential Fuels (wood, kerosene, propane) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Offroad Equipment ³ | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Consumer Products ⁴ | 1,298 | | | | 237 | | | |
| Total | 1,323 | 225 | 42 | 23 | 241 | 41 | 7 | 4 |
| BAAQMD THRESHOLD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Increase from Baseline? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

NET CHANGE (from Existing)

| Phase | Net Change (2045-Existing) Criteria Air Pollutant Emissions(lbs/day) | | | | Net Change (2045-Existing) Criteria Air Pollutant Emissions (tons/year) | | | |
|---|---|-----------------|------------------|-------------------|--|-----------------|------------------|-------------------|
| | VOC | NO _x | PM ₁₀ | PM _{2.5} | VOC | NO _x | PM ₁₀ | PM _{2.5} |
| Transportation ¹ | -176 | -946 | 13 | -4 | -31 | -164 | 2 | -1 |
| Energy ² | 10 | 178 | 13 | 13 | 2 | 33 | 2 | 2 |
| Residential Fuels (wood, kerosene, propane) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Offroad Equipment ³ | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Consumer Products ⁴ | 1,298 | 0 | 0 | 0 | 237 | 0 | 0 | 0 |
| Total | 1,137 | -766 | 26 | 10 | 209 | -131 | 5 | 2 |
| BAAQMD THRESHOLD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Increase from Existing | Yes | No | Yes | Yes | Yes | No | Yes | Yes |

Criteria Air Pollutants from Natural Gas

| Rate | lbs/MMBTU | | | | | |
|--|-----------|-----------------|-------|-----------------|------------------|-------------------|
| | ROG | NO _x | CO | SO ₂ | PM ₁₀ | PM _{2.5} |
| Natural Gas | | | | | | |
| Residential | 0.005 | 0.092 | 0.039 | 0.001 | 0.007 | 0.007 |
| Non-Residential | 0.005 | 0.098 | 0.082 | 0.001 | 0.007 | 0.007 |
| Sources CalEEMod Version 2022.1, 2022, Appendix C. https://www.caleemod.com/documents/handbook/appendices/appendix_c.pdf | | | | | | |

| | With State Actions | |
|----------------|--------------------|------------|
| Contra Costa | Existing | Year 2045 |
| | Therms | |
| Residential | 30,100,640 | 35,500,210 |
| Nonresidential | 13,784,410 | 15,356,900 |
| Total | 43,885,050 | 50,857,110 |

| Natural Gas | Existing tons/year | | | | | |
|----------------|--------------------|-----------------|-----|-----------------|------------------|-------------------|
| | ROG | NO _x | CO | SO ₂ | PM ₁₀ | PM _{2.5} |
| Residential | 8 | 138 | 59 | 2 | 11 | 11 |
| Nonresidential | 3 | 68 | 57 | 1 | 5 | 5 |
| TOTAL | 11 | 206 | 115 | 2 | 15 | 15 |

| Natural Gas | 2045 tons/year | | | | | |
|----------------|----------------|-----------------|-----|-----------------|------------------|-------------------|
| | ROG | NO _x | CO | SO ₂ | PM ₁₀ | PM _{2.5} |
| Residential | 9 | 163 | 69 | 2 | 12 | 12 |
| Nonresidential | 4 | 75 | 63 | 1 | 5 | 5 |
| TOTAL | 13 | 239 | 132 | 3 | 18 | 18 |

Fuel Use for Residential Homes

Emission Factors

Source: CalEEMod 2022 User's Guide and 2018 US Energy Information Administration. Residential Energy Consumption Survey.

| | Unit | ROG lbs/unit | NO _x lbs/unit | CO lbs/unit | SO ₂ lbs/unit | PM ₁₀ lbs/unit | PM _{2.5} lbs/unit |
|---------|-------|-----------------|-----------------------------|----------------|-----------------------------|------------------------------|-------------------------------|
| Propane | MMBTU | 0.011 | 0.142 | 0.082 | 0 | 0.008 | 0.008 |
| Wood | Tons | 229 | 2.6 | 252.6 | 0.4 | 34.6 | 34.6 |

Source Kerosene: AP 42. Volume I. 1.3, Fuel Oil Combustion.

| | Unit | ROG lbs/unit | NO _x lbs/unit | CO lbs/unit | SO ₂ lbs/unit | PM ₁₀ lbs/unit | PM _{2.5} lbs/unit |
|--------------------------------|--------------|-----------------|-----------------------------|----------------|-----------------------------|------------------------------|-------------------------------|
| Kerosene (Residential Furnace) | 1000 gallons | NA | 18 | 5 | 0.568 | 0.4 | 0.4 |

Assumes low-sulfur kerosene in California with a sulfur content of no more than 0.04% by weight. Assume PM_{2.5} is 100% of PM₁₀

Activity Data - Residential Fuel Use

Activity Data Source: Contra Costa County Climate Action and Adaptation Plan.

Conversions Factors: California Air Resources Board. 2010, May. Local Government Operations Protocol, for the quantification and reporting of greenhouse gas emissions inventories. Version 1.1.

| Wood Burning | Existing | Year 2045 | Existing | Year 2045 |
|--------------|----------|-----------|----------|-----------|
| | MMBTU | | Tons | |
| Wood Burning | 101,710 | 101,710 | 6,613 | 6,613 |

Note: residential woodburning is decreasing in the County

| Kerosene | Existing | Year 2045 | Existing | Year 2045 |
|------------------------|----------|-----------|--------------|-----------|
| | Gallons | | 1000 Gallons | |
| Residential - Kerosene | 16,320 | 16,320 | 16 | 16 |

| Propane | Existing | Year 2045 | Existing | Year 2045 |
|-----------------------|-----------|-----------|----------|-----------|
| | Gallons | | MMBTU | |
| Residential - Propane | 1,021,340 | 1,021,340 | 92,942 | 92,942 |

| Fuel Use | Existing tons/year | | | | | |
|-------------|--------------------|-----------------|-------|-----------------|------------------|-------------------|
| | ROG | NO _x | CO | SO ₂ | PM ₁₀ | PM _{2.5} |
| Woodburning | 757 | 9 | 835 | 1 | 114 | 114 |
| Kerosene | NA | 0.147 | 0.041 | 0.005 | 0.003 | 0.003 |
| Propane | 1 | 7 | 4 | 0 | 0 | 0 |
| TOTAL | 758 | 15 | 839 | 1 | 115 | 115 |

| Natural Gas | 2045 tons/year | | | | | |
|-------------|----------------|-----------------|-------|-----------------|------------------|-------------------|
| | ROG | NO _x | CO | SO ₂ | PM ₁₀ | PM _{2.5} |
| Woodburning | 757 | 9 | 835 | 1 | 114 | 114 |
| Kerosene | NA | 0.147 | 0.041 | 0.005 | 0.003 | 0.003 |
| Propane | 1 | 7 | 4 | 0 | 0 | 0 |
| TOTAL | 758 | 15 | 839 | 1 | 115 | 115 |

Area Sources - Residential Consumer Product Use^a

Emissions = EF x Building Area

EF = 2.14E-05 lbs/sqft/day

Sources/Notes:

a. California Emissions Estimator Model, Version 2021.1, Users Guide. Appendix D3.

AVERAGE HOUSING SQFT ASSUMPTIONS

| Year Structure was Built | Percent of Housing Stock ^a | Average Square Feet of New Single Family Homes ^b | Average Square Feet (Weighted) |
|--------------------------|---------------------------------------|---|--------------------------------|
| 2014 or Later | 1.4% | 2,617 | 37 |
| 2010 to 2013 | 1.8% | 2,467 | 44 |
| 2000 to 2009 | 11.8% | 2,404 | 284 |
| 1990 to 1999 | 12.4% | 2,116 | 262 |
| 1980 to 1989 | 15.9% | 1,819 | 289 |
| 1970 to 1979 | 18.9% | 1,699 | 321 |
| 1960 to 1969 | 14.1% | 1,715 | 242 |
| 1950 to 1959 | 12.8% | 1,715 | 220 |
| 1940 to 1949 | 6.5% | 1,715 | 111 |
| 1939 or earlier | 4.3% | 1,715 | 74 |
| | 100% | | 1,884 |

Sources/Notes: <https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/>

a. United States Census Bureau, Selected Housing Characteristics, Contra Costa County, 2019. Table DP04. American Community Survey 5-Year Estimates, Year structure built.

<https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2019/>

b. United States Census Bureau, Characteristics of New Housing, Characteristics of New Single-Family Houses Completed, Median and Average Square Feet by Location. <https://www.census.gov/construction/chars/pdf/c25ann2016.pdf>

| | 2019 | 2045 |
|------------------|-------------|-------------|
| | Existing | |
| | TOTAL | TOTAL |
| Housing Units | 60,320 | 83,500 |
| Residential SQFT | 113,646,640 | 174,300,973 |
| lbs VOC per day | 2,432 | 3,730 |
| tons VOC/year | 444 | 681 |

Notes:

¹ New housing units constructed post-2014 assumed to be 2,617 square feet (based on Source 2).

² Daily emissions converted to annual emissions by multiplying by 365 days/year.

Area Sources

Source: OFFROAD2021. <https://arb.ca.gov/emfac/emissions-inventory/2f6c8fa1b8ec8bd9f8a4f23b3d84c74a77f77161>

OFFROAD2021 Estimate based on:

Agricultural Equipment

Based on agricultural acreage within Contra Costa County

Construction Equipment

Based on housing permits in Contra Costa County

Light Commercial and Industrial Equipment

Based on employment in Contra Costa County

Lawn & Garden

Based on housing units in Contra Costa County

Sources

Farmland Acreage

Source: Department of Conservation and Development, Contra Costa County, 2022. 2019 Report on Agriculture. <https://www.contracosta.ca.gov/DocumentCenter/View/70326/2019-Crop-Report->

Source: Department of Conservation and Development, Contra Costa General Plan Land Use Element Map. <https://www.contracosta.ca.gov/DocumentCenter/View/30949/Land-Use-Element-Map-PDF?bidId=>.

Source: Buildout Land Use Map.

| | | |
|--------------------------------------|---------|-----|
| Existing Farmland (unincorporated) | 117,306 | |
| Farmland Acreage at Buildout at 2045 | 107,866 | 92% |
| Percent Reduction | -8.05% | |

Construction (Housing Permits)

Source: Housing and Urban Development (HUD). 2022, Accessed June 23. SOCDs Building Permits Database. <https://socds.huduser.gov/permits/>

Employment

Source: U.S. Census Bureau. Longitudinal Employer-Household Dynamics. 2020 Q1. <http://lehd.ces.census.gov/>
Source: Fehr and Peers 2023

| 2019 Existing | ROG Exhaust | NO _x Exhaust | CO Exhaust | SO ₂ Exhaust | PM ₁₀ Exhaust | PM _{2.5} Exhaust* |
|---|-------------|-------------------------|------------|-------------------------|--------------------------|----------------------------|
| | Tons/year | | | | | |
| Agricultural | 0.04 | 0.24 | 0.24 | 0.00 | 0.01 | 0.01 |
| Construction Equipment | 0.20 | 1.69 | 2.45 | 0.00 | 0.09 | 0.08 |
| Lawn & Garden | 2.12 | 0.25 | 20.96 | 0.00 | 0.02 | 0.02 |
| Light Commercial / Industrial Equipment | 0.78 | 0.75 | 31.60 | 0.00 | 0.02 | 0.01 |
| TOTAL | 3 | 3 | 55 | 0 | 0.14 | 0.12 |

| 2045 | ROG Exhaust | NO _x Exhaust | CO Exhaust | SO ₂ Exhaust | PM ₁₀ Exhaust | PM _{2.5} Exhaust* |
|---|---|-------------------------|------------|-------------------------|--------------------------|----------------------------|
| | Tons/year | | | | | |
| | Forecast Adjusted for: | | | | | |
| Agricultural | Based on a reduction in Agricultural land in the County | 0.04 | 0.22 | 0.22 | 0.00 | 0.01 |
| Construction Equipment | Similar to historic | 0.20 | 1.69 | 2.45 | 0.00 | 0.09 |
| Lawn & Garden | Proportional to housing growth | 2.93 | 0.35 | 29.01 | 0.00 | 0.03 |
| Light Commercial / Industrial Equipment | Proportional to employment growth | 0.97 | 0.93 | 39.25 | 0.00 | 0.02 |
| TOTAL | | 4 | 3 | 71 | 0 | 0.16 |

Contra Costa County OFFROAD2021

Source: <https://arb.ca.gov/emfac/emissions-inventory/2f6c8fa1b8ec8bd9f8a4f23b3d84c74a77f77161>
Construction includes: Over 25 horsepower, self-propelled, diesel equipment only subjected to In-Use Regulation; AND Under 25 horsepower equipment not subject to the In-Use Regulation

Model Output: OFFROAD2021 (v1.0.2) Emissions Inventory
Region Type: County
Region: Contra Costa
Calendar Year: 2019
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

| Agriculture | | | | | | | | | | | | |
|--|---------------|---|------------|----------------|----------|-------------------------|---------|---------|--------|---------|----------|-----------|
| Region | Calendar Year | Vehicle Category | Model Year | Horsepower Bin | Fuel | Fuel Consumption (g/yr) | ROG_tpd | NOx_tpd | CO_tpd | SOx_tpd | PM10_tpd | PM2.5_tpd |
| Contra Costa | 2019 | Agricultural - Agricultural Tractors | Aggregate | Aggregate | Gasoline | 46.599 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Agricultural - Agricultural Tractors | Aggregate | Aggregate | Diesel | 775,488.169 | 0.030 | 0.186 | 0.141 | 0.000 | 0.011 | 0.010 |
| Contra Costa | 2019 | Agricultural - ATVs | Aggregate | Aggregate | Gasoline | 20,703.139 | 0.006 | 0.003 | 0.060 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Agricultural - ATVs | Aggregate | Aggregate | Diesel | 10,088.287 | 0.000 | 0.002 | 0.002 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Agricultural - ATVs | Aggregate | Aggregate | Electric | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Agricultural - Bale Wagons (Self Propelled) | Aggregate | Aggregate | Diesel | 2,582.452 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Agricultural - Balers (Self Propelled) | Aggregate | Aggregate | Diesel | 203.530 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Agricultural - Combine Harvesters | Aggregate | Aggregate | Diesel | 37,171.700 | 0.001 | 0.008 | 0.005 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Agricultural - Construction Equipment | Aggregate | Aggregate | Diesel | 19,338.362 | 0.001 | 0.005 | 0.003 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Agricultural - Cotton Pickers | Aggregate | Aggregate | Diesel | 723.517 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Agricultural - Forage & Silage Harvesters | Aggregate | Aggregate | Diesel | 7,061.408 | 0.000 | 0.002 | 0.001 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Agricultural - Forklifts | Aggregate | Aggregate | Diesel | 15,732.147 | 0.001 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Agricultural - Hay Squeeze/Stack Retriever | Aggregate | Aggregate | Diesel | 2,469.114 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Agricultural - Nut Harvester | Aggregate | Aggregate | Diesel | 20,251.292 | 0.001 | 0.006 | 0.004 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Agricultural - Other Harvesters | Aggregate | Aggregate | Diesel | 30,376.555 | 0.001 | 0.007 | 0.005 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Agricultural - Sprayers/Spray Rigs | Aggregate | Aggregate | Diesel | 41,548.475 | 0.002 | 0.012 | 0.008 | 0.000 | 0.001 | 0.001 |
| Contra Costa | 2019 | Agricultural - Swathers/Windrowers/Hay Conditioners | Aggregate | Aggregate | Diesel | 7,975.782 | 0.000 | 0.002 | 0.001 | 0.000 | 0.000 | 0.000 |
| TOTAL AGRICULTURAL OFFROAD (tons/yr) | | | | | | 991,760.528 | 0.042 | 0.238 | 0.235 | 0.000 | 0.014 | 0.013 |
| ESTIMATED Unincorporated Contra Costa County (tons/year) | | | | | | | 0.028 | 0.161 | 0.159 | 0.000 | 0.009 | 0.009 |
| ESTIMATED Unincorporated Contra Costa County (lbs/year) | | | | | | | 56.8 | 321.3 | 317.5 | 0.4 | 18.8 | 17.3 |

| AGRICULTURAL ACREAGE | | 2019 |
|--|--|---------|
| Farmland Acreage in Contra Costa County | | 173,924 |
| Farmland Acreage in unincorporated Contra Costa County (excludes Grazing Land) | | 117,306 |
| Percent in the unincorporated County | | 67.4% |

Construction and Mining

| Region | Calendar Year | Vehicle Category | Model Year | Horsepower Bin | Fuel | Fuel Consumption (g/yr) | ROG_tpd | NOx_tpd | CO_tpd | SOx_tpd | PM10_tpd | PM2.5_tpd |
|--------------|---------------|--|------------|----------------|----------|-------------------------|---------|---------|--------|---------|----------|-----------|
| Contra Costa | 2019 | Construction and Mining - Bore/Drill Rigs | Aggregate | Aggregate | Diesel | 81,901.417 | 0.001 | 0.010 | 0.008 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Cranes | Aggregate | Aggregate | Diesel | 194,908.423 | 0.005 | 0.056 | 0.032 | 0.000 | 0.003 | 0.002 |
| Contra Costa | 2019 | Construction and Mining - Crawler Tractors | Aggregate | Aggregate | Diesel | 481,723.300 | 0.012 | 0.129 | 0.068 | 0.000 | 0.006 | 0.006 |
| Contra Costa | 2019 | Construction and Mining - Excavators | Aggregate | Aggregate | Diesel | 866,786.580 | 0.011 | 0.118 | 0.096 | 0.000 | 0.005 | 0.005 |
| Contra Costa | 2019 | Construction and Mining - Graders | Aggregate | Aggregate | Diesel | 326,083.726 | 0.009 | 0.096 | 0.041 | 0.000 | 0.004 | 0.004 |
| Contra Costa | 2019 | Construction and Mining - Misc - Asphalt Pavers | Aggregate | Aggregate | Gasoline | 5,011.175 | 0.000 | 0.001 | 0.018 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Bore/Drill Rigs | Aggregate | Aggregate | Gasoline | 3,783.827 | 0.000 | 0.000 | 0.005 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Bore/Drill Rigs | Aggregate | Aggregate | Diesel | 29.079 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Cement And Mortar Mixers | Aggregate | Aggregate | Gasoline | 7,415.464 | 0.004 | 0.002 | 0.117 | 0.000 | 0.001 | 0.001 |
| Contra Costa | 2019 | Construction and Mining - Misc - Cement And Mortar Mixers | Aggregate | Aggregate | Diesel | 42.381 | 0.000 | 0.001 | 0.001 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Concrete/Industrial Saws | Aggregate | Aggregate | Gasoline | 16,131.027 | 0.003 | 0.003 | 0.111 | 0.000 | 0.001 | 0.001 |
| Contra Costa | 2019 | Construction and Mining - Misc - Concrete/Industrial Saws | Aggregate | Aggregate | Diesel | 1,417.242 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Cranes | Aggregate | Aggregate | Gasoline | 3,420.050 | 0.000 | 0.000 | 0.006 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Crushing/Proc. Equipment | Aggregate | Aggregate | Gasoline | 44.119 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Dumpers/Tenders | Aggregate | Aggregate | Gasoline | 5,644.449 | 0.001 | 0.001 | 0.048 | 0.000 | 0.001 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Dumpers/Tenders | Aggregate | Aggregate | Diesel | 3.394 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Excavators | Aggregate | Aggregate | Diesel | 24.291 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Other | Aggregate | Aggregate | Gasoline | 5,186.650 | 0.000 | 0.000 | 0.004 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Other | Aggregate | Aggregate | Diesel | 6,506.415 | 0.000 | 0.003 | 0.002 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Pavers | Aggregate | Aggregate | Diesel | 6.373 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Paving Equipment | Aggregate | Aggregate | Gasoline | 16,171.089 | 0.007 | 0.005 | 0.201 | 0.000 | 0.002 | 0.002 |
| Contra Costa | 2019 | Construction and Mining - Misc - Paving Equipment | Aggregate | Aggregate | Diesel | 10.849 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Plate Compactors | Aggregate | Aggregate | Gasoline | 37,749.934 | 0.010 | 0.007 | 0.324 | 0.000 | 0.003 | 0.002 |
| Contra Costa | 2019 | Construction and Mining - Misc - Plate Compactors | Aggregate | Aggregate | Diesel | 1,924.664 | 0.000 | 0.001 | 0.001 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Rollers | Aggregate | Aggregate | Gasoline | 15,381.507 | 0.002 | 0.002 | 0.069 | 0.000 | 0.001 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Rollers | Aggregate | Aggregate | Diesel | 186.465 | 0.001 | 0.003 | 0.002 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Rough Terrain Forklifts | Aggregate | Aggregate | Gasoline | 24,119.200 | 0.001 | 0.003 | 0.031 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Rubber Tired Loaders | Aggregate | Aggregate | Gasoline | 12,738.500 | 0.000 | 0.001 | 0.019 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Rubber Tired Loaders | Aggregate | Aggregate | Diesel | 3.958 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Signal Boards | Aggregate | Aggregate | Gasoline | 1,145.405 | 0.000 | 0.000 | 0.010 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Signal Boards | Aggregate | Aggregate | Diesel | 30,728.813 | 0.002 | 0.014 | 0.012 | 0.000 | 0.001 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Skid Steer Loaders | Aggregate | Aggregate | Gasoline | 38,112.542 | 0.003 | 0.003 | 0.103 | 0.000 | 0.001 | 0.001 |
| Contra Costa | 2019 | Construction and Mining - Misc - Skid Steer Loaders | Aggregate | Aggregate | Diesel | 1,283.012 | 0.004 | 0.027 | 0.015 | 0.000 | 0.001 | 0.001 |
| Contra Costa | 2019 | Construction and Mining - Misc - Surfacing Equipment | Aggregate | Aggregate | Gasoline | 5,921.492 | 0.004 | 0.003 | 0.093 | 0.000 | 0.001 | 0.001 |
| Contra Costa | 2019 | Construction and Mining - Misc - Tampers/Rammers | Aggregate | Aggregate | Gasoline | 6,793.058 | 0.001 | 0.001 | 0.057 | 0.000 | 0.001 | 0.001 |
| Contra Costa | 2019 | Construction and Mining - Misc - Tractors/Loaders/Backhoes | Aggregate | Aggregate | Gasoline | 8,176.000 | 0.000 | 0.000 | 0.012 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Tractors/Loaders/Backhoes | Aggregate | Aggregate | Diesel | 115.746 | 0.000 | 0.002 | 0.001 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Misc - Trenchers | Aggregate | Aggregate | Gasoline | 28,545.023 | 0.003 | 0.004 | 0.132 | 0.000 | 0.001 | 0.001 |
| Contra Costa | 2019 | Construction and Mining - Misc - Trenchers | Aggregate | Aggregate | Diesel | 156.568 | 0.000 | 0.003 | 0.002 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Off-Highway Tractors | Aggregate | Aggregate | Diesel | 183,253.256 | 0.004 | 0.032 | 0.026 | 0.000 | 0.002 | 0.002 |
| Contra Costa | 2019 | Construction and Mining - Off-Highway Trucks | Aggregate | Aggregate | Diesel | 1,099,345.885 | 0.019 | 0.209 | 0.106 | 0.000 | 0.007 | 0.007 |
| Contra Costa | 2019 | Construction and Mining - Other | Aggregate | Aggregate | Diesel | 245,374.907 | 0.005 | 0.051 | 0.032 | 0.000 | 0.003 | 0.002 |
| Contra Costa | 2019 | Construction and Mining - Pavers | Aggregate | Aggregate | Diesel | 57,796.645 | 0.001 | 0.012 | 0.009 | 0.000 | 0.001 | 0.001 |
| Contra Costa | 2019 | Construction and Mining - Paving Equipment | Aggregate | Aggregate | Diesel | 33,624.852 | 0.001 | 0.006 | 0.005 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Rollers | Aggregate | Aggregate | Diesel | 149,852.204 | 0.004 | 0.031 | 0.029 | 0.000 | 0.002 | 0.002 |
| Contra Costa | 2019 | Construction and Mining - Rough Terrain Forklifts | Aggregate | Aggregate | Diesel | 162,677.987 | 0.002 | 0.024 | 0.030 | 0.000 | 0.001 | 0.001 |
| Contra Costa | 2019 | Construction and Mining - Rubber Tired Dozers | Aggregate | Aggregate | Diesel | 96,167.373 | 0.003 | 0.035 | 0.024 | 0.000 | 0.002 | 0.002 |
| Contra Costa | 2019 | Construction and Mining - Rubber Tired Loaders | Aggregate | Aggregate | Diesel | 1,321,485.960 | 0.027 | 0.288 | 0.164 | 0.000 | 0.013 | 0.012 |
| Contra Costa | 2019 | Construction and Mining - Scrapers | Aggregate | Aggregate | Diesel | 860,698.145 | 0.018 | 0.213 | 0.126 | 0.000 | 0.009 | 0.008 |
| Contra Costa | 2019 | Construction and Mining - Skid Steer Loaders | Aggregate | Aggregate | Diesel | 157,579.978 | 0.002 | 0.025 | 0.030 | 0.000 | 0.001 | 0.001 |
| Contra Costa | 2019 | Construction and Mining - Surfacing Equipment | Aggregate | Aggregate | Diesel | 18,084.284 | 0.000 | 0.003 | 0.002 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Construction and Mining - Tractors/Loaders/Backhoes | Aggregate | Aggregate | Diesel | 1,204,115.588 | 0.024 | 0.242 | 0.222 | 0.000 | 0.014 | 0.013 |
| Contra Costa | 2019 | Construction and Mining - Trenchers | Aggregate | Aggregate | Diesel | 49,764.313 | 0.002 | 0.013 | 0.010 | 0.000 | 0.001 | 0.001 |

| | | | | | | | |
|--|---------------|-------|-------|-------|-------|-------|-------|
| TOTAL CONSTRUCTION OFFROAD (tons/yr) | 7,875,154.583 | 0.199 | 1.686 | 2.454 | 0.002 | 0.089 | 0.079 |
| ESTIMATED Unincorporated Contra Costa County (tons/year) | | 0.019 | 0.161 | 0.235 | 0.000 | 0.008 | 0.008 |
| ESTIMATED Unincorporated Contra Costa (lbs/year) | | 38.0 | 322.8 | 469.7 | 0.4 | 17.0 | 15.1 |

| TOTAL UNITS: https://socds.huduser.gov/permits/ | 2015 | 2016 | 2017 | 2018 | 2019 | Average |
|--|------|------|-------|-------|-------|---------|
| Housing Permits in Contra Costa County | 2610 | 2921 | 1,984 | 2,607 | 2,687 | 2,562 |
| Housing Permits in the Unincorporated Contra Costa County | 438 | 270 | 284 | 95 | 104 | 238 |
| Percent in the Unincorporated County | 17% | 9% | 14% | 4% | 4% | 9.6% |

Industrial and Light Commercial

| Region | Calendar Year | Vehicle Category | Model Year | Horsepower Bin | Fuel | Fuel Consumption (g/yr) | ROG_tpd | NOx_tpd | CO_tpd | SOx_tpd | PM10_tpd | PM2.5_tpd |
|--|------------------|--|------------|----------------|----------|----------------------------|---------|---------|----------|---------|----------|-----------|
| Contra Costa | 2019 | Industrial - Aerial Lifts | Aggregate | Aggregate | Diesel | 40,739.806 | 0.000 | 0.005 | 0.007 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Industrial - Forklifts | Aggregate | Aggregate | Diesel | 171,531.023 | 0.005 | 0.044 | 0.037 | 0.000 | 0.003 | 0.003 |
| Contra Costa | 2019 | Industrial - Misc - Aerial Lifts | Aggregate | Aggregate | Gasoline | 27,350.160 | 0.003 | 0.002 | 0.087 | 0.000 | 0.001 | 0.001 |
| Contra Costa | 2019 | Industrial - Misc - Aerial Lifts | Aggregate | Aggregate | Diesel | 50.830 | 0.000 | 0.001 | 0.001 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Industrial - Misc - Aerial Lifts | Aggregate | Aggregate | Electric | 680.230 | 0.000 | 0.000 | 0.012 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Industrial - Misc - Aerial Lifts | Aggregate | Aggregate | Nat Gas | 6,197.700 | 0.000 | 0.000 | 0.016 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Industrial - Misc - Forklifts | Aggregate | Aggregate | Gasoline | 849,275.406 | 0.019 | 0.086 | 2.081 | 0.000 | 0.001 | 0.001 |
| Contra Costa | 2019 | Industrial - Misc - Forklifts | Aggregate | Aggregate | Electric | 75.221 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Industrial - Misc - Forklifts | Aggregate | Aggregate | Nat Gas | 1,686,500.750 | 0.000 | 0.134 | 1.236 | 0.000 | 0.003 | 0.000 |
| Contra Costa | 2019 | Industrial - Misc - Other General Industrial Equipment | Aggregate | Aggregate | Gasoline | 14,998.942 | 0.001 | 0.001 | 0.083 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Industrial - Misc - Other General Industrial Equipment | Aggregate | Aggregate | Diesel | 39.324 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Industrial - Misc - Other Material Handling Equipment | Aggregate | Aggregate | Gasoline | 6,365.600 | 0.000 | 0.001 | 0.007 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Industrial - Misc - Sweepers/Scrubbers | Aggregate | Aggregate | Gasoline | 48,600.070 | 0.001 | 0.004 | 0.116 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Industrial - Misc - Sweepers/Scrubbers | Aggregate | Aggregate | Diesel | 10.074 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Industrial - Other General Industrial Equipment | Aggregate | Aggregate | Diesel | 82,844.563 | 0.002 | 0.017 | 0.015 | 0.000 | 0.001 | 0.001 |
| Contra Costa | 2019 | Industrial - Other Material Handling Equipment | Aggregate | Aggregate | Diesel | 48,571.971 | 0.001 | 0.010 | 0.007 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Light Commercial - Misc - Air Compressors | Aggregate | Aggregate | Gasoline | 1,112,785.886 | 0.137 | 0.085 | 7.311 | 0.000 | 0.001 | 0.001 |
| Contra Costa | 2019 | Light Commercial - Misc - Air Compressors | Aggregate | Aggregate | Diesel | 27,665.687 | 0.001 | 0.007 | 0.007 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Light Commercial - Misc - Air Compressors | Aggregate | Aggregate | Electric | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Light Commercial - Misc - Gas Compressors | Aggregate | Aggregate | Nat Gas | 334,624.700 | 0.000 | 0.019 | 0.223 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Light Commercial - Misc - Generator Sets | Aggregate | Aggregate | Gasoline | 1,799,298.008 | 0.394 | 0.152 | 10.681 | 0.000 | 0.002 | 0.002 |
| Contra Costa | 2019 | Light Commercial - Misc - Generator Sets | Aggregate | Aggregate | Diesel | 151,301.596 | 0.005 | 0.035 | 0.028 | 0.000 | 0.001 | 0.002 |
| Contra Costa | 2019 | Light Commercial - Misc - Generator Sets | Aggregate | Aggregate | Electric | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Light Commercial - Misc - Generator Sets | Aggregate | Aggregate | Nat Gas | 10,760.200 | 0.000 | 0.001 | 0.006 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Light Commercial - Misc - Pressure Washers | Aggregate | Aggregate | Gasoline | 786,217.814 | 0.099 | 0.045 | 5.370 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Light Commercial - Misc - Pressure Washers | Aggregate | Aggregate | Diesel | 800.157 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Light Commercial - Misc - Pressure Washers | Aggregate | Aggregate | Electric | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Light Commercial - Misc - Pumps | Aggregate | Aggregate | Gasoline | 231,905.284 | 0.031 | 0.016 | 1.070 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Light Commercial - Misc - Pumps | Aggregate | Aggregate | Diesel | 82,584.476 | 0.003 | 0.019 | 0.016 | 0.000 | 0.001 | 0.001 |
| Contra Costa | 2019 | Light Commercial - Misc - Pumps | Aggregate | Aggregate | Electric | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Light Commercial - Misc - Welders | Aggregate | Aggregate | Gasoline | 488,565.970 | 0.068 | 0.033 | 3.147 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Light Commercial - Misc - Welders | Aggregate | Aggregate | Diesel | 150,267.006 | 0.006 | 0.035 | 0.034 | 0.000 | 0.002 | 0.002 |
| Contra Costa | 2019 | Light Commercial - Misc - Welders | Aggregate | Aggregate | Electric | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| TOTAL LIGHT COMMERCIAL + INDUSTRIAL OFFROAD (tons/yr) | | | | | | 8,160,608.454 | 0.777 | 0.752 | 31.598 | 0.002 | 0.017 | 0.015 |
| ESTIMATED Unincorporated Contra Costa County (tons/year) | | | | | | | 0.077 | 0.075 | 3.150 | 0.000 | 0.002 | 0.001 |
| ESTIMATED Unincorporated Contra Costa (lbs/year) | | | | | | | 154.88 | 150.00 | 6,300.16 | 0.32 | 3.47 | 2.91 |

| EMPLOYMENT | | 2019 |
|--|--|---------|
| Employment in Contra Costa County | | 388,796 |
| Employment in Unincorporated Contra Costa County | | 38,760 |
| Percent in the unincorporated County | | 10.0% |

Lawn and Garden

| Region | Calendar Year | Vehicle Category | Model Year | Horsepower Bin | Fuel | Fuel Consumption (g/yr) | ROG_tpd | NOx_tpd | CO_tpd | SOx_tpd | PM10_tpd | PM2.5_tpd |
|--|------------------|--|------------|----------------|----------|----------------------------|---------|---------|--------|---------|----------|-----------|
| Contra Costa | 2019 | Lawn and Garden - Misc - Chainsaws | Aggregate | Aggregate | Gasoline | 303,129.698 | 0.380 | 0.011 | 1.024 | 0.000 | 0.005 | 0.003 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Chainsaws | Aggregate | Aggregate | Electric | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Chainsaws Preempt | Aggregate | Aggregate | Gasoline | 178,035.748 | 0.330 | 0.010 | 0.552 | 0.000 | 0.002 | 0.002 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Chainsaws Preempt | Aggregate | Aggregate | Electric | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Chippers/Stump Grinders | Aggregate | Aggregate | Gasoline | 3,056.980 | 0.000 | 0.000 | 0.020 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Chippers/Stump Grinders | Aggregate | Aggregate | Diesel | 193.196 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Chippers/Stump Grinders | Aggregate | Aggregate | Electric | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Lawn Mowers | Aggregate | Aggregate | Gasoline | 717,684.957 | 0.115 | 0.058 | 4.108 | 0.000 | 0.003 | 0.003 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Lawn Mowers | Aggregate | Aggregate | Electric | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Leaf Blowers/Vacuums | Aggregate | Aggregate | Gasoline | 786,503.248 | 0.627 | 0.020 | 2.812 | 0.000 | 0.008 | 0.006 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Leaf Blowers/Vacuums | Aggregate | Aggregate | Electric | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Other | Aggregate | Aggregate | Gasoline | 14,647.182 | 0.002 | 0.001 | 0.093 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Other | Aggregate | Aggregate | Diesel | 96.904 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Rear Engine Riding Mowers | Aggregate | Aggregate | Gasoline | 1,350,073.976 | 0.230 | 0.103 | 9.284 | 0.000 | 0.002 | 0.001 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Rear Engine Riding Mowers | Aggregate | Aggregate | Diesel | 77,634.324 | 0.003 | 0.018 | 0.011 | 0.000 | 0.001 | 0.000 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Rear Engine Riding Mowers | Aggregate | Aggregate | Electric | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Snowblowers | Aggregate | Aggregate | Gasoline | 497.356 | 0.000 | 0.000 | 0.004 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Snowblowers | Aggregate | Aggregate | Electric | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Tillers | Aggregate | Aggregate | Gasoline | 13,731.922 | 0.005 | 0.001 | 0.076 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Tillers | Aggregate | Aggregate | Electric | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Trimmers/Edgers/Brush Cutters | Aggregate | Aggregate | Gasoline | 594,440.686 | 0.403 | 0.022 | 2.172 | 0.000 | 0.003 | 0.002 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Trimmers/Edgers/Brush Cutters | Aggregate | Aggregate | Electric | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Contra Costa | 2019 | Lawn and Garden - Misc - Wood Splitters | Aggregate | Aggregate | Gasoline | 126,998.940 | 0.024 | 0.009 | 0.804 | 0.000 | 0.000 | 0.000 |
| TOTAL LAWN & GARDEN (tons/yr) | | | | | | 4,166,725.117 | 2.119 | 0.253 | 20.958 | 0.001 | 0.024 | 0.018 |
| ESTIMATED Unincorporated Contra Costa County (tons/year) | | | | | | | 0.309 | 0.037 | 3.056 | 0.000 | 0.004 | 0.003 |
| ESTIMATED Unincorporated Contra Costa (lbs/day) | | | | | | | 618 | 74 | 6,111 | 0 | 7 | 5 |

| HOUSING UNITS | | 2019 |
|---|--|---------|
| Housing Units in Contra Costa County (2019) | | 413,719 |
| Housing Units in unincorporated Contra Costa County | | 60,320 |
| Percent in the unincorporated county | | 14.6% |

Contra Costa County VMT

Source: Fehr and Peers 2023. Based on the County of Contra Costa Transportation Analysis Guidelines.

| | Daily VMT | | | Total Daily VMT | Total with RTAC | Percent Fleet VMT | Residents | Jobs | Service Population | VMT/SP | VMT/SP w RTAC |
|--------------------|-----------|-----------|---------|-----------------|-----------------|-------------------|-----------|--------|--------------------|--------|---------------|
| | IX | XI | II | | | | | | | | |
| Existing - TOTAL | 3,256,431 | 3,212,745 | 295,609 | 6,764,785 | 3,530,197 | | 174,150 | 38,760 | 212,910 | 31.8 | 16.6 |
| Passenger Vehicles | 3,198,500 | 3,156,803 | 293,655 | 6,648,959 | 3,471,307 | 98% | | | | | |
| LHDT | 40,753 | 39,075 | 1,562 | 81,390 | 41,476 | 1.2% | | | | | |
| MHDT | 3,220 | 3,103 | 154 | 6,476 | 3,315 | 0.1% | | | | | |
| HHDT | 13,958 | 13,764 | 238 | 27,960 | 14,099 | 0.4% | | | | | |
| 2045 | 3,889,245 | 3,826,897 | 414,135 | 8,130,277 | 4,272,206 | | 239,720 | 48,150 | 287,870 | 28.2 | 14.8 |
| Passenger Vehicles | 3,810,521 | 3,758,120 | 411,335 | 7,979,977 | 4,195,656 | 98% | | | | | |
| LHDT | 55,028 | 48,113 | 2,209 | 105,350 | 53,780 | 1.3% | | | | | |
| MHDT | 4,527 | 3,814 | 227 | 8,567 | 4,397 | 0.1% | | | | | |
| HHDT | 19,170 | 16,850 | 363 | 36,383 | 18,373 | 0.4% | | | | | |

Notes: Total may not add to 100% due to rounding.

- IX = Internal-External
- XI = External- Internal
- II = Internal-Internal

Modeling of vehicle miles traveled (VMT) is provided by Fehr and Peers is based on the Contra Costa County Transportation Authority's Contra Costa Transportation Analysis Guidelines. VMT from passenger vehicles and trucks that have an origin or destination in the County using a transportation origin-destination methodology. Accounting of VMT is based on the recommendations of CARB's Regional Targets Advisory Committee (RTAC) created under Senate Bill 375 (SB 375). For accounting purposes, there are three types of trips:

- » Vehicle trips that originated and terminated within the County (Internal-Internal, I-I). Using the accounting rules established by RTAC, 100 percent of the length of these trips, and their emissions, are attributed to the County.
- » Vehicle trips that either originated or terminated (but not both) within the County (Internal-External or External-Internal, I-X and X-I). Using the accounting rules established by RTAC, 50 percent of the trip length for these trips is attributed to the
- » Vehicle trips that neither originated nor terminated within the County. These trips are commonly called pass-through trips (External-External, X-X). Using the accounting rules established by RTAC, these trips are not counted towards the County's

Percent VMT from Housing assumes trip lengths for residential and non-residential land uses are similar.

Contra Costa — TRANSPORTATION SECTOR

Source: EMFAC2021 V. 1.0.2. , Web Database - Emissions Rates. Contra Costa County. Based on the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) Global Warming Potentials (GWPs)

Note: MTons = metric tons; CO₂e = carbon dioxide-equivalent.

| Criteria Air Pollutant Emissions | | | | | | |
|--|---------|-----------------|--------|-----------------|------|-------|
| | lbs/day | | | | | |
| | ROG | NO _x | CO | SO _x | PM10 | PM2.5 |
| Existing | 234 | 1,193 | 9,689 | 27 | 151 | 57 |
| Existing in year 2045 | 47 | 201 | 3,722 | 18 | 136 | 44 |
| 2045 | 57 | 247 | 4,502 | 22 | 164 | 53 |
| Change from Existing Conditions (2019-2045) | -176 | -946 | -5,188 | -5 | 13 | -4 |
| Change from Existing Land Uses (2045 Emission Rates) | -10 | -46 | -780 | -4 | -28 | -9 |

| | Tons/year | | | | | |
|--|-----------|-----------------|-------|-----------------|------|-------|
| | ROG | NO _x | CO | SO _x | PM10 | PM2.5 |
| Existing | 41 | 207 | 1,681 | 5 | 26 | 10 |
| Existing in year 2045 | 8 | 35 | 646 | 3 | 24 | 8 |
| 2045 | 10 | 43 | 781 | 4 | 28 | 9 |
| Change from Existing Conditions (2019-2045) | -31 | -164 | -900 | -1 | 2 | -1 |
| Change from Existing Land Uses (2045 Emission Rates) | -2 | -8 | -135 | -1 | -5 | -2 |

lbs to Tons 2000

Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan Measure Documentation Supplement.

Year 2019 Existing: Criteria Air Pollutants

Source: EMFAC2021 (v1.0.2) Emission Rates, Contra Costa County, Average Speed, Average Fleet

| | | | | |
|-----------------------|--------------|---------------|--------------|--------------------|
| Source: F&P 2023 | | | | |
| Truck Trip Percentage | Small Trucks | Medium Trucks | Heavy Trucks | Passenger Vehicles |
| | 1.2% | 0.1% | 0.4% | 98.3% |
| EMFAC Default | 3.66% | 1.00% | 2.63% | 92.71% |

| Daily VMT | | lbs/day | | | | | | | |
|-----------------------------|----------------|----------------|----------------------|-------|--------|----------|-------|-------|-------|
| Vehicle Type | Fuel Type | Percent of VMT | Adjusted Percent VMT | ROG | NOx | CO | SOx | PM10 | PM2.5 |
| All Other Buses | Diesel | 0.02% | 0.00% | 0.19 | 1.86 | 0.46 | 0.00 | 0.08 | 0.07 |
| All Other Buses | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| LDA | Gasoline | 48.63% | 51.58% | 68.99 | 315.11 | 4,141.18 | 11.91 | 67.14 | 23.64 |
| LDA | Diesel | 0.22% | 0.23% | 0.60 | 5.87 | 6.58 | 0.04 | 0.66 | 0.45 |
| LDA | Electricity | 1.15% | 1.22% | 0.00 | 0.00 | 0.00 | 0.00 | 1.18 | 0.34 |
| LDA | Plug-in Hybrid | 0.83% | 0.88% | 0.10 | 0.24 | 15.57 | 0.10 | 0.87 | 0.29 |
| LDT1 | Gasoline | 5.00% | 5.30% | 19.68 | 88.23 | 863.65 | 1.43 | 7.92 | 3.02 |
| LDT1 | Diesel | 0.00% | 0.00% | 0.04 | 0.20 | 0.24 | 0.00 | 0.03 | 0.03 |
| LDT1 | Electricity | 0.01% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| LDT1 | Plug-in Hybrid | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| LDT2 | Gasoline | 21.94% | 23.27% | 34.17 | 224.61 | 2,093.94 | 6.79 | 32.53 | 11.50 |
| LDT2 | Diesel | 0.09% | 0.10% | 0.12 | 0.56 | 1.00 | 0.02 | 0.18 | 0.09 |
| LDT2 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| LDT2 | Plug-in Hybrid | 0.03% | 0.04% | 0.00 | 0.01 | 0.62 | 0.00 | 0.04 | 0.01 |
| LHD1 | Gasoline | 1.79% | 0.57% | 3.06 | 13.36 | 68.61 | 0.42 | 3.94 | 1.39 |
| LHD1 | Diesel | 1.22% | 0.39% | 7.52 | 86.51 | 22.30 | 0.19 | 4.46 | 2.56 |
| LHD2 | Gasoline | 0.20% | 0.06% | 0.30 | 1.45 | 7.02 | 0.05 | 0.51 | 0.18 |
| LHD2 | Diesel | 0.45% | 0.14% | 2.37 | 22.91 | 6.40 | 0.08 | 1.69 | 0.90 |
| MCY | Gasoline | 0.41% | 0.43% | 48.53 | 23.75 | 561.17 | 0.06 | 0.60 | 0.23 |
| MDV | Gasoline | 14.08% | 14.94% | 41.66 | 244.37 | 1,846.10 | 5.29 | 21.35 | 7.64 |
| MDV | Diesel | 0.25% | 0.27% | 0.28 | 1.94 | 4.20 | 0.09 | 0.49 | 0.24 |
| MDV | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MDV | Plug-in Hybrid | 0.05% | 0.06% | 0.01 | 0.02 | 1.00 | 0.01 | 0.06 | 0.02 |
| MH | Gasoline | 0.08% | 0.01% | 0.11 | 0.52 | 2.93 | 0.02 | 0.05 | 0.02 |
| MH | Diesel | 0.03% | 0.00% | 0.04 | 1.66 | 0.15 | 0.00 | 0.06 | 0.05 |
| Motor Coach | Diesel | 0.01% | 0.00% | 0.03 | 0.69 | 0.10 | 0.00 | 0.03 | 0.02 |
| OBUS | Gasoline | 0.06% | 0.01% | 0.08 | 0.57 | 1.82 | 0.01 | 0.04 | 0.01 |
| PTO | Diesel | 0.05% | 0.01% | 0.28 | 4.36 | 1.04 | 0.01 | 0.11 | 0.10 |
| SBUS | Gasoline | 0.01% | 0.00% | 0.08 | 0.14 | 1.71 | 0.00 | 0.01 | 0.00 |
| SBUS | Diesel | 0.04% | 0.01% | 0.02 | 1.65 | 0.07 | 0.00 | 0.03 | 0.02 |
| SBUS | Natural Gas | 0.00% | 0.00% | 0.00 | 0.01 | 0.28 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 4 | Diesel | 0.00% | 0.00% | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 5 | Diesel | 0.00% | 0.00% | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 6 | Diesel | 0.00% | 0.00% | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 7 | Diesel | 0.01% | 0.00% | 0.01 | 0.15 | 0.02 | 0.00 | 0.01 | 0.01 |
| T6 Instate Delivery Class 4 | Diesel | 0.03% | 0.00% | 0.14 | 1.77 | 0.37 | 0.00 | 0.07 | 0.06 |
| T6 Instate Delivery Class 4 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Delivery Class 5 | Diesel | 0.03% | 0.00% | 0.06 | 0.80 | 0.15 | 0.00 | 0.03 | 0.02 |
| T6 Instate Delivery Class 5 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Delivery Class 6 | Diesel | 0.06% | 0.01% | 0.19 | 2.47 | 0.50 | 0.01 | 0.10 | 0.08 |
| T6 Instate Delivery Class 6 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| T6 Instate Delivery Class 7 | Diesel | 0.01% | 0.00% | 0.03 | 0.50 | 0.09 | 0.00 | 0.02 | 0.02 |
| T6 Instate Delivery Class 7 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Other Class 4 | Diesel | 0.10% | 0.01% | 0.35 | 5.39 | 0.98 | 0.01 | 0.22 | 0.19 |
| T6 Instate Other Class 4 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Other Class 5 | Diesel | 0.22% | 0.02% | 0.28 | 4.67 | 0.83 | 0.02 | 0.24 | 0.17 |
| T6 Instate Other Class 5 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| T6 Instate Other Class 6 | Diesel | 0.17% | 0.02% | 0.37 | 5.82 | 1.06 | 0.01 | 0.26 | 0.20 |
| T6 Instate Other Class 6 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| T6 Instate Other Class 7 | Diesel | 0.11% | 0.01% | 0.19 | 3.36 | 0.54 | 0.01 | 0.15 | 0.11 |
| T6 Instate Other Class 7 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 |
| T6 Instate Tractor Class 6 | Diesel | 0.00% | 0.00% | 0.01 | 0.10 | 0.02 | 0.00 | 0.01 | 0.00 |

| | | | | | | | | | |
|--|-------------|---------|---------|------|-------|-------|------|------|------|
| T6 Instate Tractor Class 7 | Diesel | 0.02% | 0.00% | 0.02 | 0.48 | 0.05 | 0.00 | 0.01 | 0.01 |
| T6 Instate Tractor Class 7 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 OOS Class 4 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 OOS Class 5 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 OOS Class 6 | Diesel | 0.00% | 0.00% | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 OOS Class 7 | Diesel | 0.01% | 0.00% | 0.00 | 0.10 | 0.01 | 0.00 | 0.01 | 0.00 |
| T6 Public Class 4 | Diesel | 0.01% | 0.00% | 0.01 | 0.63 | 0.02 | 0.00 | 0.01 | 0.00 |
| T6 Public Class 4 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 5 | Diesel | 0.02% | 0.00% | 0.01 | 0.49 | 0.02 | 0.00 | 0.01 | 0.00 |
| T6 Public Class 5 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 6 | Diesel | 0.02% | 0.00% | 0.01 | 0.98 | 0.03 | 0.00 | 0.01 | 0.01 |
| T6 Public Class 6 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 7 | Diesel | 0.03% | 0.00% | 0.03 | 2.27 | 0.07 | 0.00 | 0.03 | 0.02 |
| T6 Public Class 7 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 5 | Diesel | 0.01% | 0.00% | 0.00 | 0.09 | 0.01 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 5 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 6 | Diesel | 0.00% | 0.00% | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 6 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 7 | Diesel | 0.00% | 0.00% | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 7 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6TS | Gasoline | 0.14% | 0.01% | 0.26 | 1.35 | 5.88 | 0.02 | 0.06 | 0.02 |
| T7 CAIRP Class 8 | Diesel | 0.45% | 0.07% | 0.47 | 19.11 | 1.73 | 0.08 | 0.96 | 0.53 |
| T7 CAIRP Class 8 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 |
| T7 NNOOS Class 8 | Diesel | 0.54% | 0.08% | 0.92 | 24.43 | 3.63 | 0.10 | 1.42 | 0.90 |
| T7 NOOS Class 8 | Diesel | 0.20% | 0.03% | 0.24 | 8.64 | 0.87 | 0.03 | 0.43 | 0.25 |
| T7 Other Port Class 8 | Diesel | 0.04% | 0.01% | 0.05 | 1.95 | 0.17 | 0.01 | 0.07 | 0.03 |
| T7 POAK Class 8 | Diesel | 0.14% | 0.02% | 0.24 | 8.12 | 0.77 | 0.03 | 0.28 | 0.13 |
| T7 POAK Class 8 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 |
| T7 Public Class 8 | Diesel | 0.07% | 0.01% | 0.15 | 11.04 | 0.48 | 0.02 | 0.21 | 0.11 |
| T7 Public Class 8 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 |
| T7 Single Concrete/Transit Mix Class 8 | Diesel | 0.02% | 0.00% | 0.04 | 1.00 | 0.15 | 0.00 | 0.06 | 0.04 |
| T7 Single Concrete/Transit Mix Class 8 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| T7 Single Dump Class 8 | Diesel | 0.12% | 0.02% | 0.28 | 7.33 | 1.06 | 0.02 | 0.35 | 0.23 |
| T7 Single Dump Class 8 | Natural Gas | 0.01% | 0.00% | 0.00 | 0.03 | 0.52 | 0.00 | 0.01 | 0.00 |
| T7 Single Other Class 8 | Diesel | 0.11% | 0.02% | 0.32 | 7.33 | 1.20 | 0.02 | 0.38 | 0.26 |
| T7 Single Other Class 8 | Natural Gas | 0.01% | 0.00% | 0.00 | 0.03 | 0.45 | 0.00 | 0.01 | 0.00 |
| T7 SWCV Class 8 | Diesel | 0.05% | 0.01% | 0.02 | 5.44 | 0.05 | 0.02 | 0.16 | 0.06 |
| T7 SWCV Class 8 | Natural Gas | 0.04% | 0.01% | 0.06 | 1.27 | 12.01 | 0.00 | 0.12 | 0.04 |
| T7 Tractor Class 8 | Diesel | 0.39% | 0.06% | 0.68 | 22.30 | 2.46 | 0.07 | 0.95 | 0.56 |
| T7 Tractor Class 8 | Natural Gas | 0.03% | 0.00% | 0.01 | 0.21 | 3.70 | 0.00 | 0.04 | 0.01 |
| T7 Utility Class 8 | Diesel | 0.01% | 0.00% | 0.00 | 0.22 | 0.02 | 0.00 | 0.01 | 0.00 |
| T7IS | Gasoline | 0.00% | 0.00% | 0.02 | 0.06 | 0.62 | 0.00 | 0.00 | 0.00 |
| UBUS | Gasoline | 0.02% | 0.00% | 0.00 | 0.02 | 0.10 | 0.00 | 0.03 | 0.01 |
| UBUS | Diesel | 0.09% | 0.01% | 0.12 | 2.16 | 0.16 | 0.01 | 0.16 | 0.06 |
| UBUS | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | TOTAL | 100.00% | 100.00% | 234 | 1,193 | 9,689 | 27 | 151 | 57 |

Source: EMFAC2021 (v1.0.2) Emission Rates

Region Type: County

Region: Contra Costa

Calendar Year: 2019

Season: Annual

Vehicle Classification: EMFAC202x Categories

Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

| g/mile | | | | | | | | | | | | | | | | | | | 0.002205 | |
|-----------------------------|----------------|-----------|-----------|----------|-----------|------------|-----------|-----------|------------|----------|------------|----------|--------------|-----------|--------------|-----------|------------|-----------|-----------|----------|
| Vehicle Category | Fuel | ROG_RUNEX | NOx_RUNEX | CO_RUNEX | SOx_RUNEX | PM10_RUNEX | PM10_PMTW | PM10_PMBW | PM10_TOTAL | X | PM2.5_RUNE | | PM2.5_PMB | | PM 2.5 Total | CO2_RUNEX | CH4_RUNEX | N2O_RUNEX | VMT Total | % of VMT |
| | | | | | | | | | | | PM2.5_PMTW | W | PM 2.5 Total | CO2_RUNEX | CH4_RUNEX | N2O_RUNEX | VMT Total | % of VMT | | |
| All Other Buses | Diesel | 7.83E-01 | 7.62E+00 | 1.90E+00 | 1.20E-02 | 2.88E-01 | 1.20E-02 | 4.61E-02 | 3.47E-01 | 2.76E-01 | 3.00E-03 | 1.61E-02 | 2.95E-01 | 1.27E+03 | 3.64E-02 | 2.00E-01 | 5,401 | 0.02% | | |
| All Other Buses | Natural Gas | 1.04E-02 | 3.00E-01 | 3.09E+00 | 0.00E+00 | 5.82E-04 | 1.20E-02 | 4.61E-02 | 5.87E-02 | 5.35E-04 | 3.00E-03 | 1.61E-02 | 1.97E-02 | 1.09E+03 | 7.29E-01 | 2.21E-01 | 92 | 0.00% | | |
| LDA | Gasoline | 1.72E-02 | 7.85E-02 | 1.03E+00 | 2.97E-03 | 1.46E-03 | 8.00E-03 | 7.26E-03 | 1.67E-02 | 1.35E-03 | 2.00E-03 | 2.54E-03 | 5.89E-03 | 3.00E+02 | 4.07E-03 | 6.89E-03 | 12,708,469 | 48.63% | | |
| LDA | Diesel | 3.32E-02 | 3.24E-01 | 3.63E-01 | 2.30E-03 | 2.12E-02 | 8.00E-03 | 7.27E-03 | 3.65E-02 | 2.03E-02 | 2.00E-03 | 2.55E-03 | 2.48E-02 | 2.43E+02 | 1.54E-03 | 3.83E-02 | 57,342 | 0.22% | | |
| LDA | Electricity | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.00E-03 | 4.36E-03 | 1.24E-02 | 0.00E+00 | 2.00E-03 | 1.53E-03 | 3.53E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 301,373 | 1.15% | | |
| LDA | Plug-in Hybrid | 1.46E-03 | 3.46E-03 | 2.26E-01 | 1.46E-03 | 9.14E-04 | 8.00E-03 | 3.79E-03 | 1.27E-02 | 8.41E-04 | 2.00E-03 | 1.33E-03 | 4.17E-03 | 1.47E+02 | 4.66E-04 | 6.39E-04 | 217,659 | 0.83% | | |
| LDT1 | Gasoline | 4.77E-02 | 2.14E-01 | 2.09E+00 | 3.48E-03 | 2.45E-03 | 8.00E-03 | 8.74E-03 | 1.92E-02 | 2.25E-03 | 2.00E-03 | 3.06E-03 | 7.31E-03 | 3.51E+02 | 1.03E-02 | 1.43E-02 | 1,306,567 | 5.00% | | |
| LDT1 | Diesel | 3.08E-01 | 1.59E+00 | 1.93E+00 | 3.96E-03 | 2.32E-01 | 8.00E-03 | 1.01E-02 | 2.50E-01 | 2.22E-01 | 2.00E-03 | 3.54E-03 | 2.27E-01 | 4.18E+02 | 1.43E-02 | 6.58E-02 | 399 | 0.00% | | |
| LDT1 | Electricity | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.00E-03 | 4.39E-03 | 1.24E-02 | 0.00E+00 | 2.00E-03 | 1.54E-03 | 3.54E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1,597 | 0.01% | | |
| LDT1 | Plug-in Hybrid | 1.47E-03 | 3.47E-03 | 2.27E-01 | 1.46E-03 | 1.07E-03 | 8.00E-03 | 3.78E-03 | 1.28E-02 | 9.80E-04 | 2.00E-03 | 1.32E-03 | 4.30E-03 | 1.48E+02 | 4.71E-04 | 6.50E-04 | 19 | 0.00% | | |
| LDT2 | Gasoline | 1.89E-02 | 1.24E-01 | 1.16E+00 | 3.75E-03 | 1.51E-03 | 8.00E-03 | 8.45E-03 | 1.80E-02 | 1.39E-03 | 2.00E-03 | 2.96E-03 | 6.35E-03 | 3.79E+02 | 4.47E-03 | 8.97E-03 | 5,733,691 | 21.94% | | |
| LDT2 | Diesel | 1.54E-02 | 7.50E-02 | 1.34E-01 | 3.19E-03 | 7.25E-03 | 8.00E-03 | 8.19E-03 | 2.34E-02 | 6.94E-03 | 2.00E-03 | 2.86E-03 | 1.18E-02 | 3.37E+02 | 7.17E-04 | 5.31E-02 | 23,795 | 0.09% | | |
| LDT2 | Electricity | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.00E-03 | 4.35E-03 | 1.24E-02 | 0.00E+00 | 2.00E-03 | 1.52E-03 | 3.52E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 825 | 0.00% | | |
| LDT2 | Plug-in Hybrid | 1.44E-03 | 3.41E-03 | 2.23E-01 | 1.44E-03 | 1.04E-03 | 8.00E-03 | 3.79E-03 | 1.28E-02 | 9.52E-04 | 2.00E-03 | 1.33E-03 | 4.28E-03 | 1.45E+02 | 4.64E-04 | 6.42E-04 | 8,729 | 0.03% | | |
| LHD1 | Gasoline | 6.84E-02 | 2.99E-01 | 1.53E+00 | 9.47E-03 | 2.05E-03 | 8.00E-03 | 7.80E-02 | 8.80E-02 | 1.89E-03 | 2.00E-03 | 2.73E-02 | 3.12E-02 | 9.57E+02 | 1.34E-02 | 1.66E-02 | 467,246 | 1.79% | | |
| LHD1 | Diesel | 2.47E-01 | 2.84E+00 | 7.32E-01 | 6.12E-03 | 5.63E-02 | 1.20E-02 | 7.80E-02 | 1.46E-01 | 5.38E-02 | 3.00E-03 | 2.73E-02 | 8.41E-02 | 6.46E+02 | 1.15E-02 | 1.02E-01 | 318,262 | 1.22% | | |
| LHD2 | Gasoline | 6.01E-02 | 2.88E-01 | 1.39E+00 | 1.06E-02 | 1.87E-03 | 8.00E-03 | 9.10E-02 | 1.01E-01 | 1.72E-03 | 2.00E-03 | 3.19E-02 | 3.56E-02 | 1.07E+03 | 1.22E-02 | 1.62E-02 | 52,570 | 0.20% | | |
| LHD2 | Diesel | 2.12E-01 | 2.04E+00 | 5.71E-01 | 7.52E-03 | 4.74E-02 | 1.20E-02 | 9.10E-02 | 1.50E-01 | 4.54E-02 | 3.00E-03 | 3.19E-02 | 8.02E-02 | 7.94E+02 | 9.83E-03 | 1.25E-01 | 117,069 | 0.45% | | |
| MCY | Gasoline | 1.45E+00 | 7.10E-01 | 1.68E+01 | 1.92E-03 | 1.91E-03 | 4.00E-03 | 1.20E-02 | 1.79E-02 | 1.80E-03 | 1.00E-03 | 4.20E-03 | 7.00E-03 | 1.94E+02 | 2.07E-01 | 4.55E-02 | 105,968 | 0.41% | | |
| MDV | Gasoline | 3.58E-02 | 2.10E-01 | 1.59E+00 | 4.55E-03 | 1.65E-03 | 8.00E-03 | 8.71E-03 | 1.84E-02 | 1.52E-03 | 2.00E-03 | 3.05E-03 | 4.59E+02 | 7.54E-03 | 1.33E-02 | 1.33E-02 | 3,680,635 | 14.08% | | |
| MDV | Diesel | 1.34E-02 | 9.24E-02 | 2.00E-01 | 4.12E-03 | 7.06E-03 | 8.00E-03 | 8.20E-03 | 2.33E-02 | 6.75E-03 | 2.00E-03 | 2.87E-03 | 1.16E-02 | 4.35E+02 | 6.23E-04 | 6.85E-02 | 66,483 | 0.25% | | |
| MDV | Electricity | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.00E-03 | 4.43E-03 | 1.24E-02 | 0.00E+00 | 2.00E-03 | 1.55E-03 | 3.55E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 40 | 0.00% | | |
| MDV | Plug-in Hybrid | 1.46E-03 | 3.46E-03 | 2.27E-01 | 1.46E-03 | 1.07E-03 | 8.00E-03 | 3.78E-03 | 1.28E-02 | 9.82E-04 | 2.00E-03 | 1.32E-03 | 4.31E-03 | 1.48E+02 | 4.70E-04 | 6.48E-04 | 13,902 | 0.05% | | |
| MH | Gasoline | 1.23E-01 | 5.78E-01 | 3.28E+00 | 1.93E-02 | 2.15E-03 | 1.20E-02 | 4.50E-02 | 5.92E-02 | 1.98E-03 | 3.00E-03 | 1.58E-02 | 2.07E-02 | 1.95E+03 | 2.43E-02 | 3.24E-02 | 19,766 | 0.08% | | |
| MH | Diesel | 1.31E-01 | 4.90E+00 | 4.52E-01 | 1.02E-02 | 1.31E-01 | 1.60E-02 | 4.48E-02 | 1.91E-01 | 1.25E-01 | 4.00E-03 | 1.57E-02 | 1.45E-01 | 1.08E+03 | 6.10E-03 | 1.70E-01 | 7,504 | 0.03% | | |
| Motor Coach | Diesel | 1.77E-01 | 4.33E+00 | 6.23E-01 | 1.66E-02 | 1.08E-01 | 1.20E-02 | 7.91E-02 | 1.99E-01 | 1.03E-01 | 3.00E-03 | 2.77E-02 | 1.34E-01 | 1.76E+03 | 8.24E-03 | 2.77E-01 | 3,505 | 0.01% | | |
| OBUS | Gasoline | 1.20E-01 | 8.70E-01 | 2.76E+00 | 1.84E-02 | 7.69E-04 | 1.20E-02 | 4.48E-02 | 5.76E-02 | 7.07E-04 | 3.00E-03 | 1.57E-02 | 1.94E-02 | 1.85E+03 | 2.47E-02 | 3.94E-02 | 14,573 | 0.06% | | |
| PTO | Diesel | 4.50E-01 | 7.06E+00 | 1.68E+00 | 2.08E-02 | 1.75E-01 | 0.00E+00 | 0.00E+00 | 1.68E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.68E-01 | 2.20E+03 | 2.09E-02 | 3.46E-01 | 13,666 | 0.05% | | |
| SBUS | Gasoline | 4.71E-01 | 8.54E-01 | 1.05E+01 | 8.23E-03 | 3.40E-03 | 8.00E-03 | 4.49E-02 | 5.63E-02 | 3.16E-03 | 2.00E-03 | 1.57E-02 | 2.09E-02 | 8.31E+02 | 7.41E-02 | 3.99E-02 | 3,602 | 0.01% | | |
| SBUS | Diesel | 5.31E-02 | 3.64E+00 | 1.64E-01 | 1.08E-02 | 2.02E-02 | 1.20E-02 | 4.49E-02 | 7.72E-02 | 1.94E-02 | 3.00E-03 | 1.57E-02 | 3.81E-02 | 1.14E+03 | 2.47E-03 | 1.80E-01 | 10,026 | 0.04% | | |
| SBUS | Natural Gas | 5.20E-02 | 6.41E-01 | 1.26E+01 | 0.00E+00 | 3.67E-03 | 1.20E-02 | 4.49E-02 | 6.06E-02 | 3.38E-03 | 3.00E-03 | 1.57E-02 | 2.21E-02 | 1.31E+03 | 3.64E+00 | 2.66E-01 | 491 | 0.00% | | |
| T6 CAIRP Class 4 | Diesel | 8.78E-02 | 2.18E+00 | 3.12E-01 | 1.08E-02 | 7.44E-02 | 1.20E-02 | 4.23E-02 | 1.29E-01 | 7.12E-02 | 3.00E-03 | 1.48E-02 | 8.90E-02 | 1.14E+03 | 4.08E-03 | 1.79E-01 | 103 | 0.00% | | |
| T6 CAIRP Class 5 | Diesel | 5.99E-02 | 1.64E+00 | 2.28E-01 | 1.07E-02 | 5.44E-02 | 1.20E-02 | 4.23E-02 | 1.09E-01 | 5.21E-02 | 3.00E-03 | 1.48E-02 | 6.99E-02 | 1.13E+03 | 2.78E-03 | 1.78E-01 | 141 | 0.00% | | |
| T6 CAIRP Class 6 | Diesel | 8.56E-02 | 2.14E+00 | 3.18E-01 | 1.06E-02 | 7.67E-02 | 1.20E-02 | 4.23E-02 | 1.31E-01 | 7.34E-02 | 3.00E-03 | 1.48E-02 | 9.12E-02 | 1.12E+03 | 3.97E-03 | 1.76E-01 | 369 | 0.00% | | |
| T6 CAIRP Class 7 | Diesel | 8.48E-02 | 2.28E+00 | 2.89E-01 | 9.99E-03 | 6.94E-02 | 1.20E-02 | 4.23E-02 | 1.24E-01 | 6.64E-02 | 3.00E-03 | 1.48E-02 | 8.42E-02 | 1.06E+03 | 3.94E-03 | 1.66E-01 | 2,313 | 0.01% | | |
| T6 Instate Delivery Class 4 | Diesel | 5.67E-01 | 7.12E+00 | 1.49E+00 | 1.19E-02 | 2.29E-01 | 1.20E-02 | 4.76E-02 | 2.89E-01 | 2.20E-01 | 3.00E-03 | 1.66E-02 | 2.39E-01 | 1.26E+03 | 2.63E-02 | 1.98E-01 | 8,874 | 0.03% | | |
| T6 Instate Delivery Class 4 | Natural Gas | 1.04E-02 | 2.97E-01 | 3.25E+00 | 0.00E+00 | 6.54E-04 | 1.20E-02 | 4.76E-02 | 6.02E-02 | 6.02E-04 | 3.00E-03 | 1.66E-02 | 2.02E-02 | 1.11E+03 | 7.28E-01 | 2.27E-01 | 28 | 0.00% | | |
| T6 Instate Delivery Class 5 | Diesel | 2.80E-01 | 3.98E+00 | 7.42E-01 | 1.17E-02 | 1.08E-01 | 1.20E-02 | 4.76E-02 | 1.68E-01 | 1.03E-01 | 3.00E-03 | 1.66E-02 | 1.23E-01 | 1.24E+03 | 1.30E-02 | 1.95E-01 | 7,209 | 0.03% | | |
| T6 Instate Delivery Class 5 | Natural Gas | 1.04E-02 | 3.00E-01 | 3.25E+00 | 0.00E+00 | 6.39E-04 | 1.20E-02 | 4.76E-02 | 6.02E-02 | 5.87E-04 | 3.00E-03 | 1.66E-02 | 2.02E-02 | 1.11E+03 | 7.27E-01 | 2.27E-01 | 27 | 0.00% | | |
| T6 Instate Delivery Class 6 | Diesel | 4.35E-01 | 5.63E+00 | 1.14E+00 | 1.17E-02 | 1.78E-01 | 1.20E-02 | 4.76E-02 | 2.37E-01 | 1.70E-01 | 3.00E-03 | 1.66E-02 | 1.90E-01 | 1.24E+03 | 2.02E-02 | 1.95E-01 | 15,676 | 0.06% | | |
| T6 Instate Delivery Class 6 | Natural Gas | 1.04E-02 | 2.98E-01 | 3.25E+00 | 0.00E+00 | 6.48E-04 | 1.20E-02 | 4.76E-02 | 6.02E-02 | 5.96E-04 | 3.00E-03 | 1.66E-02 | 2.02E-02 | 1.11E+03 | 7.28E-01 | 2.26E-01 | 59 | 0.00% | | |
| T6 Instate Delivery Class 7 | Diesel | 4.82E-01 | 6.94E+00 | 1.26E+00 | 1.18E-02 | 2.19E-01 | 1.20E-02 | 4.76E-02 | 2.79E-01 | 2.10E-01 | 3.00E-03 | 1.66E-02 | 2.29E-01 | 1.25E+03 | 2.24E-02 | 1.96E-01 | 2,563 | 0.01% | | |
| T6 Instate Delivery Class 7 | Natural Gas | 1.05E-02 | 2.84E-01 | 3.28E+00 | 0.00E+00 | 7.30E-04 | 1.20E-02 | 4.76E-02 | 6.03E-02 | 6.71E-04 | 3.00E-03 | 1.66E-02 | 2.03E-02 | 1.09E+03 | 7.36E-01 | 2.22E-01 | 12 | 0.00% | | |
| T6 Instate Other Class 4 | Diesel | 5.02E-01 | 7.70E+00 | 1.41E+00 | 1.12E-02 | 2.58E-01 | 1.20E-02 | 4.49E-02 | 3.14E-01 | 2.46E-01 | 3.00E-03 | 1.57E-02 | 2.65E-01 | 1.19E+03 | 2.33E-02 | 1.87E-01 | 25,076 | 0.10% | | |
| T6 Instate Other Class 4 | Natural Gas | 7.97E-03 | 2.28E-01 | 2.83E+00 | 0.00E+00 | 5.11E-04 | 1.20E-02 | 4.49E-02 | 5.74E-02 | 4.69E-04 | 3.00E-03 | 1.57E-02 | 1.92E-02 | 9.65E+02 | 5.58E-01 | 1.97E-01 | 51 | 0.00% | | |
| T6 Instate Other Class 5 | Diesel | 1.68E-01 | 2.84E+00 | 5.08E-01 | 1.10E-02 | 8.85E-02 | 1.20E-02 | 4.49E-02 | 1.45E-01 | 8.47E-02 | 3.00E-03 | 1.57E-02 | 1.03E-01 | 1.16E+03 | 7.81E-03 | 1.83E-01 | 58,748 | 0.22% | | |
| T6 Instate Other Class 5 | Natural Gas | 7.93E-03 | 2.31E-01 | 2.83E+00 | 0.00E+00 | 4 | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | |
|--|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------|-------|
| T6 Public Class 5 | Natural Gas | 1.22E-02 | 1.31E-01 | 3.08E+00 | 0.00E+00 | 1.45E-03 | 1.20E-02 | 4.62E-02 | 5.96E-02 | 1.33E-03 | 3.00E-03 | 1.62E-02 | 2.05E-02 | 1.06E+03 | 8.52E-01 | 2.16E-01 | 272 | 0.00% |
| T6 Public Class 6 | Diesel | 1.18E-01 | 7.79E+00 | 2.64E-01 | 1.22E-02 | 5.19E-02 | 1.20E-02 | 4.62E-02 | 1.10E-01 | 4.97E-02 | 3.00E-03 | 1.62E-02 | 6.88E-02 | 1.29E+03 | 5.50E-03 | 2.03E-01 | 4,495 | 0.02% |
| T6 Public Class 6 | Natural Gas | 1.19E-02 | 1.76E-01 | 3.09E+00 | 0.00E+00 | 1.24E-03 | 1.20E-02 | 4.62E-02 | 5.94E-02 | 1.14E-03 | 3.00E-03 | 1.62E-02 | 2.03E-02 | 1.05E+03 | 8.33E-01 | 2.13E-01 | 76 | 0.00% |
| T6 Public Class 7 | Diesel | 1.48E-01 | 9.61E+00 | 3.12E-01 | 1.24E-02 | 6.92E-02 | 1.20E-02 | 4.62E-02 | 1.27E-01 | 6.62E-02 | 3.00E-03 | 1.62E-02 | 8.54E-02 | 1.31E+03 | 6.86E-03 | 2.07E-01 | 8,450 | 0.03% |
| T6 Public Class 7 | Natural Gas | 1.19E-02 | 1.81E-01 | 3.10E+00 | 0.00E+00 | 1.21E-03 | 1.20E-02 | 4.62E-02 | 5.94E-02 | 1.11E-03 | 3.00E-03 | 1.62E-02 | 2.03E-02 | 1.04E+03 | 8.31E-01 | 2.12E-01 | 154 | 0.00% |
| T6 Utility Class 5 | Diesel | 2.45E-02 | 1.27E+00 | 9.54E-02 | 1.08E-02 | 6.14E-03 | 1.20E-02 | 4.55E-02 | 6.36E-02 | 5.88E-03 | 3.00E-03 | 1.59E-02 | 2.48E-02 | 1.14E+03 | 1.14E-03 | 1.79E-01 | 2,429 | 0.01% |
| T6 Utility Class 5 | Natural Gas | 9.34E-03 | 2.70E-01 | 2.89E+00 | 0.00E+00 | 5.18E-04 | 1.20E-02 | 4.55E-02 | 5.80E-02 | 4.76E-04 | 3.00E-03 | 1.59E-02 | 1.94E-02 | 1.01E+03 | 6.54E-01 | 2.06E-01 | 35 | 0.00% |
| T6 Utility Class 6 | Diesel | 3.71E-02 | 2.08E+00 | 1.24E-01 | 1.10E-02 | 1.08E-02 | 1.20E-02 | 4.55E-02 | 6.83E-02 | 1.03E-02 | 3.00E-03 | 1.59E-02 | 2.92E-02 | 1.17E+03 | 1.72E-03 | 1.83E-01 | 461 | 0.00% |
| T6 Utility Class 6 | Natural Gas | 9.34E-03 | 2.70E-01 | 2.89E+00 | 0.00E+00 | 5.18E-04 | 1.20E-02 | 4.55E-02 | 5.80E-02 | 4.76E-04 | 3.00E-03 | 1.59E-02 | 1.94E-02 | 9.95E+02 | 6.54E-01 | 2.03E-01 | 4 | 0.00% |
| T6 Utility Class 7 | Diesel | 2.80E-02 | 1.92E+00 | 1.00E-01 | 1.10E-02 | 1.03E-02 | 1.20E-02 | 4.55E-02 | 6.78E-02 | 9.87E-03 | 3.00E-03 | 1.59E-02 | 2.88E-02 | 1.17E+03 | 1.30E-03 | 1.83E-01 | 635 | 0.00% |
| T6 Utility Class 7 | Natural Gas | 9.34E-03 | 2.70E-01 | 2.89E+00 | 0.00E+00 | 5.18E-04 | 1.20E-02 | 4.55E-02 | 5.80E-02 | 4.76E-04 | 3.00E-03 | 1.59E-02 | 1.94E-02 | 1.00E+03 | 6.54E-01 | 2.04E-01 | 13 | 0.00% |
| T6TS | Gasoline | 2.58E-01 | 1.33E+00 | 5.81E+00 | 1.88E-02 | 2.08E-03 | 1.20E-02 | 4.50E-02 | 5.91E-02 | 1.92E-03 | 3.00E-03 | 1.58E-02 | 2.07E-02 | 1.90E+03 | 4.74E-02 | 5.56E-02 | 36,239 | 0.14% |
| T7 CAIRP Class 8 | Diesel | 8.81E-02 | 3.58E+00 | 3.24E-01 | 1.51E-02 | 6.62E-02 | 3.60E-02 | 7.73E-02 | 1.80E-01 | 6.33E-02 | 9.00E-03 | 2.71E-02 | 9.94E-02 | 1.60E+03 | 4.09E-03 | 2.52E-01 | 118,223 | 0.45% |
| T7 CAIRP Class 8 | Natural Gas | 1.32E-02 | 2.62E-01 | 4.60E+00 | 0.00E+00 | 1.74E-03 | 3.60E-02 | 7.41E-02 | 1.12E-01 | 1.60E-03 | 9.00E-03 | 2.59E-02 | 3.65E-02 | 1.18E+03 | 9.23E-01 | 2.41E-01 | 201 | 0.00% |
| T7 NNOOS Class 8 | Diesel | 1.45E-01 | 3.84E+00 | 5.72E-01 | 1.52E-02 | 1.09E-01 | 3.60E-02 | 7.82E-02 | 2.24E-01 | 1.05E-01 | 9.00E-03 | 2.74E-02 | 1.41E-01 | 1.61E+03 | 6.74E-03 | 2.54E-01 | 140,606 | 0.54% |
| T7 NOOS Class 8 | Diesel | 1.03E-01 | 3.74E+00 | 3.75E-01 | 1.51E-02 | 7.38E-02 | 3.60E-02 | 7.75E-02 | 1.87E-01 | 7.06E-02 | 9.00E-03 | 2.71E-02 | 1.07E-01 | 1.60E+03 | 4.78E-03 | 2.52E-01 | 51,092 | 0.20% |
| T7 Other Port Class 8 | Diesel | 1.19E-01 | 4.46E+00 | 3.80E-01 | 1.63E-02 | 3.11E-02 | 3.60E-02 | 9.40E-02 | 1.61E-01 | 2.98E-02 | 9.00E-03 | 3.29E-02 | 7.17E-02 | 1.72E+03 | 5.53E-03 | 2.71E-01 | 9,668 | 0.04% |
| T7 POAK Class 8 | Diesel | 1.47E-01 | 4.97E+00 | 4.69E-01 | 1.63E-02 | 4.14E-02 | 3.60E-02 | 9.60E-02 | 1.73E-01 | 3.96E-02 | 9.00E-03 | 3.36E-02 | 8.22E-02 | 1.73E+03 | 6.85E-03 | 2.72E-01 | 36,148 | 0.14% |
| T7 POAK Class 8 | Natural Gas | 1.70E-02 | 7.05E-01 | 1.10E+01 | 0.00E+00 | 1.36E-03 | 3.60E-02 | 8.52E-02 | 1.23E-01 | 1.25E-03 | 9.00E-03 | 2.98E-02 | 4.01E-02 | 1.49E+03 | 1.19E+00 | 3.04E-01 | 79 | 0.00% |
| T7 Public Class 8 | Diesel | 1.73E-01 | 1.27E+01 | 5.50E-01 | 1.87E-02 | 8.30E-02 | 3.60E-02 | 1.21E-01 | 2.40E-01 | 7.94E-02 | 9.00E-03 | 4.24E-02 | 1.31E-01 | 1.98E+03 | 8.01E-03 | 3.12E-01 | 19,202 | 0.07% |
| T7 Public Class 8 | Natural Gas | 2.61E-02 | 7.55E-01 | 1.07E+01 | 0.00E+00 | 2.46E-03 | 3.60E-02 | 1.07E-01 | 1.45E-01 | 2.26E-03 | 9.00E-03 | 3.75E-02 | 4.87E-02 | 1.68E+03 | 1.83E+00 | 3.43E-01 | 61 | 0.00% |
| T7 Single Concrete/Transit Mix Class 8 | Diesel | 1.73E-01 | 4.05E+00 | 6.29E-01 | 1.62E-02 | 1.11E-01 | 3.60E-02 | 8.68E-02 | 2.33E-01 | 1.06E-01 | 9.00E-03 | 3.04E-02 | 1.45E-01 | 1.71E+03 | 8.02E-03 | 2.69E-01 | 5,440 | 0.02% |
| T7 Single Concrete/Transit Mix Class 8 | Natural Gas | 1.51E-02 | 4.28E-01 | 7.58E+00 | 0.00E+00 | 1.68E-03 | 3.60E-02 | 8.16E-02 | 1.19E-01 | 1.54E-03 | 9.00E-03 | 2.86E-02 | 3.91E-02 | 1.28E+03 | 1.06E+00 | 2.60E-01 | 249 | 0.00% |
| T7 Single Dump Class 8 | Diesel | 2.06E-01 | 5.33E+00 | 7.69E-01 | 1.60E-02 | 1.31E-01 | 3.60E-02 | 8.91E-02 | 2.56E-01 | 1.25E-01 | 9.00E-03 | 3.12E-02 | 1.65E-01 | 1.69E+03 | 9.58E-03 | 2.67E-01 | 30,417 | 0.12% |
| T7 Single Dump Class 8 | Natural Gas | 1.51E-02 | 4.26E-01 | 7.57E+00 | 0.00E+00 | 1.68E-03 | 3.60E-02 | 8.24E-02 | 1.20E-01 | 1.54E-03 | 9.00E-03 | 2.88E-02 | 3.94E-02 | 1.32E+03 | 1.06E+00 | 2.68E-01 | 1,525 | 0.01% |
| T7 Single Other Class 8 | Diesel | 2.37E-01 | 5.43E+00 | 8.92E-01 | 1.61E-02 | 1.56E-01 | 3.60E-02 | 8.97E-02 | 2.82E-01 | 1.49E-01 | 9.00E-03 | 3.14E-02 | 1.90E-01 | 1.70E+03 | 1.10E-02 | 2.68E-01 | 29,887 | 0.11% |
| T7 Single Other Class 8 | Natural Gas | 1.51E-02 | 4.26E-01 | 7.59E+00 | 0.00E+00 | 1.68E-03 | 3.60E-02 | 8.29E-02 | 1.21E-01 | 1.54E-03 | 9.00E-03 | 2.90E-02 | 3.96E-02 | 1.31E+03 | 1.06E+00 | 2.67E-01 | 1,308 | 0.01% |
| T7 SWCV Class 8 | Diesel | 3.05E-02 | 8.80E+00 | 8.25E-02 | 3.90E-02 | 1.36E-02 | 3.60E-02 | 2.10E-01 | 2.60E-01 | 1.30E-02 | 9.00E-03 | 7.35E-02 | 9.55E-02 | 4.12E+03 | 1.42E-03 | 6.49E-01 | 13,676 | 0.05% |
| T7 SWCV Class 8 | Natural Gas | 1.30E-01 | 2.64E+00 | 2.50E+01 | 0.00E+00 | 2.74E-03 | 3.60E-02 | 2.10E-01 | 2.49E-01 | 2.52E-03 | 9.00E-03 | 7.35E-02 | 8.50E-02 | 1.72E+03 | 5.48E+00 | 3.51E-01 | 10,621 | 0.04% |
| T7 Tractor Class 8 | Diesel | 1.49E-01 | 4.88E+00 | 5.39E-01 | 1.51E-02 | 8.69E-02 | 3.60E-02 | 8.54E-02 | 2.08E-01 | 8.32E-02 | 9.00E-03 | 2.99E-02 | 1.22E-01 | 1.60E+03 | 6.91E-03 | 2.51E-01 | 101,106 | 0.39% |
| T7 Tractor Class 8 | Natural Gas | 1.42E-02 | 5.64E-01 | 9.76E+00 | 0.00E+00 | 1.24E-03 | 3.60E-02 | 7.85E-02 | 1.16E-01 | 1.14E-03 | 9.00E-03 | 2.75E-02 | 3.76E-02 | 1.22E+03 | 9.96E-01 | 2.49E-01 | 8,401 | 0.03% |
| T7 Utility Class 8 | Diesel | 4.10E-02 | 2.46E+00 | 1.98E-01 | 1.68E-02 | 1.14E-02 | 3.60E-02 | 9.84E-02 | 1.46E-01 | 1.09E-02 | 9.00E-03 | 3.44E-02 | 5.43E-02 | 1.78E+03 | 1.90E-03 | 2.80E-01 | 1,945 | 0.01% |
| T7IS | Gasoline | 9.28E+00 | 2.69E+01 | 2.61E+02 | 2.92E-02 | 1.82E-02 | 2.00E-02 | 1.18E-01 | 1.56E-01 | 1.71E-02 | 5.00E-03 | 4.13E-02 | 6.34E-02 | 2.95E+03 | 1.10E+00 | 5.76E-01 | 52 | 0.00% |
| UBUS | Gasoline | 1.03E-02 | 9.66E-02 | 4.08E-01 | 1.37E-02 | 1.22E-03 | 1.00E-02 | 1.01E-01 | 1.12E-01 | 1.12E-03 | 2.50E-03 | 3.52E-02 | 3.88E-02 | 1.39E+03 | 3.24E-03 | 1.03E-02 | 5,509 | 0.02% |
| UBUS | Diesel | 1.12E-01 | 2.03E+00 | 1.53E-01 | 1.33E-02 | 7.36E-03 | 3.09E-02 | 1.10E-01 | 1.48E-01 | 7.04E-03 | 7.73E-03 | 3.85E-02 | 5.33E-02 | 1.41E+03 | 5.20E-03 | 2.21E-01 | 23,552 | 0.09% |
| UBUS | Electricity | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.30E-02 | 5.50E-02 | 7.80E-02 | 0.00E+00 | 5.75E-03 | 1.93E-02 | 2.50E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 336 | 0.00% |

Total VMT 26,132,029

| lbs/Mile | | | | | | | | | | | | | | |
|-----------|-----------|----------|-----------|------------|-----------|-----------|------------|-------------|------------|------------|--------------|-----------|-----------|-----------|
| ROG_RUNEX | NOx_RUNEX | CO_RUNEX | SOx_RUNEX | PM10_RUNEX | PM10_PMTW | PM10_PMBW | PM10_TOTAL | PM2.5_RUNEX | PM2.5_PMTW | PM2.5_PMBW | PM 2.5 Total | CO2_RUNEX | CH4_RUNEX | N2O_RUNEX |
| 1.73E-03 | 1.68E-02 | 4.18E-03 | 2.65E-05 | 2.65E-05 | 1.02E-04 | 6.36E-04 | 7.64E-04 | 6.61E-06 | 3.56E-05 | 6.08E-04 | 6.51E-04 | 2.80E+00 | 8.02E-05 | 4.41E-04 |
| 2.30E-05 | 6.62E-04 | 6.82E-03 | 0.00E+00 | 2.65E-05 | 1.02E-04 | 1.28E-06 | 1.29E-04 | 6.61E-06 | 3.56E-05 | 1.18E-06 | 4.34E-05 | 2.40E+00 | 1.61E-03 | 4.88E-04 |
| 3.79E-05 | 1.73E-04 | 2.27E-03 | 6.54E-06 | 1.76E-05 | 1.60E-05 | 3.23E-06 | 3.69E-05 | 4.41E-06 | 5.60E-06 | 2.97E-06 | 1.30E-05 | 6.61E-01 | 8.98E-06 | 1.52E-05 |
| 7.31E-05 | 7.14E-04 | 8.01E-04 | 5.08E-06 | 1.76E-05 | 1.60E-05 | 4.67E-05 | 8.04E-05 | 4.41E-06 | 5.61E-06 | 4.47E-05 | 5.47E-05 | 5.37E-01 | 3.39E-06 | 8.45E-05 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.76E-05 | 9.61E-06 | 0.00E+00 | 2.72E-05 | 4.41E-06 | 3.36E-06 | 0.00E+00 | 7.77E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3.22E-06 | 7.63E-06 | 4.99E-04 | 3.22E-06 | 1.76E-05 | 8.35E-06 | 2.02E-06 | 2.80E-05 | 4.41E-06 | 2.92E-06 | 1.85E-06 | 9.19E-06 | 3.25E-01 | 1.03E-06 | 1.41E-06 |
| 1.05E-04 | 4.71E-04 | 4.61E-03 | 7.66E-06 | 1.76E-05 | 1.93E-05 | 5.40E-06 | 4.23E-05 | 4.41E-06 | 6.74E-06 | 4.97E-06 | 1.61E-05 | 7.74E-01 | 2.28E-05 | 3.15E-05 |
| 6.78E-04 | 3.50E-03 | 4.27E-03 | 8.73E-06 | 1.76E-05 | 2.23E-05 | 5.11E-04 | 5.51E-04 | 4.41E-06 | 7.81E-06 | 4.89E-04 | 5.01E-04 | 9.22E-01 | 3.15E-05 | 1.45E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.76E-05 | 9.69E-06 | 0.00E+00 | 2.73E-05 | 4.41E-06 | 3.39E-06 | 0.00E+00 | 7.80E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3.23E-06 | 7.65E-06 | 5.01E-04 | 3.23E-06 | 1.76E-05 | 8.34E-06 | 2.35E-06 | 2.83E-05 | 4.41E-06 | 2.92E-06 | 2.16E-06 | 9.49E-06 | 3.26E-01 | 1.04E-06 | 1.43E-06 |
| 4.16E-05 | 2.73E-04 | 2.55E-03 | 8.26E-06 | 1.76E-05 | 1.86E-05 | 3.96E-06 | 3.96E-05 | 4.41E-06 | 6.52E-06 | 3.07E-06 | 1.40E-05 | 8.35E-01 | 9.86E-06 | 1.98E-05 |
| 3.40E-05 | 1.65E-04 | 2.95E-04 | 7.04E-06 | 1.76E-05 | 1.80E-05 | 1.60E-05 | 5.17E-05 | 4.41E-06 | 6.32E-06 | 1.53E-05 | 2.60E-05 | 7.43E-01 | 1.58E-06 | 1.17E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.76E-05 | 9.60E-06 | 0.00E+00 | 2.72E-05 | 4.41E-06 | 3.36E-06 | 0.00E+00 | 7.77E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3.17E-06 | 7.51E-06 | 4.92E-04 | 3.17E-06 | 1.76E-05 | 8.35E-06 | 2.28E-06 | 2.83E-05 | 4.41E-06 | 2.92E-06 | 2.10E-06 | 9.43E-06 | 3.20E-01 | 1.02E-06 | 1.42E-06 |
| 1.51E-04 | 6.58E-04 | 3.38E-03 | 2.09E-05 | 1.76E-05 | 1.72E-04 | 4.52E-06 | 1.94E-04 | 4.41E-06 | 6.02E-05 | 4.16E-06 | 6.88E-05 | 2.11E+00 | 2.95E-05 | 3.67E-05 |
| 5.44E-04 | 6.26E-03 | 1.61E-03 | 1.35E-05 | 2.65E-05 | 1.72E-04 | 1.24E-04 | 3.22E-04 | 6.61E-06 | 6.02E-05 | 1.19E-04 | 1.85E-04 | 1.42E+00 | 2.53E-05 | 2.24E-04 |
| 1.32E-04 | 6.34E-04 | 3.08E-03 | 2.33E-05 | 1.76E-05 | 2.01E-04 | 4.12E-06 | 2.22E-04 | 4.41E-06 | 7.02E-05 | 3.79E-06 | 7.84E-05 | 2.36E+00 | 2.69E-05 | 3.58E-05 |
| 4.67E-04 | 4.51E-03 | 1.26E-03 | 1.66E-05 | 2.65E-05 | 2.01E-04 | 1.05E-04 | 3.32E-04 | 6.61E-06 | 7.02E-05 | 1.00E-04 | 1.77E-04 | 1.75E+00 | 2.17E-05 | 2.76E-04 |
| 3.20E-03 | 1.56E-03 | 3.70E-02 | 4.23E-06 | 8.82E-06 | 2.65E-05 | 4.21E-06 | 3.95E-05 | 2.20E-06 | 9.26E-06 | 3.96E-06 | 1.54E-05 | 4.27E-01 | 4.56E-04 | 1.00E-04 |
| 7.90E-05 | 4.63E-04 | 3.50E-03 | 1.00E-05 | 1.76E-05 | 1.92E-05 | 3.64E-06 | 4.05E-05 | 4.41E-06 | 6.72E-06 | 3.35E-06 | 1.45E-05 | 1.01E+00 | 1.66E-05 | 2.93E-05 |
| 2.96E-05 | 2.04E-04 | 4.41E-04 | 9.08E-06 | 1.76E-05 | 1.81E-05 | 1.56E-05 | 5.13E-05 | 4.41E-06 | 6.33E-06 | 1.49E-05 | 2.56E-05 | 9.59E-01 | 1.37E-06 | 1.51E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.76E-05 | 9.76E-06 | 0.00E+00 | 2.74E-05 | 4.41E-06 | 3.42E-06 | 0.00E+00 | 7.83E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3.22E-06 | 7.63E-06 | 5.00E-04 | 3.22E-06 | 1.76E-05 | 8.34E-06 | 2.35E-06 | 2.83E-05 | 4.41E-06 | 2.92E-06 | 2.16E-06 | 9.49E-06 | 3.25E-01 | 1.04E-06 | 1.43E-06 |
| 2.71E-04 | 1.27E-03 | 7.24E-03 | 4.25E-05 | 2.65E-05 | 9.92E-05 | 4.74E-06 | 1.30E-04 | 6.61E-06 | 3.47E-05 | 4.37E-06 | 4.57E-05 | 4.30E+00 | 5.36E-05 | 7.15E-05 |
| 2.90E-04 | 1.08E-02 | 9.97E-04 | 2.25E-05 | 3.53E-05 | 9.87E-05 | 2.88E-04 | 4.22E-04 | 8.82E-06 | 3.46E-05 | 2.75E-04 | 3.19E-04 | 2.38E+00 | 1.35E-05 | 3.75E-04 |
| 3.91E-04 | 9.55E-03 | 1.37E-03 | 3.67E-05 | 2.65E-05 | 1.74E-04 | 2.38E-04 | 4.39E-04 | 6.61E-06 | 6.10E-05 | 2.27E-04 | 2.95E-04 | 3.88E+00 | 1.82E-05 | 6.10E-04 |
| 2.65E-04 | 1.92E-03 | 6.09E-03 | 4.05E-05 | 2.65E-05 | 9.88E-05 | 1.70E-06 | 1.27E-04 | 6.61E-06 | 3.46E-05 | 1.56E-06 | 4.27E-05 | 4.09E+00 | 5.43E-05 | 8.70E-05 |
| 9.92E-04 | 1.56E-02 | 3.71E-03 | 4.58E-05 | 0.00E+00 | 0.00E+00 | 3.87E-04 | 3.87E-04 | 0.00E+00 | 0.00E+00 | 3.70E-04 | 3.70E-04 | 4.84E+00 | 4.61E-05 | 7.62E-04 |
| 1.04E-03 | 1.88E-03 | 2.32E-02 | 1.81E-05 | 1.76E-05 | 9.90E-05 | 7.50E-06 | 1.24E-04 | 4.41E-06 | 3.47E-05 | 6.97E-06 | 4.60E-05 | 1.83E+00 | 1.63E-04 | 8.79E-05 |
| 1.17E-04 | 8.03E-03 | 3.61E-04 | 2.39E-05 | 2.65E-05 | 9.90E-05 | 4.46E-05 | 1.70E-04 | 6.61E-06 | 3.47E-05 | 4.27E-05 | 8.40E-05 | 2.52E+00 | 5.43E-06 | 3.97E-04 |
| 1.15E-04 | 1.41E-03 | 2.78E-02 | 0.00E+00 | 2.65E-05 | 9.90E-05 | 8.10E-06 | 1.34E-04 | 6.61E-06 | 3.47E-05 | 7.45E-06 | 4.87E-05 | 2.88E+00 | 8.02E-03 | 5.87E-04 |
| 1.94E-04 | 4.80E-03 | 6.87E-04 | 2.38E-05 | 2.65E-05 | 9.33E-05 | 1.64E-04 | 2.84E-04 | 6.61E-06 | 3.26E-05 | 1.57E-04 | 1.96E-04 | 2.51E+00 | 9.00E-06 | 3.96E-04 |
| 1.32E-04 | 3.61E-03 | 5.03E-04 | 2.37E-05 | 2.65E-05 | 9.33E-05 | 1.20E-04 | 2.40E-04 | 6.61E-06 | 3.26E-05 | 1.15E-04 | 1.54E-04 | 2.50E+00 | 6.14E-06 | 3.94E-04 |
| 1.89E-04 | 4.72E-03 | 7.01E-04 | 2.34E-05 | 2.65E-05 | 9.33E-05 | 1.69E-04 | 2.89E-04 | 6.61E-06 | 3.26E-05 | 1.62E-04 | 2.01E-04 | 2.47E+00 | 8.76E-06 | 3.89E-04 |
| 1.87E-04 | 5.02E-03 | 6.38E-04 | 2.20E-05 | 2.65E-05 | 9.33E-05 | 1.53E-04 | 2.73E-04 | 6.61E-06 | 3.26E-05 | 1.46E-04 | 1.86E-04 | 2.33E+00 | 8.68E-06 | 3.66E-04 |
| 1.25E-03 | 1.57E-02 | 3.28E-03 | 2.62E-05 | 2.65E-05 | 1.05E-04 | 5.06E-04 | 6.37E-04 | 6.61E-06 | 3.67E-05 | 4.84E-04 | 5.27E-04 | 2.77E+00 | 5.80E-05 | 4.36E-04 |
| 2.29E-05 | 6.55E-04 | 7.17E-03 | 0.00E+00 | 2.65E-05 | 1.05E-04 | 1.44E-06 | 1.33E-04 | 6.61E-06 | 3.67E-05 | 1.33E-06 | 4.46E-05 | 2.45E+00 | 1.61E-03 | 5.00E-04 |
| 6.17E-04 | 8.76E-03 | 1.63E-03 | 2.58E-05 | 2.65E-05 | 1.05E-04 | 2.38E-04 | 3.70E-04 | 6.61E-06 | 3.67E-05 | 2.28E-04 | 2.71E-04 | 2.73E+00 | 2.87E-05 | 4.30E-04 |
| 2.29E-05 | 6.61E-04 | 7.16E-03 | 0.00E+00 | 2.65E-05 | 1.05E-04 | 1.41E-06 | 1.33E-04 | 6.61E-06 | 3.67E-05 | 1.29E-06 | 4.46E-05 | 2.45E+00 | 1.60E-03 | 5.00E-04 |
| 9.60E-04 | 1.24E-02 | 2.52E-03 | 2.59E-05 | 2.65E-05 | 1.05E-04 | 3.92E-04 | 5.23E-04 | 6.61E-06 | 3.67E-05 | 3.75E-04 | 4.18E-04 | 2.73E+00 | 4.46E-05 | 4.30E-04 |
| 2.29E-05 | 6.58E-04 | 7.16E-03 | 0.00E+00 | 2.65E-05 | 1.05E-04 | 1.43E-06 | 1.33E-04 | 6.61E-06 | 3.67E-05 | 1.31E-06 | 4.46E-05 | 2.45E+00 | 1.60E-03 | 4.99E-04 |
| 1.06E-03 | 1.53E-02 | 2.77E-03 | 2.60E-05 | 2.65E-05 | 1.05E-04 | 4.83E-04 | 6.14E-04 | 6.61E-06 | 3.67E-05 | 4.62E-04 | 5.05E-04 | 2.75E+00 | 4.94E-05 | 4.33E-04 |
| 2.32E-05 | 6.26E-04 | 7.24E-03 | 0.00E+00 | 2.65E-05 | 1.05E-04 | 1.61E-06 | 1.33E-04 | 6.61E-06 | 3.67E-05 | 1.48E-06 | 4.48E-05 | 2.40E+00 | 1.62E-03 | 4.89E-04 |
| 1.11E-03 | 1.70E-02 | 3.10E-03 | 2.47E-05 | 2.65E-05 | 9.89E-05 | 5.68E-04 | 6.93E-04 | 6.61E-06 | 3.46E-05 | 5.43E-04 | 5.84E-04 | 2.61E+00 | 5.14E-05 | 4.11E-04 |
| 1.76E-05 | 5.02E-04 | 6.24E-03 | 0.00E+00 | 2.65E-05 | 9.89E-05 | 1.13E-06 | 1.26E-04 | 6.61E-06 | 3.46E-05 | 1.03E-06 | 4.23E-05 | 2.13E+00 | 1.23E-03 | 4.34E-04 |
| 3.71E-04 | 6.27E-03 | 1.12E-03 | 2.42E-05 | 2.65E-05 | 9.89E-05 | 1.95E-04 | 3.20E-04 | 6.61E-06 | 3.46E-05 | 1.87E-04 | 2.28E-04 | 2.56E+00 | 1.72E-05 | 4.03E-04 |
| 1.75E-05 | 5.09E-04 | 6.25E-03 | 0.00E+00 | 2.65E-05 | 9.89E-05 | 1.09E-06 | 1.26E-04 | 6.61E-06 | 3.46E-05 | 1.00E-06 | 4.22E-05 | 2.12E+00 | 1.22E-03 | 4.33E-04 |
| 6.47E-04 | 1.03E-02 | 1.88E-03 | 2.42E-05 | 2.65E-05 | 9.89E-05 | 3.36E-04 | 4.62E-04 | 6.61E-06 | 3.46E-05 | 3.22E-04 | 3.63E-04 | 2.55E+00 | 3.01E-05 | 4.02E-04 |
| 1.77E-05 | 4.93E-04 | 6.24E-03 | 0.00E+00 | 2.65E-05 | 9.89E-05 | 1.18E-06 | 1.27E-04 | 6.61E-06 | 3.46E-05 | 1.08E-06 | 4.23E-05 | 2.13E+00 | 1.24E-03 | 4.34E-04 |
| 5.54E-04 | 9.59E-03 | 1.54E-03 | 2.42E-05 | 2.65E-05 | 9.89E-05 | 2.96E-04 | 4.21E-04 | 6.61E-06 | 3.46E-05 | 2.83E-04 | 3.24E-04 | 2.56E+00 | 2.57E-05 | 4.03E-04 |
| 1.92E-05 | 3.62E-04 | 6.17E-03 | 0.00E+00 | 2.65E-05 | 9.89E-05 | 2.00E-06 | 1.27E-04 | 6.61E-06 | 3.46E-05 | 1.84E-06 | 4.31E-05 | 2.06E+00 | 1.34E-03 | 4.21E-04 |
| 1.25E-03 | 1.60E-02 | 3.49E-03 | 2.52E-05 | 2.65E-05 | 9.89E-05 | 7.34E-04 | 8.60E-04 | 6.61E-06 | 3.46E-05 | 7.03E-04 | 7.44E-04 | 2.66E+00 | 5.81E-05 | 4.19E-04 |
| 3.65E-04 | 9.41E-03 | 1.01E-03 | 2.36E-05 | 2.65E-05 | 9.89E-05 | 1.51E-04 | 2.76E-04 | 6.61E-06 | 3.46E-05 | 1.45E-04 | 1.86E-04 | 2.49E+00 | 1.69E-05 | 3.92E-04 |
| 1.88E-05 | 3.97E-04 | 6.19E-03 | 0.00E+00 | 2.65E-05 | 9.89E-05 | 1.79E-06 | 1.27E-04 | 6.61E-06 | 3.46E-05 | 1.65E-06 | 4.29E-05 | 2.06E+00 | 1.32E-03 | 4.21E-04 |
| 1.94E-04 | 4.80E-03 | 6.87E-04 | 2.38E-05 | 2.65E-05 | 9.33E-05 | 1.64E-04 | 2.84E-04 | 6.61E-06 | 3.26E-05 | 1.57E-04 | 1.96E-04 | 2.51E+00 | 9.00E-06 | 3.96E-04 |
| 1.32E-04 | 3.61E-03 | 5.03E-04 | 2.37E-05 | 2.65E-05 | 9.33E-05 | 1.20E-04 | 2.40E-04 | 6.61E-06 | 3.26E-05 | 1.15E-04 | 1.54E-04 | 2.50E+00 | 6.14E-06 | 3.94E-04 |
| 1.89E-04 | 4.72E-03 | 7.01E-04 | 2.34E-05 | 2.65E-05 | 9.33E-05 | 1.69E-04 | 2.89E-04 | 6.61E-06 | 3.26E-05 | 1.62E-04 | 2.01E-04 | 2.47E+00 | 8.76E-06 | 3.89E-04 |
| 2.07E-04 | 5.28E-03 | 7.04E-04 | 2.20E-05 | 2.65E-05 | 9.33E-05 | 1.69E-04 | 2.89E-04 | 6.61E-06 | 3.26E-05 | 1.62E-04 | 2.01E-04 | 2.33E+00 | 9.61E-06 | 3.66E-04 |
| 2.55E-04 | 1.81E-02 | 5.96E-04 | 2.68E-05 | 2.65E-05 | 1.02E-04 | 9.08E-05 | 2.19E-04 | 6.61E-06 | 3.56E-05 | 8.69E-05 | 1.29E-04 | 2.84E+00 | 1.18E-05 | 4.46E-04 |
| 2.43E-05 | 6.98E-04 | 6.68E-03 | 0.00E+00 | 2.65E-05 | 1.02E-04 | 1.25E-06 | 1.29E-04 | 6.61E-06 | 3.56E-05 | 1.15E-06 | 4.34E-05 | 2.35E+00 | 1.70E-03 | 4.80E-04 |
| 1.44E-04 | 7.92E-03 | 3.91E-04 | 2.60E-05 | 2.65E-05 | 1.02E-04 | 3.92E-05 | 1.67E-04 | 6.61E-06 | 3.56E-05 | | | | | |

| | | | | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 2.68E-05 | 2.90E-04 | 6.78E-03 | 0.00E+00 | 2.65E-05 | 1.02E-04 | 3.19E-06 | 1.31E-04 | 6.61E-06 | 3.56E-05 | 2.93E-06 | 4.52E-05 | 2.34E+00 | 1.88E-03 | 4.76E-04 |
| 2.61E-04 | 1.72E-02 | 5.82E-04 | 2.69E-05 | 2.65E-05 | 1.02E-04 | 1.14E-04 | 2.43E-04 | 6.61E-06 | 3.56E-05 | 1.10E-04 | 1.52E-04 | 2.84E+00 | 1.21E-05 | 4.47E-04 |
| 2.63E-05 | 3.88E-04 | 6.81E-03 | 0.00E+00 | 2.65E-05 | 1.02E-04 | 2.73E-06 | 1.31E-04 | 6.61E-06 | 3.56E-05 | 2.51E-06 | 4.47E-05 | 2.31E+00 | 1.84E-03 | 4.70E-04 |
| 3.26E-04 | 2.12E-02 | 6.89E-04 | 2.74E-05 | 2.65E-05 | 1.02E-04 | 1.53E-04 | 2.81E-04 | 6.61E-06 | 3.56E-05 | 1.46E-04 | 1.88E-04 | 2.89E+00 | 1.51E-05 | 4.55E-04 |
| 2.62E-05 | 3.99E-04 | 6.83E-03 | 0.00E+00 | 2.65E-05 | 1.02E-04 | 2.67E-06 | 1.31E-04 | 6.61E-06 | 3.56E-05 | 2.46E-06 | 4.47E-05 | 2.29E+00 | 1.83E-03 | 4.68E-04 |
| 5.40E-05 | 2.80E-03 | 2.10E-04 | 2.38E-05 | 2.65E-05 | 1.00E-04 | 1.35E-05 | 1.40E-04 | 6.61E-06 | 3.51E-05 | 1.30E-05 | 5.47E-05 | 2.51E+00 | 2.51E-06 | 3.95E-04 |
| 2.06E-05 | 5.94E-04 | 6.38E-03 | 0.00E+00 | 2.65E-05 | 1.00E-04 | 1.14E-06 | 1.28E-04 | 6.61E-06 | 3.51E-05 | 1.05E-06 | 4.28E-05 | 2.23E+00 | 1.44E-03 | 4.54E-04 |
| 8.18E-05 | 4.59E-03 | 2.73E-04 | 2.43E-05 | 2.65E-05 | 1.00E-04 | 2.37E-05 | 1.50E-04 | 6.61E-06 | 3.51E-05 | 2.27E-05 | 6.44E-05 | 2.57E+00 | 3.80E-06 | 4.04E-04 |
| 2.06E-05 | 5.94E-04 | 6.38E-03 | 0.00E+00 | 2.65E-05 | 1.00E-04 | 1.14E-06 | 1.28E-04 | 6.61E-06 | 3.51E-05 | 1.05E-06 | 4.28E-05 | 2.19E+00 | 1.44E-03 | 4.47E-04 |
| 6.17E-05 | 4.23E-03 | 2.21E-04 | 2.43E-05 | 2.65E-05 | 1.00E-04 | 2.27E-05 | 1.49E-04 | 6.61E-06 | 3.51E-05 | 2.17E-05 | 6.35E-05 | 2.57E+00 | 2.86E-06 | 4.04E-04 |
| 2.06E-05 | 5.94E-04 | 6.38E-03 | 0.00E+00 | 2.65E-05 | 1.00E-04 | 1.14E-06 | 1.28E-04 | 6.61E-06 | 3.51E-05 | 1.05E-06 | 4.28E-05 | 2.21E+00 | 1.44E-03 | 4.50E-04 |
| 5.70E-04 | 2.94E-03 | 1.28E-02 | 4.15E-05 | 2.65E-05 | 9.92E-05 | 4.59E-06 | 1.30E-04 | 6.61E-06 | 3.47E-05 | 4.24E-06 | 4.56E-05 | 4.20E+00 | 1.04E-04 | 1.22E-04 |
| 1.94E-04 | 7.89E-03 | 7.14E-04 | 3.34E-05 | 7.94E-05 | 1.70E-04 | 1.46E-04 | 3.96E-04 | 1.98E-05 | 5.97E-05 | 1.40E-04 | 2.19E-04 | 3.53E+00 | 9.02E-06 | 5.56E-04 |
| 2.91E-05 | 5.77E-04 | 1.01E-02 | 0.00E+00 | 7.94E-05 | 1.63E-04 | 3.83E-06 | 2.47E-04 | 1.98E-05 | 5.72E-05 | 3.52E-06 | 8.05E-05 | 2.60E+00 | 2.04E-03 | 5.31E-04 |
| 3.20E-04 | 8.48E-03 | 1.26E-03 | 3.36E-05 | 7.94E-05 | 1.72E-04 | 2.41E-04 | 4.93E-04 | 1.98E-05 | 6.03E-05 | 2.31E-04 | 3.11E-04 | 3.55E+00 | 1.49E-05 | 5.59E-04 |
| 2.27E-04 | 8.25E-03 | 8.27E-04 | 3.34E-05 | 7.94E-05 | 1.71E-04 | 1.63E-04 | 4.13E-04 | 1.98E-05 | 5.98E-05 | 1.56E-04 | 2.35E-04 | 3.53E+00 | 1.05E-05 | 5.56E-04 |
| 2.63E-04 | 9.84E-03 | 8.38E-04 | 3.59E-05 | 7.94E-05 | 2.07E-04 | 6.86E-05 | 3.55E-04 | 1.98E-05 | 7.26E-05 | 6.56E-05 | 1.58E-04 | 3.80E+00 | 1.22E-05 | 5.98E-04 |
| 3.25E-04 | 1.10E-02 | 1.03E-03 | 3.60E-05 | 7.94E-05 | 2.12E-04 | 9.13E-05 | 3.82E-04 | 1.98E-05 | 7.41E-05 | 8.73E-05 | 1.81E-04 | 3.80E+00 | 1.51E-05 | 5.99E-04 |
| 3.74E-05 | 1.55E-03 | 2.43E-02 | 0.00E+00 | 7.94E-05 | 1.88E-04 | 2.99E-06 | 2.70E-04 | 1.98E-05 | 6.58E-05 | 2.75E-06 | 8.84E-05 | 3.29E+00 | 2.62E-03 | 6.71E-04 |
| 3.80E-04 | 2.81E-02 | 1.21E-03 | 4.13E-05 | 7.94E-05 | 2.67E-04 | 1.83E-04 | 5.30E-04 | 1.98E-05 | 9.35E-05 | 1.75E-04 | 2.88E-04 | 4.37E+00 | 1.77E-05 | 6.87E-04 |
| 5.76E-05 | 1.67E-03 | 2.35E-02 | 0.00E+00 | 7.94E-05 | 2.36E-04 | 5.42E-06 | 3.21E-04 | 1.98E-05 | 8.26E-05 | 4.98E-06 | 1.07E-04 | 3.71E+00 | 4.03E-03 | 7.56E-04 |
| 3.81E-04 | 8.93E-03 | 1.39E-03 | 3.56E-05 | 7.94E-05 | 1.91E-04 | 2.44E-04 | 5.14E-04 | 1.98E-05 | 6.69E-05 | 2.33E-04 | 3.20E-04 | 3.77E+00 | 1.77E-05 | 5.93E-04 |
| 3.34E-05 | 9.43E-04 | 1.67E-02 | 0.00E+00 | 7.94E-05 | 1.80E-04 | 3.69E-06 | 2.63E-04 | 1.98E-05 | 6.30E-05 | 3.40E-06 | 8.62E-05 | 2.81E+00 | 2.34E-03 | 5.74E-04 |
| 4.55E-04 | 1.18E-02 | 1.69E-03 | 3.53E-05 | 7.94E-05 | 1.96E-04 | 2.88E-04 | 5.64E-04 | 1.98E-05 | 6.87E-05 | 2.76E-04 | 3.64E-04 | 3.74E+00 | 2.11E-05 | 5.88E-04 |
| 3.34E-05 | 9.39E-04 | 1.67E-02 | 0.00E+00 | 7.94E-05 | 1.82E-04 | 3.70E-06 | 2.65E-04 | 1.98E-05 | 6.36E-05 | 3.40E-06 | 8.68E-05 | 2.90E+00 | 2.34E-03 | 5.92E-04 |
| 5.23E-04 | 1.20E-02 | 1.97E-03 | 3.55E-05 | 7.94E-05 | 1.98E-04 | 3.44E-04 | 6.21E-04 | 1.98E-05 | 6.92E-05 | 3.29E-04 | 4.18E-04 | 3.75E+00 | 2.43E-05 | 5.91E-04 |
| 3.34E-05 | 9.39E-04 | 1.67E-02 | 0.00E+00 | 7.94E-05 | 1.83E-04 | 3.69E-06 | 2.66E-04 | 1.98E-05 | 6.40E-05 | 3.40E-06 | 8.72E-05 | 2.88E+00 | 2.34E-03 | 5.88E-04 |
| 6.73E-05 | 1.94E-02 | 1.82E-04 | 8.60E-05 | 7.94E-05 | 4.63E-04 | 3.00E-05 | 5.72E-04 | 1.98E-05 | 1.62E-04 | 2.87E-05 | 2.11E-04 | 9.09E+00 | 3.13E-06 | 1.43E-03 |
| 2.87E-04 | 5.83E-03 | 5.52E-02 | 0.00E+00 | 7.94E-05 | 4.63E-04 | 6.05E-06 | 5.48E-04 | 1.98E-05 | 1.62E-04 | 5.56E-06 | 1.87E-04 | 3.80E+00 | 1.21E-02 | 7.74E-04 |
| 3.28E-04 | 1.08E-02 | 1.19E-03 | 3.33E-05 | 7.94E-05 | 1.88E-04 | 1.92E-04 | 4.59E-04 | 1.98E-05 | 6.59E-05 | 1.83E-04 | 2.69E-04 | 3.52E+00 | 1.52E-05 | 5.54E-04 |
| 3.14E-05 | 1.24E-03 | 2.15E-02 | 0.00E+00 | 7.94E-05 | 1.73E-04 | 2.74E-06 | 2.55E-04 | 1.98E-05 | 6.05E-05 | 2.51E-06 | 8.29E-05 | 2.69E+00 | 2.19E-03 | 5.49E-04 |
| 9.04E-05 | 5.43E-03 | 4.37E-04 | 3.71E-05 | 7.94E-05 | 2.17E-04 | 2.51E-05 | 3.21E-04 | 1.98E-05 | 7.59E-05 | 2.40E-05 | 1.20E-04 | 3.92E+00 | 4.20E-06 | 6.17E-04 |
| 2.04E-02 | 5.92E-02 | 5.76E-01 | 6.44E-05 | 4.41E-05 | 2.60E-04 | 4.01E-05 | 3.45E-04 | 1.10E-05 | 9.11E-05 | 3.77E-05 | 1.40E-04 | 6.51E+00 | 2.44E-03 | 1.27E-03 |
| 2.27E-05 | 2.13E-04 | 9.00E-04 | 3.03E-05 | 2.21E-05 | 2.22E-04 | 2.70E-06 | 2.46E-04 | 5.52E-06 | 7.76E-05 | 2.48E-06 | 8.56E-05 | 3.06E+00 | 7.14E-06 | 2.27E-05 |
| 2.47E-04 | 4.48E-03 | 3.38E-04 | 2.93E-05 | 6.82E-05 | 2.43E-04 | 1.62E-05 | 3.27E-04 | 1.71E-05 | 8.49E-05 | 1.55E-05 | 1.17E-04 | 3.10E+00 | 1.15E-05 | 4.88E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.07E-05 | 1.21E-04 | 0.00E+00 | 1.72E-04 | 1.27E-05 | 4.24E-05 | 0.00E+00 | 5.51E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| MTens/Mile | | | | | | | | | | | | | | |
|------------|-----------|----------|-----------|------------|-----------|-----------|------------|-------------|------------|------------|--------------|-----------|-----------|-----------|
| ROG_RUNEX | NOx_RUNEX | CO_RUNEX | SOx_RUNEX | PM10_RUNEX | PM10_PMTW | PM10_PMBW | PM10_TOTAL | PM2.5_RUNEX | PM2.5_PMTW | PM2.5_PMBW | PM 2.5 Total | CO2_RUNEX | CH4_RUNEX | N2O_RUNEX |
| 7.83E-07 | 7.62E-06 | 1.90E-06 | 1.20E-08 | 1.20E-08 | 4.61E-08 | 2.88E-07 | 3.47E-07 | 3.00E-09 | 1.61E-08 | 2.76E-07 | 2.95E-07 | 1.27E-03 | 3.64E-08 | 2.00E-07 |
| 1.04E-08 | 3.00E-07 | 3.09E-06 | 0.00E+00 | 1.20E-08 | 4.61E-08 | 5.82E-10 | 5.87E-08 | 3.00E-09 | 1.61E-08 | 5.35E-10 | 1.97E-08 | 1.09E-03 | 7.29E-07 | 2.21E-07 |
| 1.72E-08 | 7.85E-08 | 1.03E-06 | 2.97E-09 | 8.00E-09 | 7.26E-09 | 1.46E-09 | 1.67E-08 | 2.00E-09 | 2.54E-09 | 1.35E-09 | 5.89E-09 | 3.00E-04 | 4.07E-09 | 6.89E-09 |
| 3.32E-08 | 3.24E-07 | 3.63E-07 | 2.30E-09 | 8.00E-09 | 7.27E-09 | 2.12E-08 | 3.65E-08 | 2.00E-09 | 2.55E-09 | 2.03E-08 | 2.48E-08 | 2.43E-04 | 1.54E-09 | 3.83E-08 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.00E-09 | 4.36E-09 | 0.00E+00 | 1.24E-08 | 2.00E-09 | 1.53E-09 | 0.00E+00 | 3.53E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.46E-09 | 3.46E-09 | 2.26E-07 | 1.46E-09 | 8.00E-09 | 3.79E-09 | 9.14E-10 | 1.27E-08 | 2.00E-09 | 1.33E-09 | 8.41E-10 | 4.17E-09 | 1.47E-04 | 4.66E-10 | 6.39E-10 |
| 4.77E-08 | 2.14E-07 | 2.09E-06 | 3.48E-09 | 8.00E-09 | 8.74E-09 | 2.45E-09 | 1.92E-08 | 2.00E-09 | 3.06E-09 | 2.25E-09 | 7.31E-09 | 3.51E-04 | 1.03E-08 | 1.43E-08 |
| 3.08E-07 | 1.59E-06 | 1.93E-06 | 3.96E-09 | 8.00E-09 | 1.01E-08 | 2.32E-07 | 2.50E-07 | 2.00E-09 | 3.54E-09 | 2.22E-07 | 2.27E-07 | 4.18E-04 | 1.43E-08 | 6.58E-08 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.00E-09 | 4.39E-09 | 0.00E+00 | 1.24E-08 | 2.00E-09 | 1.54E-09 | 0.00E+00 | 3.54E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.47E-09 | 3.47E-09 | 2.27E-07 | 1.46E-09 | 8.00E-09 | 3.78E-09 | 1.07E-09 | 1.28E-08 | 2.00E-09 | 1.32E-09 | 9.80E-10 | 4.30E-09 | 1.48E-04 | 4.71E-10 | 6.50E-10 |
| 1.89E-08 | 1.24E-07 | 1.16E-06 | 3.75E-09 | 8.00E-09 | 8.45E-09 | 1.51E-09 | 1.80E-08 | 2.00E-09 | 2.96E-09 | 1.39E-09 | 6.35E-09 | 3.79E-04 | 4.47E-09 | 8.97E-09 |
| 1.54E-08 | 7.50E-08 | 1.34E-07 | 3.19E-09 | 8.00E-09 | 8.19E-09 | 7.25E-09 | 2.34E-08 | 2.00E-09 | 2.86E-09 | 6.94E-09 | 1.18E-08 | 3.37E-04 | 7.17E-10 | 5.31E-08 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.00E-09 | 4.35E-09 | 0.00E+00 | 1.24E-08 | 2.00E-09 | 1.52E-09 | 0.00E+00 | 3.52E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.44E-09 | 3.41E-09 | 2.23E-07 | 1.44E-09 | 8.00E-09 | 3.79E-09 | 1.04E-09 | 1.28E-08 | 2.00E-09 | 1.33E-09 | 9.52E-10 | 4.28E-09 | 1.45E-04 | 4.64E-10 | 6.42E-10 |
| 6.84E-08 | 2.99E-07 | 1.53E-06 | 9.47E-09 | 8.00E-09 | 7.80E-08 | 2.05E-09 | 8.80E-08 | 2.00E-09 | 2.73E-08 | 1.89E-09 | 3.12E-08 | 9.57E-04 | 1.34E-08 | 1.66E-08 |
| 2.47E-07 | 2.84E-06 | 7.32E-07 | 6.12E-09 | 1.20E-08 | 7.80E-08 | 5.63E-08 | 1.46E-07 | 3.00E-09 | 2.73E-08 | 5.38E-08 | 8.41E-08 | 6.46E-04 | 1.15E-08 | 1.02E-07 |
| 6.01E-08 | 2.88E-07 | 1.39E-06 | 1.06E-08 | 8.00E-09 | 9.10E-08 | 1.87E-09 | 1.01E-07 | 2.00E-09 | 3.19E-08 | 1.72E-09 | 3.56E-08 | 1.07E-03 | 1.22E-08 | 1.62E-08 |
| 2.12E-07 | 2.04E-06 | 5.71E-07 | 7.52E-09 | 1.20E-08 | 9.10E-08 | 4.74E-08 | 1.50E-07 | 3.00E-09 | 3.19E-08 | 4.54E-08 | 8.02E-08 | 7.94E-04 | 9.83E-09 | 1.25E-07 |
| 1.45E-06 | 7.10E-07 | 1.68E-05 | 1.92E-09 | 4.00E-09 | 1.20E-08 | 1.91E-09 | 1.79E-08 | 1.00E-09 | 4.20E-09 | 1.80E-09 | 7.00E-09 | 1.94E-04 | 2.07E-07 | 4.55E-08 |
| 3.58E-08 | 2.10E-07 | 1.59E-06 | 4.55E-09 | 8.00E-09 | 8.71E-09 | 1.65E-09 | 1.84E-08 | 2.00E-09 | 3.05E-09 | 1.52E-09 | 6.57E-09 | 4.59E-04 | 7.54E-09 | 1.33E-08 |
| 1.34E-08 | 9.24E-08 | 2.00E-07 | 4.12E-09 | 8.00E-09 | 8.20E-09 | 7.06E-09 | 2.33E-08 | 2.00E-09 | 2.87E-09 | 6.75E-09 | 1.16E-08 | 4.35E-04 | 6.23E-10 | 6.85E-08 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.00E-09 | 4.43E-09 | 0.00E+00 | 1.24E-08 | 2.00E-09 | 1.55E-09 | 0.00E+00 | 3.55E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.46E-09 | 3.46E-09 | 2.27E-07 | 1.46E-09 | 8.00E-09 | 3.78E-09 | 1.07E-09 | 1.28E-08 | 2.00E-09 | 1.32E-09 | 9.82E-10 | 4.31E-09 | 1.48E-04 | 4.70E-10 | 6.48E-10 |
| 1.23E-07 | 5.78E-07 | 3.28E-06 | 1.93E-08 | 1.20E-08 | 4.50E-08 | 2.15E-09 | 5.92E-08 | 3.00E-09 | 1.58E-08 | 1.98E-09 | 2.07E-08 | 1.95E-03 | 2.43E-08 | 3.24E-08 |
| 1.31E-07 | 4.90E-06 | 4.52E-07 | 1.02E-08 | 1.60E-08 | 4.48E-08 | 1.31E-07 | 1.91E-07 | 4.00E-09 | 1.57E-08 | 1.25E-07 | 1.45E-07 | 1.08E-03 | 6.10E-09 | 1.70E-07 |
| 1.77E-07 | 4.33E-06 | 6.23E-07 | 1.66E-08 | 1.20E-08 | 7.91E-08 | 1.08E-07 | 1.99E-07 | 3.00E-09 | 2.77E-08 | 1.03E-07 | 1.34E-07 | 1.76E-03 | 8.24E-09 | 2.77E-07 |
| 1.20E-07 | 8.70E-07 | 2.76E-06 | 1.84E-08 | 1.20E-08 | 4.48E-08 | 7.69E-10 | 5.76E-08 | 3.00E-09 | 1.57E-08 | 7.07E-10 | 1.94E-08 | 1.85E-03 | 2.47E-08 | 3.94E-08 |
| 4.50E-07 | 7.06E-06 | 1.68E-06 | 2.08E-08 | 0.00E+00 | 0.00E+00 | 1.75E-07 | 1.75E-07 | 0.00E+00 | 0.00E+00 | 1.68E-07 | 1.68E-07 | 2.20E-03 | 2.09E-08 | 3.46E-07 |
| 4.71E-07 | 8.54E-07 | 1.05E-05 | 8.23E-09 | 8.00E-09 | 4.49E-08 | 3.40E-09 | 5.63E-08 | 2.00E-09 | 1.57E-08 | 3.16E-09 | 2.09E-08 | 8.31E-04 | 7.41E-08 | 3.99E-08 |
| 5.31E-08 | 3.64E-06 | 1.64E-07 | 1.08E-08 | 1.20E-08 | 4.49E-08 | 2.02E-08 | 7.72E-08 | 3.00E-09 | 1.57E-08 | 1.94E-08 | 3.81E-08 | 1.14E-03 | 2.47E-09 | 1.80E-07 |
| 5.20E-08 | 6.41E-07 | 1.26E-05 | 0.00E+00 | 1.20E-08 | 4.49E-08 | 3.67E-09 | 6.06E-08 | 3.00E-09 | 1.57E-08 | 3.38E-09 | 2.21E-08 | 1.31E-03 | 3.64E-06 | 2.66E-07 |
| 8.78E-08 | 2.18E-06 | 3.12E-07 | 1.08E-08 | 1.20E-08 | 4.23E-08 | 7.44E-08 | 1.29E-07 | 3.00E-09 | 1.48E-08 | 7.12E-08 | 8.90E-08 | 1.14E-03 | 4.08E-09 | 1.79E-07 |
| 5.99E-08 | 1.64E-06 | 2.28E-07 | 1.07E-08 | 1.20E-08 | 4.23E-08 | 5.44E-08 | 1.09E-07 | 3.00E-09 | 1.48E-08 | 5.21E-08 | 6.99E-08 | 1.13E-03 | 2.78E-09 | 1.78E-07 |
| 8.56E-08 | 2.14E-06 | 3.18E-07 | 1.06E-08 | 1.20E-08 | 4.23E-08 | 7.67E-08 | 1.31E-07 | 3.00E-09 | 1.48E-08 | 7.34E-08 | 9.12E-08 | 1.12E-03 | 3.97E-09 | 1.76E-07 |
| 8.48E-08 | 2.28E-06 | 2.89E-07 | 9.99E-09 | 1.20E-08 | 4.23E-08 | 6.94E-08 | 1.24E-07 | 3.00E-09 | 1.48E-08 | 6.64E-08 | 8.42E-08 | 1.06E-03 | 3.94E-09 | 1.66E-07 |
| 5.67E-07 | 7.12E-06 | 1.49E-06 | 1.19E-08 | 1.20E-08 | 4.76E-08 | 2.29E-07 | 2.89E-07 | 3.00E-09 | 1.66E-08 | 2.20E-07 | 2.39E-07 | 1.26E-03 | 2.63E-08 | 1.98E-07 |
| 1.04E-08 | 2.97E-07 | 3.25E-06 | 0.00E+00 | 1.20E-08 | 4.76E-08 | 6.54E-10 | 6.02E-08 | 3.00E-09 | 1.66E-08 | 6.02E-10 | 2.02E-08 | 1.11E-03 | 7.28E-07 | 2.27E-07 |
| 2.80E-07 | 3.98E-06 | 7.42E-07 | 1.17E-08 | 1.20E-08 | 4.76E-08 | 1.08E-07 | 1.68E-07 | 3.00E-09 | 1.66E-08 | 1.03E-07 | 1.23E-07 | 1.24E-03 | 1.30E-08 | 1.95E-07 |
| 1.04E-08 | 3.00E-07 | 3.25E-06 | 0.00E+00 | 1.20E-08 | 4.76E-08 | 6.39E-10 | 6.02E-08 | 3.00E-09 | 1.66E-08 | 5.87E-10 | 2.02E-08 | 1.11E-03 | 7.27E-07 | 2.27E-07 |
| 4.35E-07 | 5.63E-06 | 1.14E-06 | 1.17E-08 | 1.20E-08 | 4.76E-08 | 1.78E-07 | 2.37E-07 | 3.00E-09 | 1.66E-08 | 1.70E-07 | 1.90E-07 | 1.24E-03 | 2.02E-08 | 1.95E-07 |
| 1.04E-08 | 2.98E-07 | 3.25E-06 | 0.00E+00 | 1.20E-08 | 4.76E-08 | 6.48E-10 | 6.02E-08 | 3.00E-09 | 1.66E-08 | 5.96E-10 | 2.02E-08 | 1.11E-03 | 7.28E-07 | 2.26E-07 |
| 4.82E-07 | 6.94E-06 | 1.26E-06 | 1.18E-08 | 1.20E-08 | 4.76E-08 | 2.19E-07 | 2.79E-07 | 3.00E-09 | 1.66E-08 | 2.10E-07 | 2.29E-07 | 1.25E-03 | 2.24E-08 | 1.96E-07 |
| 1.05E-08 | 2.84E-07 | 3.28E-06 | 0.00E+00 | 1.20E-08 | 4.76E-08 | 7.30E-10 | 6.03E-08 | 3.00E-09 | 1.66E-08 | 6.71E-10 | 2.03E-08 | 1.09E-03 | 7.36E-07 | 2.22E-07 |
| 5.02E-07 | 7.70E-06 | 1.41E-06 | 1.12E-08 | 1.20E-08 | 4.49E-08 | 2.58E-07 | 3.14E-07 | 3.00E-09 | 1.57E-08 | 2.46E-07 | 2.65E-07 | 1.19E-03 | 2.33E-08 | 1.87E-07 |
| 7.97E-09 | 2.28E-07 | 2.83E-06 | 0.00E+00 | 1.20E-08 | 4.49E-08 | 5.11E-10 | 5.74E-08 | 3.00E-09 | 1.57E-08 | 4.69E-10 | 1.92E-08 | 9.65E-04 | 5.58E-07 | 1.97E-07 |
| 1.68E-07 | 2.84E-06 | 5.08E-07 | 1.10E-08 | 1.20E-08 | 4.49E-08 | 8.85E-08 | 1.45E-07 | 3.00E-09 | 1.57E-08 | 8.47E-08 | 1.03E-07 | 1.16E-03 | 7.81E-09 | 1.83E-07 |
| 7.93E-09 | 2.31E-07 | 2.83E-06 | 0.00E+00 | 1.20E-08 | 4.49E-08 | 4.93E-10 | 5.74E-08 | 3.00E-09 | 1.57E-08 | 4.54E-10 | 1.92E-08 | 9.64E-04 | 5.55E-07 | 1.96E-07 |
| 2.94E-07 | 4.68E-06 | 8.53E-07 | 1.10E-08 | 1.20E-08 | 4.49E-08 | 1.53E-07 | 2.09E-07 | 3.00E-09 | 1.57E-08 | 1.46E-07 | 1.65E-07 | 1.16E-03 | 1.36E-08 | 1.82E-07 |
| 8.01E-09 | 2.24E-07 | 2.83E-06 | 0.00E+00 | 1.20E-08 | 4.49E-08 | 5.35E-10 | 5.74E-08 | 3.00E-09 | 1.57E-08 | 4.92E-10 | 1.92E-08 | 9.66E-04 | 5.61E-07 | 1.97E-07 |
| 2.51E-07 | 4.35E-06 | 6.99E-07 | 1.10E-08 | 1.20E-08 | 4.49E-08 | 1.34E-07 | 1.91E-07 | 3.00E-09 | 1.57E-08 | 1.28E-07 | 1.47E-07 | 1.16E-03 | 1.17E-08 | 1.83E-07 |
| 8.72E-09 | 1.64E-07 | 2.80E-06 | 0.00E+00 | 1.20E-08 | 4.49E-08 | 9.07E-10 | 5.78E-08 | 3.00E-09 | 1.57E-08 | 8.34E-10 | 1.95E-08 | 9.36E-04 | 6.10E-07 | 1.91E-07 |
| 5.67E-07 | 7.27E-06 | 1.58E-06 | 1.14E-08 | 1.20E-08 | 4.49E-08 | 3.33E-07 | 3.90E-07 | 3.00E-09 | 1.57E-08 | 3.19E-07 | 3.37E-07 | 1.21E-03 | 2.63E-08 | 1.90E-07 |
| 1.65E-07 | 4.27E-06 | 4.58E-07 | 1.07E-08 | 1.20E-08 | 4.49E-08 | 6.85E-08 | 1.25E-07 | 3.00E-09 | 1.57E-08 | 6.56E-08 | 8.43E-08 | 1.13E-03 | 7.68E-09 | 1.78E-07 |
| 8.54E-09 | 1.80E-07 | 2.81E-06 | 0.00E+00 | 1.20E-08 | 4.49E-08 | 8.12E-10 | 5.77E-08 | 3.00E-09 | 1.57E-08 | 7.47E-10 | 1.94E-08 | 9.36E-04 | 5.97E-07 | 1.91E-07 |
| 8.78E-08 | 2.18E-06 | 3.12E-07 | 1.08E-08 | 1.20E-08 | 4.23E-08 | 7.44E-08 | 1.29E-07 | 3.00E-09 | 1.48E-08 | 7.12E-08 | 8.90E-08 | 1.14E-03 | 4.08E-09 | 1.79E-07 |
| 5.99E-08 | 1.64E-06 | 2.28E-07 | 1.07E-08 | 1.20E-08 | 4.23E-08 | 5.44E-08 | 1.09E-07 | 3.00E-09 | 1.48E-08 | 5.21E-08 | 6.99E-08 | 1.13E-03 | 2.78E-09 | 1.78E-07 |
| 8.56E-08 | 2.14E-06 | 3.18E-07 | 1.06E-08 | 1.20E-08 | 4.23E-08 | 7.67E-08 | 1.31E-07 | 3.00E-09 | 1.48E-08 | 7.34E-08 | 9.12E-08 | 1.12E-03 | 3.97E-09 | 1.76E-07 |
| 9.39E-08 | 2.39E-06 | 3.19E-07 | 9.98E-09 | 1.20E-08 | 4.23E-08 | 7.66E-08 | 1.31E-07 | 3.00E-09 | 1.48E-08 | 7.33E-08 | 9.11E-08 | 1.05E-03 | 4.36E-09 | 1.66E-07 |
| 1.16E-07 | 8.19E-06 | 2.70E-07 | 1.22E-08 | 1.20E-08 | 4.62E-08 | 4.12E-08 | 9.94E-08 | 3.00E-09 | 1.62E-08 | 3.94E-08 | 5.86E-08 | 1.29E-03 | 5.37E-09 | 2.03E-07 |
| 1.10E-08 | 3.17E-07 | 3.03E-06 | 0.00E+00 | 1.20E-08 | 4.62E-08 | 5.68E-10 | 5.87E-08 | 3.00E-09 | 1.62E-08 | 5.23E-10 | 1.97E-08 | 1.07E-03 | 7.72E-07 | 2.18E-07 |
| 6.54E-08 | 3.59E-06 | 1.77E-07 | 1.18E-08 | 1.20E-08 | 4.62E-08 | 1.78E-08 | 7.59E-08 | 3.00E-09 | 1.62E-0 | | | | | |

| | | | | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1.22E-08 | 1.31E-07 | 3.08E-06 | 0.00E+00 | 1.20E-08 | 4.62E-08 | 1.45E-09 | 5.96E-08 | 3.00E-09 | 1.62E-08 | 1.33E-09 | 2.05E-08 | 1.06E-03 | 8.52E-07 | 2.16E-07 |
| 1.18E-07 | 7.79E-06 | 2.64E-07 | 1.22E-08 | 1.20E-08 | 4.62E-08 | 5.19E-08 | 1.10E-07 | 3.00E-09 | 1.62E-08 | 4.97E-08 | 6.88E-08 | 1.29E-03 | 5.50E-09 | 2.03E-07 |
| 1.19E-08 | 1.76E-07 | 3.09E-06 | 0.00E+00 | 1.20E-08 | 4.62E-08 | 1.24E-09 | 5.94E-08 | 3.00E-09 | 1.62E-08 | 1.14E-09 | 2.03E-08 | 1.05E-03 | 8.33E-07 | 2.13E-07 |
| 1.48E-07 | 9.61E-06 | 3.12E-07 | 1.24E-08 | 1.20E-08 | 4.62E-08 | 6.92E-08 | 1.27E-07 | 3.00E-09 | 1.62E-08 | 6.62E-08 | 8.54E-08 | 1.31E-03 | 6.86E-09 | 2.07E-07 |
| 1.19E-08 | 1.81E-07 | 3.10E-06 | 0.00E+00 | 1.20E-08 | 4.62E-08 | 1.21E-09 | 5.94E-08 | 3.00E-09 | 1.62E-08 | 1.11E-09 | 2.03E-08 | 1.04E-03 | 8.31E-07 | 2.12E-07 |
| 2.45E-08 | 1.27E-06 | 9.54E-08 | 1.08E-08 | 1.20E-08 | 4.55E-08 | 6.14E-09 | 6.36E-08 | 3.00E-09 | 1.59E-08 | 5.88E-09 | 2.48E-08 | 1.14E-03 | 1.14E-09 | 1.79E-07 |
| 9.34E-09 | 2.70E-07 | 2.89E-06 | 0.00E+00 | 1.20E-08 | 4.55E-08 | 5.18E-10 | 5.80E-08 | 3.00E-09 | 1.59E-08 | 4.76E-10 | 1.94E-08 | 1.01E-03 | 6.54E-07 | 2.06E-07 |
| 3.71E-08 | 2.08E-06 | 1.24E-07 | 1.10E-08 | 1.20E-08 | 4.55E-08 | 1.08E-08 | 6.83E-08 | 3.00E-09 | 1.59E-08 | 1.03E-08 | 2.92E-08 | 1.17E-03 | 1.72E-09 | 1.83E-07 |
| 9.34E-09 | 2.70E-07 | 2.89E-06 | 0.00E+00 | 1.20E-08 | 4.55E-08 | 5.18E-10 | 5.80E-08 | 3.00E-09 | 1.59E-08 | 4.76E-10 | 1.94E-08 | 9.95E-04 | 6.54E-07 | 2.03E-07 |
| 2.80E-08 | 1.92E-06 | 1.00E-07 | 1.10E-08 | 1.20E-08 | 4.55E-08 | 1.03E-08 | 6.78E-08 | 3.00E-09 | 1.59E-08 | 9.87E-09 | 2.88E-08 | 1.17E-03 | 1.30E-09 | 1.83E-07 |
| 9.34E-09 | 2.70E-07 | 2.89E-06 | 0.00E+00 | 1.20E-08 | 4.55E-08 | 5.18E-10 | 5.80E-08 | 3.00E-09 | 1.59E-08 | 4.76E-10 | 1.94E-08 | 1.00E-03 | 6.54E-07 | 2.04E-07 |
| 2.58E-07 | 1.33E-06 | 5.81E-06 | 1.88E-08 | 1.20E-08 | 4.50E-08 | 2.08E-09 | 5.91E-08 | 3.00E-09 | 1.58E-08 | 1.92E-09 | 2.07E-08 | 1.90E-03 | 4.74E-08 | 5.56E-08 |
| 8.81E-08 | 3.58E-06 | 3.24E-07 | 1.51E-08 | 3.60E-08 | 7.73E-08 | 6.62E-08 | 1.80E-07 | 9.00E-09 | 2.71E-08 | 6.33E-08 | 9.94E-08 | 1.60E-03 | 4.09E-09 | 2.52E-07 |
| 1.32E-08 | 2.62E-07 | 4.60E-06 | 0.00E+00 | 3.60E-08 | 7.41E-08 | 1.74E-09 | 1.12E-07 | 9.00E-09 | 2.59E-08 | 1.60E-09 | 3.65E-08 | 1.18E-03 | 9.23E-07 | 2.41E-07 |
| 1.45E-07 | 3.84E-06 | 5.72E-07 | 1.52E-08 | 3.60E-08 | 7.82E-08 | 1.09E-07 | 2.24E-07 | 9.00E-09 | 2.74E-08 | 1.05E-07 | 1.41E-07 | 1.61E-03 | 6.74E-09 | 2.54E-07 |
| 1.03E-07 | 3.74E-06 | 3.75E-07 | 1.51E-08 | 3.60E-08 | 7.75E-08 | 7.38E-08 | 1.87E-07 | 9.00E-09 | 2.71E-08 | 7.06E-08 | 1.07E-07 | 1.60E-03 | 4.78E-09 | 2.52E-07 |
| 1.19E-07 | 4.46E-06 | 3.80E-07 | 1.63E-08 | 3.60E-08 | 9.40E-08 | 3.11E-08 | 1.61E-07 | 9.00E-09 | 3.29E-08 | 2.98E-08 | 7.17E-08 | 1.72E-03 | 5.53E-09 | 2.71E-07 |
| 1.47E-07 | 4.97E-06 | 4.69E-07 | 1.63E-08 | 3.60E-08 | 9.60E-08 | 4.14E-08 | 1.73E-07 | 9.00E-09 | 3.36E-08 | 3.96E-08 | 8.22E-08 | 1.73E-03 | 6.85E-09 | 2.72E-07 |
| 1.70E-08 | 7.05E-07 | 1.10E-05 | 0.00E+00 | 3.60E-08 | 8.52E-08 | 1.36E-09 | 1.23E-07 | 9.00E-09 | 2.98E-08 | 1.25E-09 | 4.01E-08 | 1.49E-03 | 1.19E-06 | 3.04E-07 |
| 1.73E-07 | 1.27E-05 | 5.50E-07 | 1.87E-08 | 3.60E-08 | 1.21E-07 | 8.30E-08 | 2.40E-07 | 9.00E-09 | 4.24E-08 | 7.94E-08 | 1.31E-07 | 1.98E-03 | 8.01E-09 | 3.12E-07 |
| 2.61E-08 | 7.55E-07 | 1.07E-05 | 0.00E+00 | 3.60E-08 | 1.07E-07 | 2.46E-09 | 1.45E-07 | 9.00E-09 | 3.75E-08 | 2.26E-09 | 4.87E-08 | 1.68E-03 | 1.83E-06 | 3.43E-07 |
| 1.73E-07 | 4.05E-06 | 6.29E-07 | 1.62E-08 | 3.60E-08 | 8.68E-08 | 1.11E-07 | 2.33E-07 | 9.00E-09 | 3.04E-08 | 1.06E-07 | 1.45E-07 | 1.71E-03 | 8.02E-09 | 2.69E-07 |
| 1.51E-08 | 4.28E-07 | 7.58E-06 | 0.00E+00 | 3.60E-08 | 8.16E-08 | 1.68E-09 | 1.19E-07 | 9.00E-09 | 2.86E-08 | 1.54E-09 | 3.91E-08 | 1.28E-03 | 1.06E-06 | 2.60E-07 |
| 2.06E-07 | 5.33E-06 | 7.69E-07 | 1.60E-08 | 3.60E-08 | 8.91E-08 | 1.31E-07 | 2.56E-07 | 9.00E-09 | 3.12E-08 | 1.25E-07 | 1.65E-07 | 1.69E-03 | 9.58E-09 | 2.67E-07 |
| 1.51E-08 | 4.26E-07 | 7.57E-06 | 0.00E+00 | 3.60E-08 | 8.24E-08 | 1.68E-09 | 1.20E-07 | 9.00E-09 | 2.88E-08 | 1.54E-09 | 3.94E-08 | 1.32E-03 | 1.06E-06 | 2.68E-07 |
| 2.37E-07 | 5.43E-06 | 8.92E-07 | 1.61E-08 | 3.60E-08 | 8.97E-08 | 1.56E-07 | 2.82E-07 | 9.00E-09 | 3.14E-08 | 1.49E-07 | 1.90E-07 | 1.70E-03 | 1.10E-08 | 2.68E-07 |
| 1.51E-08 | 4.26E-07 | 7.59E-06 | 0.00E+00 | 3.60E-08 | 8.29E-08 | 1.68E-09 | 1.21E-07 | 9.00E-09 | 2.90E-08 | 1.54E-09 | 3.96E-08 | 1.31E-03 | 1.06E-06 | 2.67E-07 |
| 3.05E-08 | 8.80E-06 | 8.25E-08 | 3.90E-08 | 3.60E-08 | 2.10E-07 | 1.36E-08 | 2.60E-07 | 9.00E-09 | 7.35E-08 | 1.30E-08 | 9.55E-08 | 4.12E-03 | 1.42E-09 | 6.49E-07 |
| 1.30E-07 | 2.64E-06 | 2.50E-05 | 0.00E+00 | 3.60E-08 | 2.10E-07 | 2.74E-09 | 2.49E-07 | 9.00E-09 | 7.35E-08 | 2.52E-09 | 8.50E-08 | 1.72E-03 | 5.48E-06 | 3.51E-07 |
| 1.49E-07 | 4.88E-06 | 5.39E-07 | 1.51E-08 | 3.60E-08 | 8.54E-08 | 8.69E-08 | 2.08E-07 | 9.00E-09 | 2.99E-08 | 8.32E-08 | 1.22E-07 | 1.60E-03 | 6.91E-09 | 2.51E-07 |
| 1.42E-08 | 5.64E-07 | 9.76E-06 | 0.00E+00 | 3.60E-08 | 7.85E-08 | 1.24E-09 | 1.16E-07 | 9.00E-09 | 2.75E-08 | 1.14E-09 | 3.76E-08 | 1.22E-03 | 9.96E-07 | 2.49E-07 |
| 4.10E-08 | 2.46E-06 | 1.98E-07 | 1.68E-08 | 3.60E-08 | 9.84E-08 | 1.14E-08 | 1.46E-07 | 9.00E-09 | 3.44E-08 | 1.09E-08 | 5.43E-08 | 1.78E-03 | 1.90E-09 | 2.80E-07 |
| 9.28E-06 | 2.69E-05 | 2.61E-04 | 2.92E-08 | 2.00E-08 | 1.18E-07 | 1.82E-08 | 1.56E-07 | 5.00E-09 | 4.13E-08 | 1.71E-08 | 6.34E-08 | 2.95E-03 | 1.10E-06 | 5.76E-07 |
| 1.03E-08 | 9.66E-08 | 4.08E-07 | 1.37E-08 | 1.00E-08 | 1.01E-07 | 1.22E-09 | 1.12E-07 | 2.50E-09 | 3.52E-08 | 1.12E-09 | 3.88E-08 | 1.39E-03 | 3.24E-09 | 1.03E-08 |
| 1.12E-07 | 2.03E-06 | 1.53E-07 | 1.33E-08 | 3.09E-08 | 1.10E-07 | 7.36E-09 | 1.48E-07 | 7.73E-09 | 3.85E-08 | 7.04E-09 | 5.33E-08 | 1.41E-03 | 5.20E-09 | 2.21E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.30E-08 | 5.50E-08 | 0.00E+00 | 7.80E-08 | 5.75E-09 | 1.93E-08 | 0.00E+00 | 2.50E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

Existing in Year 2045: Criteria Air Pollutants

Source: EMFAC2021 (v1.0.2) Emission Rates, Contra Costa County, Average Speed, Average Fleet

| | | | | |
|-----------------------|--------------|---------------|--------------|--------------------|
| Source: F&P 2023 | | | | |
| Truck Trip Percentage | Small Trucks | Medium Trucks | Heavy Trucks | Passenger Vehicles |
| EMFAC Default | 1.2% | 0.1% | 0.4% | 98.3% |
| | 3.44% | 1.10% | 2.99% | 92.47% |

| Daily VMT | | lbs/day | | | | | | | |
|-----------------------------|----------------|----------------|-------------------------|-------|-------|----------|------|-------|-------|
| Vehicle Type | Fuel Type | Percent of VMT | Adjusted Percent of VMT | ROG | NOx | CO | SOx | PM10 | PM2.5 |
| All Other Buses | Diesel | 0.02% | 0.00% | 0.01 | 0.22 | 0.04 | 0.00 | 0.01 | 0.01 |
| All Other Buses | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| LDA | Gasoline | 42.85% | 45.57% | 9.92 | 69.74 | 1,629.40 | 7.80 | 56.48 | 17.93 |
| LDA | Diesel | 0.03% | 0.03% | 0.01 | 0.04 | 0.28 | 0.00 | 0.04 | 0.01 |
| LDA | Electricity | 6.20% | 6.59% | 0.00 | 0.00 | 0.00 | 0.00 | 6.36 | 1.81 |
| LDA | Plug-in Hybrid | 2.05% | 2.18% | 0.19 | 0.45 | 29.29 | 0.19 | 2.07 | 0.61 |
| LDT1 | Gasoline | 2.66% | 2.83% | 0.69 | 4.75 | 108.32 | 0.56 | 3.83 | 1.23 |
| LDT1 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| LDT1 | Electricity | 0.08% | 0.09% | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.02 |
| LDT1 | Plug-in Hybrid | 0.06% | 0.07% | 0.01 | 0.01 | 0.91 | 0.01 | 0.06 | 0.02 |
| LDT2 | Gasoline | 22.89% | 24.34% | 7.45 | 43.58 | 1,026.34 | 5.02 | 32.72 | 10.49 |
| LDT2 | Diesel | 0.09% | 0.09% | 0.08 | 0.20 | 0.89 | 0.02 | 0.15 | 0.07 |
| LDT2 | Electricity | 0.64% | 0.68% | 0.00 | 0.00 | 0.00 | 0.00 | 0.66 | 0.19 |
| LDT2 | Plug-in Hybrid | 0.62% | 0.66% | 0.06 | 0.14 | 8.93 | 0.06 | 0.63 | 0.19 |
| LHD1 | Gasoline | 0.93% | 0.32% | 0.11 | 0.55 | 14.75 | 0.19 | 2.17 | 0.76 |
| LHD1 | Diesel | 0.61% | 0.21% | 1.48 | 4.90 | 3.83 | 0.09 | 1.78 | 0.80 |
| LHD1 | Electricity | 1.21% | 0.41% | 0.00 | 0.00 | 0.00 | 0.00 | 1.51 | 0.50 |
| LHD2 | Gasoline | 0.11% | 0.04% | 0.01 | 0.06 | 1.69 | 0.02 | 0.28 | 0.10 |
| LHD2 | Diesel | 0.29% | 0.10% | 0.86 | 3.28 | 2.27 | 0.05 | 0.97 | 0.45 |
| LHD2 | Electricity | 0.29% | 0.31% | 0.00 | 0.00 | 0.00 | 0.00 | 1.29 | 0.43 |
| MCY | Gasoline | 0.33% | 0.35% | 21.28 | 12.86 | 267.92 | 0.05 | 0.49 | 0.20 |
| MDV | Gasoline | 12.87% | 13.68% | 4.80 | 28.74 | 610.63 | 3.44 | 18.57 | 5.97 |
| MDV | Diesel | 0.14% | 0.15% | 0.05 | 0.14 | 1.60 | 0.04 | 0.21 | 0.07 |
| MDV | Electricity | 0.58% | 0.62% | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 | 0.17 |
| MDV | Plug-in Hybrid | 0.38% | 0.41% | 0.04 | 0.08 | 5.46 | 0.04 | 0.39 | 0.11 |
| MH | Gasoline | 0.04% | 0.00% | 0.00 | 0.07 | 0.06 | 0.01 | 0.02 | 0.01 |
| MH | Diesel | 0.02% | 0.00% | 0.02 | 0.56 | 0.06 | 0.00 | 0.02 | 0.01 |
| Motor Coach | Diesel | 0.01% | 0.00% | 0.00 | 0.12 | 0.00 | 0.00 | 0.02 | 0.01 |
| OBUS | Gasoline | 0.01% | 0.00% | 0.00 | 0.04 | 0.07 | 0.00 | 0.01 | 0.00 |
| OBUS | Electricity | 0.02% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| PTO | Diesel | 0.03% | 0.00% | 0.00 | 0.77 | 0.05 | 0.00 | 0.00 | 0.00 |
| PTO | Electricity | 0.03% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SBUS | Gasoline | 0.02% | 0.00% | 0.00 | 0.02 | 0.03 | 0.00 | 0.01 | 0.00 |
| SBUS | Diesel | 0.02% | 0.00% | 0.00 | 0.08 | 0.01 | 0.00 | 0.01 | 0.00 |
| SBUS | Electricity | 0.02% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| SBUS | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 4 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 4 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 5 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 5 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 6 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 6 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 7 | Diesel | 0.01% | 0.00% | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 7 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Delivery Class 4 | Diesel | 0.02% | 0.00% | 0.00 | 0.04 | 0.01 | 0.00 | 0.01 | 0.00 |
| T6 Instate Delivery Class 4 | Electricity | 0.02% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Delivery Class 4 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| T6 Instate Delivery Class 5 | Diesel | 0.01% | 0.00% | 0.00 | 0.04 | 0.01 | 0.00 | 0.01 | 0.00 |
| T6 Instate Delivery Class 5 | Electricity | 0.02% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Delivery Class 5 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Delivery Class 6 | Diesel | 0.03% | 0.00% | 0.00 | 0.08 | 0.01 | 0.00 | 0.01 | 0.00 |
| T6 Instate Delivery Class 6 | Electricity | 0.03% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| T6 Instate Delivery Class 6 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| T6 Instate Delivery Class 7 | Diesel | 0.01% | 0.00% | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Delivery Class 7 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

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|--|-------------|-------|-------|------|------|------|------|------|------|
| T6 Instate Delivery Class 7 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Other Class 4 | Diesel | 0.05% | 0.00% | 0.00 | 0.09 | 0.01 | 0.00 | 0.02 | 0.01 |
| T6 Instate Other Class 4 | Electricity | 0.06% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| T6 Instate Other Class 4 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| T6 Instate Other Class 5 | Diesel | 0.12% | 0.01% | 0.00 | 0.21 | 0.03 | 0.01 | 0.05 | 0.02 |
| T6 Instate Other Class 5 | Electricity | 0.13% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.01 |
| T6 Instate Other Class 5 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 |
| T6 Instate Other Class 6 | Diesel | 0.09% | 0.01% | 0.00 | 0.16 | 0.03 | 0.01 | 0.04 | 0.01 |
| T6 Instate Other Class 6 | Electricity | 0.10% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.01 |
| T6 Instate Other Class 6 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| T6 Instate Other Class 7 | Diesel | 0.07% | 0.01% | 0.00 | 0.22 | 0.02 | 0.00 | 0.03 | 0.01 |
| T6 Instate Other Class 7 | Electricity | 0.05% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| T6 Instate Other Class 7 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 |
| T6 Instate Tractor Class 6 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Tractor Class 6 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Tractor Class 6 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Tractor Class 7 | Diesel | 0.01% | 0.00% | 0.00 | 0.04 | 0.00 | 0.00 | 0.01 | 0.00 |
| T6 Instate Tractor Class 7 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Tractor Class 7 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| T6 OOS Class 4 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 OOS Class 5 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 OOS Class 6 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 OOS Class 7 | Diesel | 0.01% | 0.00% | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 4 | Diesel | 0.01% | 0.00% | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 4 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 4 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 5 | Diesel | 0.01% | 0.00% | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 5 | Electricity | 0.01% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 5 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 6 | Diesel | 0.01% | 0.00% | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 6 | Electricity | 0.01% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 6 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 7 | Diesel | 0.02% | 0.00% | 0.00 | 0.06 | 0.01 | 0.00 | 0.01 | 0.00 |
| T6 Public Class 7 | Electricity | 0.01% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 7 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 5 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 5 | Electricity | 0.01% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 5 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 6 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 6 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 6 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 7 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 7 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 7 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6TS | Gasoline | 0.08% | 0.01% | 0.01 | 0.04 | 0.10 | 0.01 | 0.03 | 0.01 |
| T6TS | Electricity | 0.09% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.01 |
| T7 CAIRP Class 8 | Diesel | 0.43% | 0.06% | 0.05 | 5.42 | 0.17 | 0.05 | 0.66 | 0.30 |
| T7 CAIRP Class 8 | Electricity | 0.12% | 0.02% | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.03 |
| T7 CAIRP Class 8 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| T7 NNOOS Class 8 | Diesel | 0.66% | 0.09% | 0.08 | 9.12 | 0.26 | 0.08 | 1.01 | 0.45 |
| T7 NOOS Class 8 | Diesel | 0.24% | 0.03% | 0.03 | 3.41 | 0.10 | 0.03 | 0.37 | 0.17 |
| T7 Other Port Class 8 | Diesel | 0.05% | 0.01% | 0.00 | 0.58 | 0.03 | 0.01 | 0.07 | 0.03 |
| T7 Other Port Class 8 | Electricity | 0.01% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| T7 POAK Class 8 | Diesel | 0.16% | 0.02% | 0.02 | 2.09 | 0.11 | 0.02 | 0.24 | 0.10 |
| T7 POAK Class 8 | Electricity | 0.04% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.01 |
| T7 POAK Class 8 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| T7 Public Class 8 | Diesel | 0.04% | 0.01% | 0.01 | 0.92 | 0.07 | 0.01 | 0.07 | 0.03 |
| T7 Public Class 8 | Electricity | 0.03% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.01 |
| T7 Public Class 8 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 |
| T7 Single Concrete/Transit Mix Class 8 | Diesel | 0.01% | 0.00% | 0.00 | 0.07 | 0.00 | 0.00 | 0.01 | 0.00 |
| T7 Single Concrete/Transit Mix Class 8 | Electricity | 0.01% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| T7 Single Concrete/Transit Mix Class 8 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| T7 Single Dump Class 8 | Diesel | 0.06% | 0.01% | 0.01 | 0.66 | 0.03 | 0.01 | 0.08 | 0.03 |
| T7 Single Dump Class 8 | Electricity | 0.05% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.01 |
| T7 Single Dump Class 8 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.01 | 0.17 | 0.00 | 0.00 | 0.00 |
| T7 Single Other Class 8 | Diesel | 0.07% | 0.01% | 0.01 | 0.75 | 0.04 | 0.01 | 0.10 | 0.04 |

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|-------------------------|-------------|-------|-------|------|------|-------|------|------|------|
| T7 Single Other Class 8 | Electricity | 0.07% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.02 |
| T7 Single Other Class 8 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.01 | 0.19 | 0.00 | 0.01 | 0.00 |
| T7 SWCV Class 8 | Diesel | 0.01% | 0.00% | 0.00 | 0.34 | 0.01 | 0.00 | 0.02 | 0.01 |
| T7 SWCV Class 8 | Electricity | 0.04% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.02 |
| T7 SWCV Class 8 | Natural Gas | 0.05% | 0.01% | 0.01 | 0.18 | 5.54 | 0.00 | 0.12 | 0.04 |
| T7 Tractor Class 8 | Diesel | 0.40% | 0.05% | 0.04 | 4.92 | 0.20 | 0.05 | 0.59 | 0.25 |
| T7 Tractor Class 8 | Electricity | 0.08% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.02 |
| T7 Tractor Class 8 | Natural Gas | 0.03% | 0.00% | 0.01 | 0.07 | 1.43 | 0.00 | 0.04 | 0.01 |
| T7 Utility Class 8 | Diesel | 0.00% | 0.00% | 0.00 | 0.05 | 0.00 | 0.00 | 0.01 | 0.00 |
| T7 Utility Class 8 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T7IS | Gasoline | 0.00% | 0.00% | 0.00 | 0.01 | 0.08 | 0.00 | 0.00 | 0.00 |
| T7IS | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| UBUS | Gasoline | 0.01% | 0.00% | 0.00 | 0.00 | 0.05 | 0.00 | 0.01 | 0.00 |
| UBUS | Electricity | 0.09% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.02 |
| | | 100% | 100% | 47 | 201 | 3,722 | 18 | 136 | 44 |

Year 2045: Criteria Air Pollutants

Source: EMFAC2021 (v1.0.2) Emission Rates, Contra Costa County, Average Speed, Average Fleet

| | | | | |
|-----------------------|--------------|---------------|--------------|--------------------|
| Source: F&P 2023 | Small Trucks | Medium Trucks | Heavy Trucks | Passenger Vehicles |
| Truck Trip Percentage | 1.3% | 0.1% | 0.4% | 98.2% |
| EMFAC Default | 3.44% | 1.10% | 2.99% | 92.47% |

| Daily VMT | | | lbs/day | | | | | | |
|-----------------------------|----------------|----------------|-------------------------|-------|-------|----------|------|-------|-------|
| Vehicle Type | Fuel Type | Percent of VMT | Adjusted Percent of VMT | ROG | NOx | CO | SOx | PM10 | PM2.5 |
| All Other Buses | Diesel | 0.02% | 0.00% | 0.01 | 0.28 | 0.05 | 0.00 | 0.02 | 0.01 |
| All Other Buses | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 |
| LDA | Gasoline | 42.85% | 45.51% | 11.99 | 84.29 | 1,969.41 | 9.43 | 68.27 | 21.67 |
| LDA | Diesel | 0.03% | 0.03% | 0.01 | 0.05 | 0.34 | 0.00 | 0.04 | 0.02 |
| LDA | Electricity | 6.20% | 6.58% | 0.00 | 0.00 | 0.00 | 0.00 | 7.68 | 2.19 |
| LDA | Plug-in Hybrid | 2.05% | 2.17% | 0.23 | 0.54 | 35.40 | 0.23 | 2.50 | 0.73 |
| LDT1 | Gasoline | 2.66% | 2.83% | 0.83 | 5.75 | 130.92 | 0.68 | 4.63 | 1.49 |
| LDT1 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| LDT1 | Electricity | 0.08% | 0.09% | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.03 |
| LDT1 | Plug-in Hybrid | 0.06% | 0.07% | 0.01 | 0.02 | 1.10 | 0.01 | 0.08 | 0.02 |
| LDT2 | Gasoline | 22.89% | 24.31% | 9.00 | 52.67 | 1,240.50 | 6.07 | 39.54 | 12.68 |
| LDT2 | Diesel | 0.09% | 0.09% | 0.10 | 0.24 | 1.07 | 0.02 | 0.18 | 0.08 |
| LDT2 | Electricity | 0.64% | 0.68% | 0.00 | 0.00 | 0.00 | 0.00 | 0.79 | 0.23 |
| LDT2 | Plug-in Hybrid | 0.62% | 0.66% | 0.07 | 0.16 | 10.79 | 0.07 | 0.76 | 0.22 |
| LHD1 | Gasoline | 0.93% | 0.34% | 0.14 | 0.71 | 19.13 | 0.24 | 2.81 | 0.98 |
| LHD1 | Diesel | 0.61% | 0.22% | 1.92 | 6.35 | 4.96 | 0.12 | 2.30 | 1.03 |
| LHD1 | Electricity | 1.21% | 0.44% | 0.00 | 0.00 | 0.00 | 0.00 | 1.96 | 0.65 |
| LHD2 | Gasoline | 0.11% | 0.04% | 0.01 | 0.08 | 2.20 | 0.03 | 0.37 | 0.13 |
| LHD2 | Diesel | 0.29% | 0.10% | 1.12 | 4.25 | 2.94 | 0.07 | 1.26 | 0.58 |
| LHD2 | Electricity | 0.29% | 0.11% | 0.00 | 0.00 | 0.00 | 0.00 | 0.54 | 0.18 |
| MCY | Gasoline | 0.33% | 0.35% | 25.72 | 15.54 | 323.82 | 0.06 | 0.60 | 0.24 |
| MDV | Gasoline | 12.87% | 13.66% | 5.80 | 34.73 | 738.05 | 4.15 | 22.45 | 7.22 |
| MDV | Diesel | 0.14% | 0.15% | 0.06 | 0.17 | 1.94 | 0.04 | 0.26 | 0.09 |
| MDV | Electricity | 0.58% | 0.62% | 0.00 | 0.00 | 0.00 | 0.00 | 0.72 | 0.21 |
| MDV | Plug-in Hybrid | 0.38% | 0.41% | 0.04 | 0.10 | 6.60 | 0.04 | 0.47 | 0.14 |
| MH | Gasoline | 0.04% | 0.01% | 0.01 | 0.10 | 0.08 | 0.01 | 0.03 | 0.01 |
| MH | Diesel | 0.02% | 0.00% | 0.02 | 0.73 | 0.07 | 0.00 | 0.03 | 0.01 |
| Motor Coach | Diesel | 0.01% | 0.00% | 0.00 | 0.16 | 0.01 | 0.00 | 0.02 | 0.01 |
| OBUS | Gasoline | 0.01% | 0.00% | 0.00 | 0.05 | 0.09 | 0.00 | 0.01 | 0.00 |
| OBUS | Electricity | 0.02% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| PTO | Diesel | 0.03% | 0.00% | 0.01 | 1.00 | 0.07 | 0.01 | 0.00 | 0.00 |
| PTO | Electricity | 0.03% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SBUS | Gasoline | 0.02% | 0.00% | 0.00 | 0.03 | 0.04 | 0.00 | 0.01 | 0.00 |
| SBUS | Diesel | 0.02% | 0.00% | 0.00 | 0.10 | 0.01 | 0.00 | 0.01 | 0.01 |
| SBUS | Electricity | 0.02% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| SBUS | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 4 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 4 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 5 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 5 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 6 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 6 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 7 | Diesel | 0.01% | 0.00% | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 CAIRP Class 7 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Delivery Class 4 | Diesel | 0.02% | 0.00% | 0.00 | 0.06 | 0.01 | 0.00 | 0.01 | 0.00 |
| T6 Instate Delivery Class 4 | Electricity | 0.02% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| T6 Instate Delivery Class 4 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| T6 Instate Delivery Class 5 | Diesel | 0.01% | 0.00% | 0.00 | 0.05 | 0.01 | 0.00 | 0.01 | 0.00 |
| T6 Instate Delivery Class 5 | Electricity | 0.02% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Delivery Class 5 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| T6 Instate Delivery Class 6 | Diesel | 0.03% | 0.00% | 0.00 | 0.11 | 0.02 | 0.00 | 0.02 | 0.01 |
| T6 Instate Delivery Class 6 | Electricity | 0.03% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| T6 Instate Delivery Class 6 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| T6 Instate Delivery Class 7 | Diesel | 0.01% | 0.00% | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Delivery Class 7 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

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|--|-------------|-------|-------|------|-------|------|------|------|------|
| T6 Instate Delivery Class 7 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Other Class 4 | Diesel | 0.05% | 0.00% | 0.00 | 0.12 | 0.02 | 0.00 | 0.03 | 0.01 |
| T6 Instate Other Class 4 | Electricity | 0.06% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.01 |
| T6 Instate Other Class 4 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| T6 Instate Other Class 5 | Diesel | 0.12% | 0.01% | 0.01 | 0.28 | 0.04 | 0.01 | 0.06 | 0.02 |
| T6 Instate Other Class 5 | Electricity | 0.13% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.01 |
| T6 Instate Other Class 5 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 |
| T6 Instate Other Class 6 | Diesel | 0.09% | 0.01% | 0.00 | 0.22 | 0.03 | 0.01 | 0.05 | 0.02 |
| T6 Instate Other Class 6 | Electricity | 0.10% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.01 |
| T6 Instate Other Class 6 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 |
| T6 Instate Other Class 7 | Diesel | 0.07% | 0.01% | 0.00 | 0.30 | 0.03 | 0.01 | 0.04 | 0.01 |
| T6 Instate Other Class 7 | Electricity | 0.05% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| T6 Instate Other Class 7 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 |
| T6 Instate Tractor Class 6 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Tractor Class 6 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Tractor Class 6 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Tractor Class 7 | Diesel | 0.01% | 0.00% | 0.00 | 0.05 | 0.01 | 0.00 | 0.01 | 0.00 |
| T6 Instate Tractor Class 7 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Instate Tractor Class 7 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| T6 OOS Class 4 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 OOS Class 5 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 OOS Class 6 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 OOS Class 7 | Diesel | 0.01% | 0.00% | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 4 | Diesel | 0.01% | 0.00% | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 4 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 4 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 5 | Diesel | 0.01% | 0.00% | 0.00 | 0.05 | 0.01 | 0.00 | 0.01 | 0.00 |
| T6 Public Class 5 | Electricity | 0.01% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 5 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 6 | Diesel | 0.01% | 0.00% | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 6 | Electricity | 0.01% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 6 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 7 | Diesel | 0.02% | 0.00% | 0.00 | 0.07 | 0.01 | 0.00 | 0.01 | 0.00 |
| T6 Public Class 7 | Electricity | 0.01% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Public Class 7 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 5 | Diesel | 0.00% | 0.00% | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 5 | Electricity | 0.01% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 5 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 6 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 6 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 6 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 7 | Diesel | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 7 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6 Utility Class 7 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T6TS | Gasoline | 0.08% | 0.01% | 0.01 | 0.05 | 0.13 | 0.01 | 0.04 | 0.01 |
| T6TS | Electricity | 0.09% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.01 |
| T7 CAIRP Class 8 | Diesel | 0.43% | 0.06% | 0.07 | 7.06 | 0.23 | 0.07 | 0.86 | 0.39 |
| T7 CAIRP Class 8 | Electricity | 0.12% | 0.02% | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.04 |
| T7 CAIRP Class 8 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 |
| T7 NNOOS Class 8 | Diesel | 0.66% | 0.09% | 0.10 | 11.88 | 0.34 | 0.10 | 1.31 | 0.59 |
| T7 NOOS Class 8 | Diesel | 0.24% | 0.03% | 0.04 | 4.44 | 0.13 | 0.04 | 0.48 | 0.22 |
| T7 Other Port Class 8 | Diesel | 0.05% | 0.01% | 0.01 | 0.75 | 0.04 | 0.01 | 0.09 | 0.04 |
| T7 Other Port Class 8 | Electricity | 0.01% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| T7 POAK Class 8 | Diesel | 0.16% | 0.02% | 0.02 | 2.72 | 0.14 | 0.03 | 0.31 | 0.12 |
| T7 POAK Class 8 | Electricity | 0.04% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.01 |
| T7 POAK Class 8 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| T7 Public Class 8 | Diesel | 0.04% | 0.01% | 0.02 | 1.19 | 0.09 | 0.01 | 0.09 | 0.03 |
| T7 Public Class 8 | Electricity | 0.03% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.01 |
| T7 Public Class 8 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 |
| T7 Single Concrete/Transit Mix Class 8 | Diesel | 0.01% | 0.00% | 0.00 | 0.09 | 0.00 | 0.00 | 0.02 | 0.01 |
| T7 Single Concrete/Transit Mix Class 8 | Electricity | 0.01% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| T7 Single Concrete/Transit Mix Class 8 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 |
| T7 Single Dump Class 8 | Diesel | 0.06% | 0.01% | 0.01 | 0.86 | 0.04 | 0.01 | 0.11 | 0.04 |
| T7 Single Dump Class 8 | Electricity | 0.05% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.02 |
| T7 Single Dump Class 8 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.01 | 0.22 | 0.00 | 0.01 | 0.00 |
| T7 Single Other Class 8 | Diesel | 0.07% | 0.01% | 0.01 | 0.98 | 0.05 | 0.01 | 0.14 | 0.05 |

| | | | | | | | | | |
|-------------------------|-------------|-------|-------|------|------|-------|------|------|------|
| T7 Single Other Class 8 | Electricity | 0.07% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.02 |
| T7 Single Other Class 8 | Natural Gas | 0.00% | 0.00% | 0.00 | 0.01 | 0.25 | 0.00 | 0.01 | 0.00 |
| T7 SWCV Class 8 | Diesel | 0.01% | 0.00% | 0.00 | 0.44 | 0.01 | 0.00 | 0.02 | 0.01 |
| T7 SWCV Class 8 | Electricity | 0.04% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.02 |
| T7 SWCV Class 8 | Natural Gas | 0.05% | 0.01% | 0.01 | 0.23 | 7.22 | 0.00 | 0.16 | 0.05 |
| T7 Tractor Class 8 | Diesel | 0.40% | 0.06% | 0.06 | 6.41 | 0.26 | 0.07 | 0.77 | 0.32 |
| T7 Tractor Class 8 | Electricity | 0.08% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.03 |
| T7 Tractor Class 8 | Natural Gas | 0.03% | 0.00% | 0.01 | 0.09 | 1.87 | 0.00 | 0.06 | 0.02 |
| T7 Utility Class 8 | Diesel | 0.00% | 0.00% | 0.00 | 0.06 | 0.01 | 0.00 | 0.01 | 0.00 |
| T7 Utility Class 8 | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| T7IS | Gasoline | 0.00% | 0.00% | 0.00 | 0.01 | 0.11 | 0.00 | 0.00 | 0.00 |
| T7IS | Electricity | 0.00% | 0.00% | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| UBUS | Gasoline | 0.01% | 0.00% | 0.00 | 0.00 | 0.07 | 0.00 | 0.01 | 0.00 |
| UBUS | Electricity | 0.09% | 0.01% | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.03 |
| | | 100% | 100% | 57 | 247 | 4,502 | 22 | 164 | 53 |

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: Contra Costa
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

| g/mile | | | | | | | | | | | | | | | | | | 2.20E-03 |
|-----------------------------|----------------|-----------|-----------|-----------|-----------|------------|-----------|-----------|------------|-------------|------------|------------|--------------|-----------|-----------|-----------|------------|----------|
| Vehicle Category | Fuel | ROG_RUNEX | NOx_RUNEX | CO_RUNEX | SOx_RUNEX | PM10_RUNEX | PM10_PMTW | PM10_PMBW | PM10_TOTAL | PM2.5_RUNEX | PM2.5_PMTW | PM2.5_PMBW | PM 2.5 Total | CO2_RUNEX | CH4_RUNEX | N2O_RUNEX | VMT Total | % of VMT |
| All Other Buses | Diesel | 0.0482023 | 1.0396672 | 0.175379 | 0.0100037 | 0.013294 | 0.012 | 0.0461373 | 0.0714313 | 0.0127189 | 0.003 | 0.0161481 | 0.0318669 | 1056.4233 | 0.0022389 | 0.1664399 | 6,384 | 0.020% |
| All Other Buses | Natural Gas | 0.0119435 | 0.1062462 | 3.378567 | 0 | 0.0015899 | 0.012 | 0.0461373 | 0.0597272 | 0.0014618 | 0.003 | 0.0161481 | 0.0206099 | 920.52685 | 0.8359115 | 0.1876554 | 110 | 0.000% |
| LDA | Gasoline | 0.0027979 | 0.019665 | 0.4594603 | 0.0021999 | 0.0004938 | 0.008 | 0.0074333 | 0.0159271 | 0.0004541 | 0.002 | 0.0026016 | 0.0050557 | 222.52852 | 0.000965 | 0.0032065 | 13,762,597 | 42.851% |
| LDA | Diesel | 0.004491 | 0.0185521 | 0.130639 | 0.0017278 | 0.0012758 | 0.008 | 0.0074618 | 0.0167376 | 0.0012206 | 0.002 | 0.0026116 | 0.0058322 | 182.34868 | 0.0002086 | 0.0287291 | 8,294 | 0.026% |
| LDA | Electricity | 0 | 0 | 0 | 0 | 0 | 0.008 | 0.0043934 | 0.0123935 | 0 | 0.002 | 0.0015377 | 0.0035377 | 0 | 0 | 0 | 1,990,003 | 6.196% |
| LDA | Plug-in Hybrid | 0.0011242 | 0.0026422 | 0.1728897 | 0.0011111 | 0.0002028 | 0.008 | 0.0039951 | 0.0121979 | 0.0001865 | 0.002 | 0.0013983 | 0.0035847 | 112.38798 | 0.0003425 | 0.0004464 | 657,425 | 2.047% |
| LDT1 | Gasoline | 0.0031204 | 0.0215819 | 0.4916631 | 0.0025531 | 0.0005447 | 0.008 | 0.0088326 | 0.0173773 | 0.0005008 | 0.002 | 0.0030914 | 0.0055922 | 258.25564 | 0.001054 | 0.0033835 | 854,993 | 2.662% |
| LDT1 | Diesel | 0.011547 | 0.0267724 | 0.1213164 | 0.0031902 | 0.0040887 | 0.008 | 0.0087537 | 0.0208424 | 0.0039118 | 0.002 | 0.0030638 | 0.0089756 | 336.67623 | 0.0005363 | 0.0530435 | 10 | 0.000% |
| LDT1 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.008 | 0.0043945 | 0.0123945 | 0 | 0.002 | 0.0015381 | 0.0035381 | 0 | 0 | 0 | 26,674 | 0.083% |
| LDT1 | Plug-in Hybrid | 0.0011204 | 0.0026333 | 0.1723082 | 0.0011073 | 0.000195 | 0.008 | 0.0039983 | 0.0121932 | 0.0001793 | 0.002 | 0.0013994 | 0.0035787 | 112.00971 | 0.000343 | 0.0004491 | 20,424 | 0.064% |
| LDT2 | Gasoline | 0.0039313 | 0.0230043 | 0.5417927 | 0.0026496 | 0.0005136 | 0.008 | 0.0087577 | 0.0172712 | 0.0004722 | 0.002 | 0.0030652 | 0.0055374 | 268.01048 | 0.0012999 | 0.0034864 | 7,351,513 | 22.889% |
| LDT2 | Diesel | 0.01158 | 0.0274343 | 0.1218747 | 0.0023744 | 0.0041118 | 0.008 | 0.0087589 | 0.0208708 | 0.003934 | 0.002 | 0.0030656 | 0.0089996 | 250.5867 | 0.0005379 | 0.03948 | 28,253 | 0.088% |
| LDT2 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.008 | 0.0043946 | 0.0123946 | 0 | 0.002 | 0.0015381 | 0.0035381 | 0 | 0 | 0 | 205,505 | 0.640% |
| LDT2 | Plug-in Hybrid | 0.0011226 | 0.0026384 | 0.1726353 | 0.0011095 | 0.0001992 | 0.008 | 0.0039981 | 0.0121972 | 0.0001831 | 0.002 | 0.0013993 | 0.0035825 | 112.22524 | 0.0003429 | 0.000448 | 200,691 | 0.625% |
| LHD1 | Gasoline | 0.0042341 | 0.0219607 | 0.593743 | 0.0074533 | 0.0012744 | 0.008 | 0.078 | 0.0872744 | 0.0011718 | 0.002 | 0.0273 | 0.0304718 | 753.92124 | 0.0012555 | 0.0018581 | 300,298 | 0.935% |
| LHD1 | Diesel | 0.0913701 | 0.3022812 | 0.2362061 | 0.005734 | 0.0196634 | 0.012 | 0.078 | 0.1096634 | 0.0188128 | 0.003 | 0.0273 | 0.0491128 | 605.14081 | 0.004244 | 0.0953402 | 195,896 | 0.610% |
| LHD1 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.008 | 0.039 | 0.047 | 0 | 0.002 | 0.01365 | 0.01565 | 0 | 0 | 0 | 389,367 | 1.212% |
| LHD2 | Gasoline | 0.0036018 | 0.0216063 | 0.6028785 | 0.0083574 | 0.0012565 | 0.008 | 0.091 | 0.1002565 | 0.0011553 | 0.002 | 0.03185 | 0.0350053 | 845.37532 | 0.0011059 | 0.0021771 | 33,970 | 0.106% |
| LHD2 | Diesel | 0.1133306 | 0.4307398 | 0.2975405 | 0.0067019 | 0.0248746 | 0.012 | 0.091 | 0.1278746 | 0.0237985 | 0.003 | 0.03185 | 0.0586485 | 707.28933 | 0.005264 | 0.1114337 | 92,038 | 0.287% |
| LHD2 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.008 | 0.0455 | 0.0535 | 0 | 0.002 | 0.015925 | 0.017925 | 0 | 0 | 0 | 93,744 | 0.292% |
| MCY | Gasoline | 0.7803644 | 0.4714589 | 9.8257191 | 0.0018259 | 0.0021187 | 0.004 | 0.012 | 0.0181187 | 0.0019754 | 0.001 | 0.0042 | 0.0071754 | 184.69102 | 0.1309164 | 0.0354614 | 105,817 | 0.329% |
| MDV | Gasoline | 0.0045044 | 0.026989 | 0.573515 | 0.0032271 | 0.0005307 | 0.008 | 0.0089116 | 0.0174423 | 0.000488 | 0.002 | 0.0031191 | 0.0056071 | 326.42796 | 0.0014262 | 0.0037182 | 4,131,948 | 12.865% |
| MDV | Diesel | 0.0044283 | 0.0117473 | 0.1365246 | 0.0031175 | 0.0011147 | 0.008 | 0.0089528 | 0.0180675 | 0.0010664 | 0.002 | 0.0031335 | 0.0061999 | 329.00609 | 0.0002057 | 0.051835 | 45,544 | 0.142% |
| MDV | Electricity | 0 | 0 | 0 | 0 | 0 | 0.008 | 0.0044001 | 0.0124001 | 0 | 0.002 | 0.00154 | 0.00354 | 0 | 0 | 0 | 186,791 | 0.582% |
| MDV | Plug-in Hybrid | 0.0011239 | 0.0026413 | 0.172825 | 0.0011107 | 0.0002037 | 0.008 | 0.0040021 | 0.0122058 | 0.0001873 | 0.002 | 0.0014007 | 0.003588 | 112.34944 | 0.0003417 | 0.0004444 | 122,560 | 0.382% |
| MH | Gasoline | 0.0114614 | 0.1963862 | 0.1585281 | 0.0192267 | 0.0014727 | 0.012 | 0.0450174 | 0.0584902 | 0.0013541 | 0.003 | 0.0157561 | 0.0201102 | 1944.8378 | 0.004036 | 0.0181226 | 11,674 | 0.036% |
| MH | Diesel | 0.0862098 | 2.576505 | 0.2540272 | 0.0103064 | 0.0283879 | 0.016 | 0.0447853 | 0.0891732 | 0.0271599 | 0.004 | 0.0156748 | 0.0468347 | 1087.6895 | 0.0040043 | 0.1713659 | 6,730 | 0.021% |
| Motor Coach | Diesel | 0.0105293 | 0.9325411 | 0.0359028 | 0.0145012 | 0.0236612 | 0.012 | 0.0814729 | 0.1171341 | 0.0226376 | 0.003 | 0.0285155 | 0.0541531 | 1531.3695 | 0.0004891 | 0.2412679 | 4,011 | 0.012% |
| OBUS | Gasoline | 0.02462 | 0.2777057 | 0.4903288 | 0.0151856 | 0.0012812 | 0.012 | 0.0447987 | 0.0580799 | 0.001178 | 0.003 | 0.0156795 | 0.0198576 | 1536.0679 | 0.0054995 | 0.0165529 | 4,573 | 0.014% |
| OBUS | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0223994 | 0.0343994 | 0 | 0.003 | 0.0078398 | 0.0108398 | 0 | 0 | 0 | 5,190 | 0.016% |
| PTO | Diesel | 0.0147593 | 2.5647613 | 0.1826767 | 0.0165735 | 0.0040723 | 0 | 0 | 0.0040723 | 0.0038961 | 0 | 0 | 0.0038961 | 1750.2117 | 0.0006855 | 0.2757466 | 9,261 | 0.029% |
| PTO | Electricity | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,466 | 0.026% |
| SBUS | Gasoline | 0.0083844 | 0.1291335 | 0.1940946 | 0.0072857 | 0.001228 | 0.008 | 0.0449171 | 0.0541451 | 0.0011291 | 0.002 | 0.015721 | 0.0188501 | 736.97368 | 0.0019944 | 0.0121762 | 4,991 | 0.016% |
| SBUS | Diesel | 0.0078703 | 0.43011 | 0.058087 | 0.010006 | 0.0036115 | 0.012 | 0.0449171 | 0.0605286 | 0.0034552 | 0.003 | 0.015721 | 0.0221762 | 1056.6674 | 0.0003656 | 0.1664784 | 5,574 | 0.017% |
| SBUS | Electricity | 0 | 0 | 0 | 0 | 0 | 0.0106252 | 0.0224586 | 0.0330838 | 0 | 0.0026563 | 0.0078605 | 0.0105168 | 0 | 0 | 0 | 7,025 | 0.022% |
| SBUS | Natural Gas | 0.0384401 | 0.2964605 | 8.1369977 | 0 | 0.0036743 | 0.012 | 0.0449171 | 0.0605914 | 0.0033783 | 0.003 | 0.015721 | 0.0220993 | 1128.2014 | 2.6903716 | 0.2299912 | 333 | 0.001% |
| T6 CAIRP Class 4 | Diesel | 0.0053749 | 0.1781381 | 0.0275472 | 0.0096198 | 0.0054093 | 0.012 | 0.0423138 | 0.0597231 | 0.0051753 | 0.003 | 0.0148098 | 0.0229851 | 1015.8784 | 0.0002496 | 0.1600521 | 58 | 0.000% |
| T6 CAIRP Class 4 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0211569 | 0.0331569 | 0 | 0.003 | 0.0074049 | 0.0104049 | 0 | 0 | 0 | 80 | 0.000% |
| T6 CAIRP Class 5 | Diesel | 0.0053867 | 0.1795849 | 0.0275971 | 0.009624 | 0.0054214 | 0.012 | 0.0423138 | 0.0597353 | 0.0051869 | 0.003 | 0.0148098 | 0.0229967 | 1016.3293 | 0.0002502 | 0.1601231 | 80 | 0.000% |
| T6 CAIRP Class 5 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0211569 | 0.0331569 | 0 | 0.003 | 0.0074049 | 0.0104049 | 0 | 0 | 0 | 110 | 0.000% |
| T6 CAIRP Class 6 | Diesel | 0.0053599 | 0.1787864 | 0.0274814 | 0.0096084 | 0.0054266 | 0.012 | 0.0423138 | 0.0597404 | 0.0051918 | 0.003 | 0.0148098 | 0.0230017 | 1014.6808 | 0.000249 | 0.1598634 | 208 | 0.001% |
| T6 CAIRP Class 6 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0211569 | 0.0331569 | 0 | 0.003 | 0.0074049 | 0.0104049 | 0 | 0 | 0 | 289 | 0.001% |
| T6 CAIRP Class 7 | Diesel | 0.0057742 | 0.1953994 | 0.0296042 | 0.0084859 | 0.0057515 | 0.012 | 0.0423138 | 0.0600653 | 0.0055027 | 0.003 | 0.0148098 | 0.0233125 | 896.13389 | 0.0002682 | 0.1411863 | 2,380 | 0.007% |
| T6 CAIRP Class 7 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0211569 | 0.0331569 | 0 | 0.003 | 0.0074049 | 0.0104049 | 0 | 0 | 0 | 739 | 0.002% |
| T6 Instate Delivery Class 4 | Diesel | 0.0061363 | 0.3699076 | 0.0540164 | 0.009945 | 0.001934 | 0.012 | 0.0475629 | 0.0614969 | 0.0018503 | 0.003 | 0.016647 | 0.0214973 | 1050.2269 | 0.000285 | 0.1654637 | 5,851 | 0.018% |
| T6 Instate Delivery Class 4 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0237815 | 0.0357815 | 0 | 0.003 | 0.0083235 | 0.0113235 | 0 | 0 | 0 | 6,073 | 0.019% |
| T6 Instate Delivery Class 4 | Natural Gas | 0.0124695 | 0.0603231 | 3.8169558 | 0 | 0.0020138 | 0.012 | 0.0475629 | 0.0615767 | 0.0018516 | 0.003 | 0.016647 | 0.0214986 | 1006.7448 | 0.8727229 | 0.2052315 | 78 | 0.000% |
| T6 Instate Delivery Class 5 | Diesel | 0.0061166 | 0.3654042 | 0.0537491 | 0.009968 | 0.0019263 | 0.012 | 0.0475629 | 0.0614892 | 0.001843 | 0.003 | 0.016647 | 0.02149 | 1052.6588 | 0.0002841 | 0.1658468 | 4,753 | 0.015% |
| T6 Instate Delivery Class 5 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0237815 | 0.0357815 | 0 | 0.003 | 0.0083235 | 0.0113235 | 0 | 0 | 0 | 4,940 | 0.015% |
| T6 Instate Delivery Class 5 | Natural Gas | 0.0124715 | 0.0600929 | 3.8175048 | 0 | 0.0020151 | 0.012 | 0.0475629 | 0.061578 | 0.0018528 | 0.003 | 0.016647 | 0.0214998 | 1005.8654 | 0.8728632 | 0.2050522 | 62 | 0.000% |
| T6 Instate Delivery Class 6 | Diesel | 0.0061745 | 0.3714455 | 0.0540212 | 0.0099553 | 0.0019403 | 0.012 | 0.0475629 | 0.0615032 | 0.0018564 | 0.003 | 0.016647 | 0.0215034 | 1051.3128 | 0.0002868 | 0.1656348 | 10,333 | 0.032% |
| T6 Instate Delivery Class 6 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0237815 | 0.0357815 | 0 | 0.003 | 0.0083235 | 0.0113235 | 0 | 0 | 0 | 10,742 | 0.033% |

| | | | | | | | | | | | | | | | | | | |
|-----------------------------|-------------|-----------|-----------|-----------|-----------|-----------|-------|-----------|-----------|-----------|-------|-----------|-----------|-----------|-----------|-----------|---------|--------|
| T6 Instate Delivery Class 6 | Natural Gas | 0.0124641 | 0.0609431 | 3.8154774 | 0 | 0.0020102 | 0.012 | 0.0475629 | 0.0615732 | 0.0018483 | 0.003 | 0.016647 | 0.0214954 | 1006.5513 | 0.8723451 | 0.2051921 | 137 | 0.000% |
| T6 Instate Delivery Class 7 | Diesel | 0.0108905 | 0.7861263 | 0.0815582 | 0.0101938 | 0.0029678 | 0.012 | 0.0475629 | 0.0625308 | 0.0028394 | 0.003 | 0.016647 | 0.0224865 | 1076.4958 | 0.0005058 | 0.1696023 | 2,172 | 0.007% |
| T6 Instate Delivery Class 7 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0237815 | 0.0357815 | 0 | 0.003 | 0.0083235 | 0.0113235 | 0 | 0 | 0 | 1,256 | 0.004% |
| T6 Instate Delivery Class 7 | Natural Gas | 0.0117678 | 0.1414364 | 3.6308079 | 0 | 0.0015519 | 0.012 | 0.0475629 | 0.0611148 | 0.0014269 | 0.003 | 0.016647 | 0.021074 | 1034.4348 | 0.8236124 | 0.2108763 | 45 | 0.000% |
| T6 Instate Other Class 4 | Diesel | 0.0055291 | 0.2765935 | 0.0427715 | 0.0096245 | 0.003152 | 0.012 | 0.0448637 | 0.0600158 | 0.0030157 | 0.003 | 0.0157023 | 0.021718 | 1016.3806 | 0.0002568 | 0.1601312 | 15,980 | 0.050% |
| T6 Instate Other Class 4 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0224319 | 0.0344319 | 0 | 0.003 | 0.0078512 | 0.0108512 | 0 | 0 | 0 | 17,676 | 0.055% |
| T6 Instate Other Class 4 | Natural Gas | 0.009963 | 0.0520674 | 2.6717096 | 0 | 0.0015566 | 0.012 | 0.0448637 | 0.0584203 | 0.0014312 | 0.003 | 0.0157023 | 0.0201335 | 878.48354 | 0.6972956 | 0.1790846 | 218 | 0.001% |
| T6 Instate Other Class 5 | Diesel | 0.0055661 | 0.2756171 | 0.0427693 | 0.0096337 | 0.0031551 | 0.012 | 0.0448637 | 0.0600189 | 0.0030186 | 0.003 | 0.0157023 | 0.0217209 | 1017.3546 | 0.0002585 | 0.1602846 | 37,507 | 0.117% |
| T6 Instate Other Class 5 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0224319 | 0.0344319 | 0 | 0.003 | 0.0078512 | 0.0108512 | 0 | 0 | 0 | 41,479 | 0.129% |
| T6 Instate Other Class 5 | Natural Gas | 0.0099593 | 0.0523903 | 2.6720042 | 0 | 0.0015547 | 0.012 | 0.0448637 | 0.0584184 | 0.0014295 | 0.003 | 0.0157023 | 0.0201318 | 877.19718 | 0.6970389 | 0.1788224 | 503 | 0.002% |
| T6 Instate Other Class 6 | Diesel | 0.005566 | 0.279844 | 0.0428505 | 0.0096279 | 0.0031701 | 0.012 | 0.0448637 | 0.0600339 | 0.003033 | 0.003 | 0.0157023 | 0.0217353 | 1016.7371 | 0.0002585 | 0.1601874 | 28,438 | 0.089% |
| T6 Instate Other Class 6 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0224319 | 0.0344319 | 0 | 0.003 | 0.0078512 | 0.0108512 | 0 | 0 | 0 | 31,399 | 0.098% |
| T6 Instate Other Class 6 | Natural Gas | 0.0099606 | 0.0522803 | 2.6719038 | 0 | 0.0015553 | 0.012 | 0.0448637 | 0.0584191 | 0.0014301 | 0.003 | 0.0157023 | 0.0201324 | 877.20453 | 0.6971263 | 0.1788239 | 381 | 0.001% |
| T6 Instate Other Class 7 | Diesel | 0.0074317 | 0.4880791 | 0.0543921 | 0.0097581 | 0.0041265 | 0.012 | 0.0448637 | 0.0609903 | 0.003948 | 0.003 | 0.0157023 | 0.0226503 | 1030.4827 | 0.0003452 | 0.162353 | 22,177 | 0.069% |
| T6 Instate Other Class 7 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0224319 | 0.0344319 | 0 | 0.003 | 0.0078512 | 0.0108512 | 0 | 0 | 0 | 15,181 | 0.047% |
| T6 Instate Other Class 7 | Natural Gas | 0.0094782 | 0.0957212 | 2.7201941 | 0 | 0.0013039 | 0.012 | 0.0448637 | 0.0581677 | 0.0011989 | 0.003 | 0.0157023 | 0.0199012 | 897.02735 | 0.6633665 | 0.1828649 | 471 | 0.001% |
| T6 Instate Tractor Class 6 | Diesel | 0.0054278 | 0.2695972 | 0.0419187 | 0.0096482 | 0.003114 | 0.012 | 0.0448637 | 0.0599777 | 0.0029792 | 0.003 | 0.0157023 | 0.0216816 | 1018.879 | 0.0002521 | 0.1605248 | 302 | 0.001% |
| T6 Instate Tractor Class 6 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0224319 | 0.0344319 | 0 | 0.003 | 0.0078512 | 0.0108512 | 0 | 0 | 0 | 348 | 0.001% |
| T6 Instate Tractor Class 6 | Natural Gas | 0.0099615 | 0.0521973 | 2.6718281 | 0 | 0.0015558 | 0.012 | 0.0448637 | 0.0584196 | 0.0014305 | 0.003 | 0.0157023 | 0.0201328 | 878.52686 | 0.6971923 | 0.1790934 | 4 | 0.000% |
| T6 Instate Tractor Class 7 | Diesel | 0.0069236 | 0.4425969 | 0.051994 | 0.009013 | 0.0039106 | 0.012 | 0.0448637 | 0.0607744 | 0.0037414 | 0.003 | 0.0157023 | 0.0224438 | 951.79897 | 0.0003216 | 0.1499563 | 4,468 | 0.014% |
| T6 Instate Tractor Class 7 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0224319 | 0.0344319 | 0 | 0.003 | 0.0078512 | 0.0108512 | 0 | 0 | 0 | 941 | 0.003% |
| T6 Instate Tractor Class 7 | Natural Gas | 0.0094882 | 0.0948277 | 2.7192419 | 0 | 0.0013091 | 0.012 | 0.0448637 | 0.0581729 | 0.0012037 | 0.003 | 0.0157023 | 0.019906 | 880.62758 | 0.6640646 | 0.1795217 | 93 | 0.000% |
| T6 OOS Class 4 | Diesel | 0.0052592 | 0.2221693 | 0.0269357 | 0.00903 | 0.0055842 | 0.012 | 0.0423138 | 0.0598981 | 0.0053427 | 0.003 | 0.0148098 | 0.0231525 | 953.60201 | 0.0002443 | 0.1502404 | 78 | 0.000% |
| T6 OOS Class 5 | Diesel | 0.005282 | 0.2246809 | 0.0270241 | 0.0090375 | 0.0056053 | 0.012 | 0.0423138 | 0.0599191 | 0.0053628 | 0.003 | 0.0148098 | 0.0231727 | 954.3897 | 0.0002453 | 0.1503645 | 107 | 0.000% |
| T6 OOS Class 6 | Diesel | 0.0052307 | 0.2194254 | 0.0268172 | 0.00901 | 0.0055584 | 0.012 | 0.0423138 | 0.0598722 | 0.0053179 | 0.003 | 0.0148098 | 0.0231278 | 951.48303 | 0.000243 | 0.1499065 | 280 | 0.001% |
| T6 OOS Class 7 | Diesel | 0.005648 | 0.2318964 | 0.0289595 | 0.0081202 | 0.0058938 | 0.012 | 0.0423138 | 0.0602076 | 0.0056388 | 0.003 | 0.0148098 | 0.0234487 | 857.52126 | 0.0002623 | 0.1351028 | 2,033 | 0.006% |
| T6 Public Class 4 | Diesel | 0.0160276 | 0.6653429 | 0.0660734 | 0.0103401 | 0.0046987 | 0.012 | 0.0461694 | 0.0628681 | 0.0044954 | 0.003 | 0.0161593 | 0.0236547 | 1091.948 | 0.0007444 | 0.1720369 | 1,647 | 0.005% |
| T6 Public Class 4 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0230847 | 0.0350847 | 0 | 0.003 | 0.0080796 | 0.0110796 | 0 | 0 | 0 | 1,490 | 0.005% |
| T6 Public Class 4 | Natural Gas | 0.0126218 | 0.0581353 | 3.0578162 | 0 | 0.0017947 | 0.012 | 0.0461694 | 0.0599641 | 0.0016502 | 0.003 | 0.0161593 | 0.0208094 | 977.0832 | 0.8833823 | 0.1991848 | 110 | 0.000% |
| T6 Public Class 5 | Diesel | 0.0138665 | 0.5547852 | 0.0622835 | 0.010391 | 0.003897 | 0.012 | 0.0461694 | 0.0620664 | 0.0037284 | 0.003 | 0.0161593 | 0.0228877 | 1097.3277 | 0.0006441 | 0.1728844 | 3,050 | 0.009% |
| T6 Public Class 5 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0230847 | 0.0350847 | 0 | 0.003 | 0.0080796 | 0.0110796 | 0 | 0 | 0 | 2,758 | 0.009% |
| T6 Public Class 5 | Natural Gas | 0.0125564 | 0.0689268 | 3.0613735 | 0 | 0.0017435 | 0.012 | 0.0461694 | 0.0599129 | 0.001603 | 0.003 | 0.0161593 | 0.0207623 | 990.74354 | 0.8788037 | 0.2019696 | 228 | 0.001% |
| T6 Public Class 6 | Diesel | 0.0120489 | 0.511168 | 0.0571533 | 0.0103544 | 0.0037824 | 0.012 | 0.0461694 | 0.0619518 | 0.0036188 | 0.003 | 0.0161593 | 0.0227781 | 1093.4552 | 0.0005596 | 0.1722743 | 2,749 | 0.009% |
| T6 Public Class 6 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0230847 | 0.0350847 | 0 | 0.003 | 0.0080796 | 0.0110796 | 0 | 0 | 0 | 2,466 | 0.008% |
| T6 Public Class 6 | Natural Gas | 0.0125868 | 0.0639127 | 3.0597747 | 0 | 0.0017673 | 0.012 | 0.0461694 | 0.0599367 | 0.0016249 | 0.003 | 0.0161593 | 0.0207842 | 980.7937 | 0.8809317 | 0.1999412 | 189 | 0.001% |
| T6 Public Class 7 | Diesel | 0.0109851 | 0.4817364 | 0.0538311 | 0.0102023 | 0.0035772 | 0.012 | 0.0461694 | 0.0617466 | 0.0034225 | 0.003 | 0.0161593 | 0.0225818 | 1077.398 | 0.0005102 | 0.1697445 | 5,641 | 0.018% |
| T6 Public Class 7 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0230847 | 0.0350847 | 0 | 0.003 | 0.0080796 | 0.0110796 | 0 | 0 | 0 | 4,133 | 0.013% |
| T6 Public Class 7 | Natural Gas | 0.0125886 | 0.0636114 | 3.0598609 | 0 | 0.0017687 | 0.012 | 0.0461694 | 0.0599381 | 0.0016262 | 0.003 | 0.0161593 | 0.0207855 | 980.74549 | 0.8810616 | 0.1999314 | 398 | 0.001% |
| T6 Utility Class 5 | Diesel | 0.0050943 | 0.192546 | 0.035576 | 0.0096326 | 0.0023182 | 0.012 | 0.0454967 | 0.0598149 | 0.0022179 | 0.003 | 0.0159238 | 0.0211418 | 1017.2384 | 0.0002366 | 0.1602663 | 1,193 | 0.004% |
| T6 Utility Class 5 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0227484 | 0.0347484 | 0 | 0.003 | 0.0079619 | 0.0109619 | 0 | 0 | 0 | 1,710 | 0.005% |
| T6 Utility Class 5 | Natural Gas | 0.0111369 | 0.0541674 | 2.7453396 | 0 | 0.0016363 | 0.012 | 0.0454967 | 0.059133 | 0.0015045 | 0.003 | 0.0159238 | 0.0204284 | 915.65481 | 0.7794545 | 0.1866622 | 10 | 0.000% |
| T6 Utility Class 6 | Diesel | 0.0050952 | 0.1883103 | 0.0355821 | 0.0096331 | 0.002301 | 0.012 | 0.0454967 | 0.0597977 | 0.0022015 | 0.003 | 0.0159238 | 0.0211253 | 1017.2872 | 0.0002367 | 0.160274 | 226 | 0.001% |
| T6 Utility Class 6 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0227484 | 0.0347484 | 0 | 0.003 | 0.0079619 | 0.0109619 | 0 | 0 | 0 | 323 | 0.001% |
| T6 Utility Class 6 | Natural Gas | 0.0111369 | 0.0541674 | 2.7453396 | 0 | 0.0016363 | 0.012 | 0.0454967 | 0.059133 | 0.0015045 | 0.003 | 0.0159238 | 0.0204284 | 915.6688 | 0.7794545 | 0.1866651 | 2 | 0.000% |
| T6 Utility Class 7 | Diesel | 0.0050452 | 0.1834542 | 0.0352327 | 0.0096392 | 0.0022884 | 0.012 | 0.0454967 | 0.0597851 | 0.0021894 | 0.003 | 0.0159238 | 0.0211132 | 1017.9341 | 0.0002343 | 0.1603759 | 309 | 0.001% |
| T6 Utility Class 7 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0227484 | 0.0347484 | 0 | 0.003 | 0.0079619 | 0.0109619 | 0 | 0 | 0 | 454 | 0.001% |
| T6 Utility Class 7 | Natural Gas | 0.0111369 | 0.0541674 | 2.7453396 | 0 | 0.0016363 | 0.012 | 0.0454967 | 0.059133 | 0.0015045 | 0.003 | 0.0159238 | 0.0204284 | 915.67231 | 0.7794545 | 0.1866658 | 3 | 0.000% |
| T6TS | Gasoline | 0.0110763 | 0.0694032 | 0.1841074 | 0.0152225 | 0.0014928 | 0.012 | 0.0450174 | 0.0585102 | 0.0013726 | 0.003 | 0.0157561 | 0.0201287 | 1539.8019 | 0.0030193 | 0.0070168 | 25,161 | 0.078% |
| T6TS | Electricity | 0 | 0 | 0 | 0 | 0 | 0.012 | 0.0225087 | 0.0345087 | 0 | 0.003 | 0.0078781 | 0.0108781 | 0 | 0 | 0 | 28,960 | 0.090% |
| T7 CAIRP Class 8 | Diesel | 0.0114677 | 1.2072941 | 0.0388014 | 0.0121027 | 0.0299 | 0.036 | 0.0818327 | 0.1477327 | 0.0286066 | 0.009 | 0.0286414 | 0.066248 | 1278.0825 | 0.0005326 | 0.2013624 | 138,534 | 0.431% |
| T7 CAIRP Class 8 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.036 | 0.0409485 | 0.0769485 | 0 | 0.009 | 0.014332 | 0.023332 | 0 | 0 | 0 | 39,270 | 0.122% |
| T7 CAIRP Class 8 | Natural Gas | 0.0133626 | 0.1528523 | 2.8835663 | 0 | 0.0019662 | 0.036 | 0.0818259 | 0.1197921 | 0.0018078 | 0.009 | 0.0286391 | 0.0394469 | 1022.864 | 0.935233 | 0.2085175 | 254 | 0.001% |
| T7 NNOOS Class 8 | Diesel | 0.0111527 | 1.3309651 | 0.0377624 | 0.0115955 | 0.0295077 | 0.036 | 0.0818184 | 0.1473261 | 0.0282312 | 0.009 | 0.0286364 | 0.0658677 | 1224.5275 | 0.000518 | 0.1929248 | 211,410 | 0.658% |
| T7 NOOS Class 8 | Diesel | 0.0115072 | 1.3693581 | 0.0389311 | 0.0115877 | 0.0312467 | 0.036 | 0.0818402 | 0.1490869 | 0.029895 | 0.009 | 0.0286441 | 0.067539 | 1223.6993 | 0.0005345 | 0.1927943 | 76,819 | 0.239% |
| T7 Other Port Class 8 | Diesel | 0.0100333 | 1.2320039 | 0.0634813 | 0.0129867 | 0.0164234 | 0.036 | 0.0941574 | 0.1465807 | 0.0157129 | 0.009 | 0.0329551 | 0.057668 | 1371.4406 | 0.000466 | 0.216071 | 14,474 | 0.045% |
| T7 Other Port Class 8 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.036 | 0.0470787 | 0.0830787 | 0 | 0.009 | 0.0164775 | 0.0254775 | 0 | 0 | 0 | 3,660 | 0.011% |
| T7 POAK Class 8 | Diesel | 0.0102352 | 1.2810158 | 0.0647593 | 0.0129436 | 0.0171345 | 0.036 | 0.0941 | | | | | | | | | | |

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|--|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|--------|
| T7 Public Class 8 | Natural Gas | 0.0243831 | 0.2685858 | 8.0817303 | 0 | 0.0032879 | 0.036 | 0.1062516 | 0.1455396 | 0.0030231 | 0.009 | 0.0371881 | 0.0492112 | 1461.5566 | 1.706541 | 0.2979479 | 106 | 0.000% |
| T7 Single Concrete/Transit Mix Class 8 | Diesel | 0.008628 | 0.8048666 | 0.0436795 | 0.0137139 | 0.0137111 | 0.036 | 0.0886278 | 0.1383389 | 0.013118 | 0.009 | 0.0310197 | 0.0531377 | 1448.2351 | 0.0004007 | 0.22817 | 2,613 | 0.008% |
| T7 Single Concrete/Transit Mix Class 8 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.036 | 0.0443891 | 0.0803891 | 0 | 0.009 | 0.0155362 | 0.0245362 | 0 | 0 | 0 | 3,633 | 0.011% |
| T7 Single Concrete/Transit Mix Class 8 | Natural Gas | 0.015246 | 0.1639574 | 4.0448237 | 0 | 0.002255 | 0.036 | 0.0886293 | 0.1268844 | 0.0020734 | 0.009 | 0.0310203 | 0.0420937 | 1124.7242 | 1.0670505 | 0.2292824 | 161 | 0.001% |
| T7 Single Dump Class 8 | Diesel | 0.0105433 | 1.1094634 | 0.0569782 | 0.0141188 | 0.0175577 | 0.036 | 0.0869987 | 0.1405564 | 0.0167981 | 0.009 | 0.0304495 | 0.0562477 | 1490.9961 | 0.0004897 | 0.234907 | 18,391 | 0.057% |
| T7 Single Dump Class 8 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.036 | 0.0443695 | 0.0803695 | 0 | 0.009 | 0.0155293 | 0.0245293 | 0 | 0 | 0 | 16,441 | 0.051% |
| T7 Single Dump Class 8 | Natural Gas | 0.0152311 | 0.2000811 | 4.5296567 | 0 | 0.0021757 | 0.036 | 0.0869649 | 0.1251406 | 0.0020005 | 0.009 | 0.0304377 | 0.0414382 | 1152.8841 | 1.0660067 | 0.235023 | 1,137 | 0.004% |
| T7 Single Other Class 8 | Diesel | 0.0096894 | 1.0087904 | 0.0502156 | 0.0139609 | 0.0166123 | 0.036 | 0.0872983 | 0.1399107 | 0.0158937 | 0.009 | 0.0305544 | 0.0554481 | 1474.3125 | 0.00045 | 0.2322785 | 22,936 | 0.071% |
| T7 Single Other Class 8 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.036 | 0.0443738 | 0.0803738 | 0 | 0.009 | 0.0155308 | 0.0245308 | 0 | 0 | 0 | 22,563 | 0.070% |
| T7 Single Other Class 8 | Natural Gas | 0.015241 | 0.175851 | 4.2063555 | 0 | 0.0022287 | 0.036 | 0.0873358 | 0.1255644 | 0.0020492 | 0.009 | 0.0305675 | 0.0416167 | 1135.3124 | 1.0666967 | 0.2314409 | 1,403 | 0.004% |
| T7 SWCV Class 8 | Diesel | 0.03587 | 5.6393339 | 0.0923463 | 0.0374855 | 0.0149105 | 0.036 | 0.2100001 | 0.2609105 | 0.0142655 | 0.009 | 0.0735 | 0.0967655 | 3958.5925 | 0.0016661 | 0.6236779 | 1,867 | 0.006% |
| T7 SWCV Class 8 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.036 | 0.105 | 0.141 | 0 | 0.009 | 0.03675 | 0.04575 | 0 | 0 | 0 | 11,286 | 0.035% |
| T7 SWCV Class 8 | Natural Gas | 0.0133996 | 0.3485691 | 10.97397 | 0 | 0.0012249 | 0.036 | 0.2100001 | 0.247225 | 0.0011263 | 0.009 | 0.0735 | 0.0836263 | 1338.2669 | 0.7141486 | 0.2728145 | 15,575 | 0.048% |
| T7 Tractor Class 8 | Diesel | 0.0103114 | 1.1909537 | 0.0483514 | 0.0121155 | 0.0219952 | 0.036 | 0.0856966 | 0.1436919 | 0.0210437 | 0.009 | 0.0299938 | 0.0600376 | 1279.4315 | 0.0004789 | 0.2015749 | 127,449 | 0.397% |
| T7 Tractor Class 8 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.036 | 0.0432856 | 0.0792856 | 0 | 0.009 | 0.0151499 | 0.02415 | 0 | 0 | 0 | 26,092 | 0.081% |
| T7 Tractor Class 8 | Natural Gas | 0.0145704 | 0.1816585 | 3.9810527 | 0 | 0.0021165 | 0.036 | 0.0855105 | 0.1236271 | 0.0019461 | 0.009 | 0.0299287 | 0.0408748 | 1079.8052 | 1.0197621 | 0.2201253 | 11,110 | 0.035% |
| T7 Utility Class 8 | Diesel | 0.0111927 | 1.0682666 | 0.1023557 | 0.0146562 | 0.0072636 | 0.036 | 0.1010452 | 0.1443088 | 0.0069493 | 0.009 | 0.0353658 | 0.0513152 | 1547.7449 | 0.0005199 | 0.2438478 | 1,305 | 0.004% |
| T7 Utility Class 8 | Electricity | 0 | 0 | 0 | 0 | 0 | 0.036 | 0.0519352 | 0.0879352 | 0 | 0.009 | 0.0181773 | 0.0271773 | 0 | 0 | 0 | 995 | 0.003% |
| T7IS | Gasoline | 0.4406703 | 2.1906501 | 30.050889 | 0.017883 | 0.0015577 | 0.02 | 0.0965067 | 0.1180644 | 0.0014323 | 0.005 | 0.0337773 | 0.0402096 | 1808.9207 | 0.095236 | 0.1015766 | 87 | 0.000% |
| T7IS | Electricity | 0 | 0 | 0 | 0 | 0 | 0.02 | 0.0485262 | 0.0685262 | 0 | 0.005 | 0.0169842 | 0.0219842 | 0 | 0 | 0 | 93 | 0.000% |
| UBUS | Gasoline | 0.0030949 | 0.0149761 | 0.5694445 | 0.0084046 | 0.0013024 | 0.008 | 0.091 | 0.1003024 | 0.0011975 | 0.002 | 0.03185 | 0.0350475 | 850.15021 | 0.00114 | 0.0024992 | 2,864 | 0.009% |
| UBUS | Electricity | 0 | 0 | 0 | 0 | 0 | 0.0288654 | 0.055 | 0.0838654 | 0 | 0.0072163 | 0.01925 | 0.0264663 | 0 | 0 | 0 | 27,930 | 0.087% |
| TOTAL VMT | | | | | | | | | | | | | | | | | 32,117,502 | 100% |

| lbs/Mile | | | | | | | | | | | | | | |
|-----------|-----------|----------|-----------|------------|-----------|-----------|------------|-------------|------------|------------|--------------|-----------|-----------|-----------|
| ROG_RUNEX | NOx_RUNEX | CO_RUNEX | SOx_RUNEX | PM10_RUNEX | PM10_PMTW | PM10_PMBW | PM10_TOTAL | PM2.5_RUNEX | PM2.5_PMTW | PM2.5_PMBW | PM 2.5 Total | CO2_RUNEX | CH4_RUNEX | N2O_RUNEX |
| 1.06E-04 | 2.29E-03 | 3.87E-04 | 2.21E-05 | 2.93E-05 | 1.02E-04 | 2.93E-05 | 1.57E-04 | 6.61E-06 | 3.56E-05 | 2.80E-05 | 7.03E-05 | 2.33E+00 | 4.94E-06 | 3.67E-04 |
| 2.63E-05 | 2.34E-04 | 7.45E-03 | 0.00E+00 | 3.51E-06 | 1.02E-04 | 3.51E-06 | 1.32E-04 | 6.61E-06 | 3.56E-05 | 3.22E-06 | 4.54E-05 | 2.03E+00 | 1.84E-03 | 4.14E-04 |
| 6.17E-06 | 4.34E-05 | 1.01E-03 | 4.85E-06 | 1.09E-06 | 1.64E-05 | 1.09E-06 | 3.51E-05 | 4.41E-06 | 5.74E-06 | 1.00E-06 | 1.11E-05 | 4.91E-01 | 2.13E-06 | 7.07E-06 |
| 9.90E-06 | 4.09E-05 | 2.88E-04 | 3.81E-06 | 2.81E-06 | 1.65E-05 | 2.81E-06 | 3.69E-05 | 4.41E-06 | 5.76E-06 | 2.69E-06 | 1.29E-05 | 4.02E-01 | 4.60E-07 | 6.33E-05 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.69E-06 | 0.00E+00 | 2.73E-05 | 4.41E-06 | 3.39E-06 | 0.00E+00 | 7.80E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.48E-06 | 5.83E-06 | 3.81E-04 | 2.45E-06 | 4.47E-07 | 8.81E-06 | 4.47E-07 | 2.69E-05 | 4.41E-06 | 3.08E-06 | 4.11E-07 | 7.90E-06 | 2.48E-01 | 7.55E-07 | 9.84E-07 |
| 6.88E-06 | 4.76E-05 | 1.08E-03 | 5.63E-06 | 1.20E-06 | 1.95E-05 | 1.20E-06 | 3.83E-05 | 4.41E-06 | 6.82E-06 | 1.10E-06 | 1.23E-05 | 5.69E-01 | 2.32E-06 | 7.46E-06 |
| 2.55E-05 | 5.90E-05 | 2.67E-04 | 7.03E-06 | 9.01E-06 | 1.93E-05 | 9.01E-06 | 4.59E-05 | 4.41E-06 | 6.75E-06 | 8.62E-06 | 1.98E-05 | 7.42E-01 | 1.18E-06 | 1.17E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.69E-06 | 0.00E+00 | 2.73E-05 | 4.41E-06 | 3.39E-06 | 0.00E+00 | 7.80E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.47E-06 | 5.81E-06 | 3.80E-04 | 2.44E-06 | 4.30E-07 | 8.81E-06 | 4.30E-07 | 2.69E-05 | 4.41E-06 | 3.09E-06 | 3.95E-07 | 7.89E-06 | 2.47E-01 | 7.56E-07 | 9.90E-07 |
| 8.67E-06 | 5.07E-05 | 1.19E-03 | 5.84E-06 | 1.13E-06 | 1.93E-05 | 1.13E-06 | 3.81E-05 | 4.41E-06 | 6.76E-06 | 1.04E-06 | 1.22E-05 | 5.91E-01 | 2.87E-06 | 7.69E-06 |
| 2.55E-05 | 6.05E-05 | 2.69E-04 | 5.23E-06 | 9.06E-06 | 1.93E-05 | 9.06E-06 | 4.60E-05 | 4.41E-06 | 6.76E-06 | 8.67E-06 | 1.98E-05 | 5.52E-01 | 1.19E-06 | 8.70E-05 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.69E-06 | 0.00E+00 | 2.73E-05 | 4.41E-06 | 3.39E-06 | 0.00E+00 | 7.80E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.47E-06 | 5.82E-06 | 3.81E-04 | 2.45E-06 | 4.39E-07 | 8.81E-06 | 4.39E-07 | 2.69E-05 | 4.41E-06 | 3.08E-06 | 4.04E-07 | 7.90E-06 | 2.47E-01 | 7.56E-07 | 9.88E-07 |
| 9.33E-06 | 4.84E-05 | 1.31E-03 | 1.64E-05 | 2.81E-06 | 1.72E-04 | 2.81E-06 | 1.92E-04 | 4.41E-06 | 6.02E-05 | 2.58E-06 | 6.72E-05 | 1.66E+00 | 2.77E-06 | 4.10E-06 |
| 2.01E-04 | 6.66E-04 | 5.21E-04 | 1.26E-05 | 4.33E-05 | 1.72E-04 | 4.33E-05 | 2.42E-04 | 6.61E-06 | 6.02E-05 | 4.15E-05 | 1.08E-04 | 1.33E+00 | 9.36E-06 | 2.10E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.60E-05 | 0.00E+00 | 1.04E-04 | 4.41E-06 | 3.01E-05 | 0.00E+00 | 3.45E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7.94E-06 | 4.76E-05 | 1.33E-03 | 1.84E-05 | 2.77E-06 | 2.01E-04 | 2.77E-06 | 2.21E-04 | 4.41E-06 | 7.02E-05 | 2.55E-06 | 7.72E-05 | 1.86E+00 | 2.44E-06 | 4.80E-06 |
| 2.50E-04 | 9.50E-04 | 6.56E-04 | 1.48E-05 | 5.48E-05 | 2.01E-04 | 5.48E-05 | 2.82E-04 | 6.61E-06 | 7.02E-05 | 5.25E-05 | 1.29E-04 | 1.56E+00 | 1.16E-05 | 2.46E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.00E-04 | 0.00E+00 | 1.18E-04 | 4.41E-06 | 3.51E-05 | 0.00E+00 | 3.95E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.72E-03 | 1.04E-03 | 2.17E-02 | 4.03E-06 | 4.67E-06 | 2.65E-05 | 4.67E-06 | 3.99E-05 | 2.20E-06 | 9.26E-06 | 4.36E-06 | 1.58E-05 | 4.07E-01 | 2.89E-04 | 7.82E-05 |
| 9.93E-06 | 5.95E-05 | 1.26E-03 | 7.11E-06 | 1.17E-06 | 1.96E-05 | 1.17E-06 | 3.85E-05 | 4.41E-06 | 6.88E-06 | 1.08E-06 | 1.24E-05 | 7.20E-01 | 3.14E-06 | 8.20E-06 |
| 9.76E-06 | 2.59E-05 | 3.01E-04 | 6.87E-06 | 2.46E-06 | 1.97E-05 | 2.46E-06 | 3.98E-05 | 4.41E-06 | 6.91E-06 | 2.35E-06 | 1.37E-05 | 7.25E-01 | 4.53E-07 | 1.14E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.70E-06 | 0.00E+00 | 2.73E-05 | 4.41E-06 | 3.40E-06 | 0.00E+00 | 7.80E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.48E-06 | 5.82E-06 | 3.81E-04 | 2.45E-06 | 4.49E-07 | 8.82E-06 | 4.49E-07 | 2.69E-05 | 4.41E-06 | 3.09E-06 | 4.13E-07 | 7.91E-06 | 2.48E-01 | 7.53E-07 | 9.80E-07 |
| 2.53E-05 | 4.33E-04 | 3.49E-04 | 4.24E-05 | 3.25E-06 | 9.92E-05 | 3.25E-06 | 1.29E-04 | 6.61E-06 | 3.47E-05 | 2.99E-06 | 4.43E-05 | 4.29E+00 | 8.90E-06 | 4.00E-05 |
| 1.90E-04 | 5.68E-03 | 5.60E-04 | 2.27E-05 | 6.26E-05 | 9.87E-05 | 6.26E-05 | 1.97E-04 | 8.82E-06 | 3.46E-05 | 5.99E-05 | 1.03E-04 | 2.40E+00 | 8.83E-06 | 3.78E-04 |
| 2.32E-05 | 2.06E-03 | 7.92E-05 | 3.20E-05 | 5.22E-05 | 1.80E-04 | 5.22E-05 | 2.58E-04 | 6.61E-06 | 6.29E-05 | 4.99E-05 | 1.19E-04 | 3.38E+00 | 1.08E-06 | 5.32E-04 |
| 5.43E-05 | 6.12E-04 | 1.08E-03 | 3.35E-05 | 2.82E-06 | 9.88E-05 | 2.82E-06 | 1.28E-04 | 6.61E-06 | 3.46E-05 | 2.60E-06 | 4.38E-05 | 3.39E+00 | 1.21E-05 | 3.65E-05 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.94E-05 | 0.00E+00 | 7.58E-05 | 6.61E-06 | 1.73E-05 | 0.00E+00 | 2.39E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3.25E-05 | 5.65E-03 | 4.03E-04 | 3.65E-05 | 8.98E-06 | 0.00E+00 | 8.98E-06 | 8.98E-06 | 0.00E+00 | 0.00E+00 | 8.59E-06 | 8.59E-06 | 3.86E+00 | 1.51E-06 | 6.08E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.85E-05 | 2.85E-04 | 4.28E-04 | 1.61E-05 | 2.71E-06 | 9.90E-05 | 2.71E-06 | 1.19E-04 | 4.41E-06 | 3.47E-05 | 2.49E-06 | 4.16E-05 | 1.62E+00 | 4.40E-06 | 2.68E-05 |
| 1.74E-05 | 9.48E-04 | 1.28E-04 | 2.21E-05 | 7.96E-06 | 9.90E-05 | 7.96E-06 | 1.33E-04 | 6.61E-06 | 3.47E-05 | 7.62E-06 | 4.89E-05 | 2.33E+00 | 8.06E-07 | 3.67E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.95E-05 | 0.00E+00 | 7.29E-05 | 5.86E-06 | 1.73E-05 | 0.00E+00 | 2.32E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 8.47E-05 | 6.54E-04 | 1.79E-02 | 0.00E+00 | 8.10E-06 | 9.90E-05 | 8.10E-06 | 1.34E-04 | 6.61E-06 | 3.47E-05 | 7.45E-06 | 4.87E-05 | 2.49E+00 | 5.93E-03 | 5.07E-04 |
| 1.18E-05 | 3.93E-04 | 6.07E-05 | 2.12E-05 | 1.19E-05 | 9.33E-05 | 1.19E-05 | 1.32E-04 | 6.61E-06 | 3.26E-05 | 1.14E-05 | 5.07E-05 | 2.24E+00 | 5.50E-07 | 3.53E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.66E-05 | 0.00E+00 | 7.31E-05 | 6.61E-06 | 1.63E-05 | 0.00E+00 | 2.29E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.19E-05 | 3.96E-04 | 6.08E-05 | 2.12E-05 | 1.20E-05 | 9.33E-05 | 1.20E-05 | 1.32E-04 | 6.61E-06 | 3.26E-05 | 1.14E-05 | 5.07E-05 | 2.24E+00 | 5.52E-07 | 3.53E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.66E-05 | 0.00E+00 | 7.31E-05 | 6.61E-06 | 1.63E-05 | 0.00E+00 | 2.29E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.18E-05 | 3.94E-04 | 6.06E-05 | 2.12E-05 | 1.20E-05 | 9.33E-05 | 1.20E-05 | 1.32E-04 | 6.61E-06 | 3.26E-05 | 1.14E-05 | 5.07E-05 | 2.24E+00 | 5.49E-07 | 3.52E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.66E-05 | 0.00E+00 | 7.31E-05 | 6.61E-06 | 1.63E-05 | 0.00E+00 | 2.29E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.27E-05 | 4.31E-04 | 6.53E-05 | 1.87E-05 | 1.27E-05 | 9.33E-05 | 1.27E-05 | 1.32E-04 | 6.61E-06 | 3.26E-05 | 1.21E-05 | 5.14E-05 | 1.98E+00 | 5.91E-07 | 3.11E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.66E-05 | 0.00E+00 | 7.31E-05 | 6.61E-06 | 1.63E-05 | 0.00E+00 | 2.29E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.35E-05 | 8.15E-04 | 1.19E-04 | 2.19E-05 | 4.26E-06 | 1.05E-04 | 4.26E-06 | 1.36E-04 | 6.61E-06 | 3.67E-05 | 4.08E-06 | 4.74E-05 | 2.32E+00 | 6.28E-07 | 3.65E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.24E-05 | 0.00E+00 | 7.89E-05 | 6.61E-06 | 1.84E-05 | 0.00E+00 | 2.50E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.75E-05 | 1.33E-04 | 8.41E-03 | 0.00E+00 | 4.44E-06 | 1.05E-04 | 4.44E-06 | 1.36E-04 | 6.61E-06 | 3.67E-05 | 4.08E-06 | 4.74E-05 | 2.22E+00 | 1.92E-03 | 4.52E-04 |
| 1.35E-05 | 8.06E-04 | 1.18E-04 | 2.20E-05 | 4.25E-06 | 1.05E-04 | 4.25E-06 | 1.36E-04 | 6.61E-06 | 3.67E-05 | 4.06E-06 | 4.74E-05 | 2.32E+00 | 6.26E-07 | 3.66E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.24E-05 | 0.00E+00 | 7.89E-05 | 6.61E-06 | 1.84E-05 | 0.00E+00 | 2.50E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.75E-05 | 1.32E-04 | 8.42E-03 | 0.00E+00 | 4.44E-06 | 1.05E-04 | 4.44E-06 | 1.36E-04 | 6.61E-06 | 3.67E-05 | 4.08E-06 | 4.74E-05 | 2.22E+00 | 1.92E-03 | 4.52E-04 |
| 1.36E-05 | 8.19E-04 | 1.19E-04 | 2.19E-05 | 4.28E-06 | 1.05E-04 | 4.28E-06 | 1.36E-04 | 6.61E-06 | 3.67E-05 | 4.09E-06 | 4.74E-05 | 2.32E+00 | 6.32E-07 | 3.65E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.24E-05 | 0.00E+00 | 7.89E-05 | 6.61E-06 | 1.84E-05 | 0.00E+00 | 2.50E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

1.00E-06

| | | | | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 2.75E-05 | 1.34E-04 | 8.41E-03 | 0.00E+00 | 4.43E-06 | 1.05E-04 | 4.43E-06 | 1.36E-04 | 6.61E-06 | 3.67E-05 | 4.07E-06 | 4.74E-05 | 2.22E+00 | 1.92E-03 | 4.52E-04 |
| 2.40E-05 | 1.73E-03 | 1.80E-04 | 2.25E-05 | 6.54E-06 | 1.05E-04 | 6.54E-06 | 1.38E-04 | 6.61E-06 | 3.67E-05 | 6.26E-06 | 4.96E-05 | 2.37E+00 | 1.12E-06 | 3.74E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.24E-05 | 0.00E+00 | 7.89E-05 | 6.61E-06 | 1.84E-05 | 0.00E+00 | 2.50E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.59E-05 | 3.12E-04 | 8.00E-03 | 0.00E+00 | 3.42E-06 | 1.05E-04 | 3.42E-06 | 1.35E-04 | 6.61E-06 | 3.67E-05 | 3.15E-06 | 4.65E-05 | 2.28E+00 | 1.82E-03 | 4.65E-04 |
| 1.22E-05 | 6.10E-04 | 9.43E-05 | 2.12E-05 | 6.95E-06 | 9.89E-05 | 6.95E-06 | 1.32E-04 | 6.61E-06 | 3.46E-05 | 6.65E-06 | 4.79E-05 | 2.24E+00 | 5.66E-07 | 3.53E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.95E-05 | 0.00E+00 | 7.59E-05 | 6.61E-06 | 1.73E-05 | 0.00E+00 | 2.39E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.20E-05 | 1.15E-04 | 5.89E-03 | 0.00E+00 | 3.43E-06 | 9.89E-05 | 3.43E-06 | 1.29E-04 | 6.61E-06 | 3.46E-05 | 3.16E-06 | 4.44E-05 | 1.94E+00 | 1.54E-03 | 3.95E-04 |
| 1.23E-05 | 6.08E-04 | 9.43E-05 | 2.12E-05 | 6.96E-06 | 9.89E-05 | 6.96E-06 | 1.32E-04 | 6.61E-06 | 3.46E-05 | 6.65E-06 | 4.79E-05 | 2.24E+00 | 5.70E-07 | 3.53E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.95E-05 | 0.00E+00 | 7.59E-05 | 6.61E-06 | 1.73E-05 | 0.00E+00 | 2.39E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.20E-05 | 1.15E-04 | 5.89E-03 | 0.00E+00 | 3.43E-06 | 9.89E-05 | 3.43E-06 | 1.29E-04 | 6.61E-06 | 3.46E-05 | 3.15E-06 | 4.44E-05 | 1.93E+00 | 1.54E-03 | 3.94E-04 |
| 1.23E-05 | 6.17E-04 | 9.45E-05 | 2.12E-05 | 6.99E-06 | 9.89E-05 | 6.99E-06 | 1.32E-04 | 6.61E-06 | 3.46E-05 | 6.69E-06 | 4.79E-05 | 2.24E+00 | 5.70E-07 | 3.53E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.95E-05 | 0.00E+00 | 7.59E-05 | 6.61E-06 | 1.73E-05 | 0.00E+00 | 2.39E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.20E-05 | 1.15E-04 | 5.89E-03 | 0.00E+00 | 3.43E-06 | 9.89E-05 | 3.43E-06 | 1.29E-04 | 6.61E-06 | 3.46E-05 | 3.15E-06 | 4.44E-05 | 1.93E+00 | 1.54E-03 | 3.94E-04 |
| 1.64E-05 | 1.08E-03 | 1.20E-04 | 2.15E-05 | 9.10E-06 | 9.89E-05 | 9.10E-06 | 1.34E-04 | 6.61E-06 | 3.46E-05 | 8.70E-06 | 4.99E-05 | 2.27E+00 | 7.61E-07 | 3.58E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.95E-05 | 0.00E+00 | 7.59E-05 | 6.61E-06 | 1.73E-05 | 0.00E+00 | 2.39E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.09E-05 | 2.11E-04 | 6.00E-03 | 0.00E+00 | 2.87E-06 | 9.89E-05 | 2.87E-06 | 1.28E-04 | 6.61E-06 | 3.46E-05 | 2.64E-06 | 4.39E-05 | 1.98E+00 | 1.46E-03 | 4.03E-04 |
| 1.20E-05 | 5.94E-04 | 9.24E-05 | 2.13E-05 | 6.87E-06 | 9.89E-05 | 6.87E-06 | 1.32E-04 | 6.61E-06 | 3.46E-05 | 6.57E-06 | 4.78E-05 | 2.25E+00 | 5.56E-07 | 3.54E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.95E-05 | 0.00E+00 | 7.59E-05 | 6.61E-06 | 1.73E-05 | 0.00E+00 | 2.39E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.20E-05 | 1.15E-04 | 5.89E-03 | 0.00E+00 | 3.43E-06 | 9.89E-05 | 3.43E-06 | 1.29E-04 | 6.61E-06 | 3.46E-05 | 3.15E-06 | 4.44E-05 | 1.94E+00 | 1.54E-03 | 3.95E-04 |
| 1.53E-05 | 9.76E-04 | 1.15E-04 | 1.99E-05 | 8.62E-06 | 9.89E-05 | 8.62E-06 | 1.34E-04 | 6.61E-06 | 3.46E-05 | 8.25E-06 | 4.95E-05 | 2.10E+00 | 7.09E-07 | 3.31E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.95E-05 | 0.00E+00 | 7.59E-05 | 6.61E-06 | 1.73E-05 | 0.00E+00 | 2.39E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.09E-05 | 2.09E-04 | 5.99E-03 | 0.00E+00 | 2.89E-06 | 9.89E-05 | 2.89E-06 | 1.28E-04 | 6.61E-06 | 3.46E-05 | 2.65E-06 | 4.39E-05 | 1.94E+00 | 1.46E-03 | 3.96E-04 |
| 1.16E-05 | 4.90E-04 | 5.94E-05 | 1.99E-05 | 1.23E-05 | 9.33E-05 | 1.23E-05 | 1.32E-04 | 6.61E-06 | 3.26E-05 | 1.18E-05 | 5.10E-05 | 2.10E+00 | 5.39E-07 | 3.31E-04 |
| 1.16E-05 | 4.95E-04 | 5.96E-05 | 1.99E-05 | 1.24E-05 | 9.33E-05 | 1.24E-05 | 1.32E-04 | 6.61E-06 | 3.26E-05 | 1.18E-05 | 5.11E-05 | 2.10E+00 | 5.41E-07 | 3.31E-04 |
| 1.15E-05 | 4.84E-04 | 5.91E-05 | 1.99E-05 | 1.23E-05 | 9.33E-05 | 1.23E-05 | 1.32E-04 | 6.61E-06 | 3.26E-05 | 1.17E-05 | 5.10E-05 | 2.10E+00 | 5.36E-07 | 3.30E-04 |
| 1.25E-05 | 5.11E-04 | 6.38E-05 | 1.79E-05 | 1.30E-05 | 9.33E-05 | 1.30E-05 | 1.33E-04 | 6.61E-06 | 3.26E-05 | 1.24E-05 | 5.17E-05 | 1.89E+00 | 5.78E-07 | 2.98E-04 |
| 3.53E-05 | 1.47E-03 | 1.46E-04 | 2.28E-05 | 1.04E-05 | 1.02E-04 | 1.04E-05 | 1.39E-04 | 6.61E-06 | 3.56E-05 | 9.91E-06 | 5.21E-05 | 2.41E+00 | 1.64E-06 | 3.79E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.09E-05 | 0.00E+00 | 7.73E-05 | 6.61E-06 | 1.78E-05 | 0.00E+00 | 2.44E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.78E-05 | 1.28E-04 | 6.74E-03 | 0.00E+00 | 3.96E-06 | 1.02E-04 | 3.96E-06 | 1.32E-04 | 6.61E-06 | 3.56E-05 | 3.64E-06 | 4.59E-05 | 2.15E+00 | 1.95E-03 | 4.39E-04 |
| 3.06E-05 | 1.22E-03 | 1.37E-04 | 2.29E-05 | 8.59E-06 | 1.02E-04 | 8.59E-06 | 1.37E-04 | 6.61E-06 | 3.56E-05 | 8.22E-06 | 5.05E-05 | 2.42E+00 | 1.42E-06 | 3.81E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.09E-05 | 0.00E+00 | 7.73E-05 | 6.61E-06 | 1.78E-05 | 0.00E+00 | 2.44E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.77E-05 | 1.52E-04 | 6.75E-03 | 0.00E+00 | 3.84E-06 | 1.02E-04 | 3.84E-06 | 1.32E-04 | 6.61E-06 | 3.56E-05 | 3.53E-06 | 4.58E-05 | 2.18E+00 | 1.94E-03 | 4.45E-04 |
| 2.66E-05 | 1.13E-03 | 1.26E-04 | 2.28E-05 | 8.34E-06 | 1.02E-04 | 8.34E-06 | 1.37E-04 | 6.61E-06 | 3.56E-05 | 7.98E-06 | 5.02E-05 | 2.41E+00 | 1.23E-06 | 3.80E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.09E-05 | 0.00E+00 | 7.73E-05 | 6.61E-06 | 1.78E-05 | 0.00E+00 | 2.44E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.77E-05 | 1.41E-04 | 6.75E-03 | 0.00E+00 | 3.90E-06 | 1.02E-04 | 3.90E-06 | 1.32E-04 | 6.61E-06 | 3.56E-05 | 3.58E-06 | 4.58E-05 | 2.16E+00 | 1.94E-03 | 4.41E-04 |
| 2.42E-05 | 1.06E-03 | 1.19E-04 | 2.25E-05 | 7.89E-06 | 1.02E-04 | 7.89E-06 | 1.36E-04 | 6.61E-06 | 3.56E-05 | 7.55E-06 | 4.98E-05 | 2.38E+00 | 1.12E-06 | 3.74E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.09E-05 | 0.00E+00 | 7.73E-05 | 6.61E-06 | 1.78E-05 | 0.00E+00 | 2.44E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.78E-05 | 1.40E-04 | 6.75E-03 | 0.00E+00 | 3.90E-06 | 1.02E-04 | 3.90E-06 | 1.32E-04 | 6.61E-06 | 3.56E-05 | 3.59E-06 | 4.58E-05 | 2.16E+00 | 1.94E-03 | 4.41E-04 |
| 1.12E-05 | 4.24E-04 | 7.84E-05 | 2.12E-05 | 5.11E-06 | 1.00E-04 | 5.11E-06 | 1.32E-04 | 6.61E-06 | 3.51E-05 | 4.89E-06 | 4.66E-05 | 2.24E+00 | 5.22E-07 | 3.53E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.02E-05 | 0.00E+00 | 7.66E-05 | 6.61E-06 | 1.76E-05 | 0.00E+00 | 2.42E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.46E-05 | 1.19E-04 | 6.05E-03 | 0.00E+00 | 3.61E-06 | 1.00E-04 | 3.61E-06 | 1.30E-04 | 6.61E-06 | 3.51E-05 | 3.32E-06 | 4.50E-05 | 2.02E+00 | 1.72E-03 | 4.12E-04 |
| 1.12E-05 | 4.15E-04 | 7.84E-05 | 2.12E-05 | 5.07E-06 | 1.00E-04 | 5.07E-06 | 1.32E-04 | 6.61E-06 | 3.51E-05 | 4.85E-06 | 4.66E-05 | 2.24E+00 | 5.22E-07 | 3.53E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.02E-05 | 0.00E+00 | 7.66E-05 | 6.61E-06 | 1.76E-05 | 0.00E+00 | 2.42E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.46E-05 | 1.19E-04 | 6.05E-03 | 0.00E+00 | 3.61E-06 | 1.00E-04 | 3.61E-06 | 1.30E-04 | 6.61E-06 | 3.51E-05 | 3.32E-06 | 4.50E-05 | 2.02E+00 | 1.72E-03 | 4.12E-04 |
| 1.11E-05 | 4.04E-04 | 7.77E-05 | 2.13E-05 | 5.04E-06 | 1.00E-04 | 5.04E-06 | 1.32E-04 | 6.61E-06 | 3.51E-05 | 4.83E-06 | 4.65E-05 | 2.24E+00 | 5.17E-07 | 3.54E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.02E-05 | 0.00E+00 | 7.66E-05 | 6.61E-06 | 1.76E-05 | 0.00E+00 | 2.42E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.46E-05 | 1.19E-04 | 6.05E-03 | 0.00E+00 | 3.61E-06 | 1.00E-04 | 3.61E-06 | 1.30E-04 | 6.61E-06 | 3.51E-05 | 3.32E-06 | 4.50E-05 | 2.02E+00 | 1.72E-03 | 4.12E-04 |
| 2.44E-05 | 1.53E-04 | 4.06E-04 | 3.36E-05 | 3.29E-06 | 9.92E-05 | 3.29E-06 | 1.29E-04 | 6.61E-06 | 3.47E-05 | 3.03E-06 | 4.44E-05 | 3.39E+00 | 6.66E-06 | 1.55E-05 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.96E-05 | 0.00E+00 | 7.61E-05 | 6.61E-06 | 1.74E-05 | 0.00E+00 | 2.40E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.53E-05 | 2.66E-03 | 8.55E-05 | 2.67E-05 | 6.59E-05 | 1.80E-04 | 6.59E-05 | 3.26E-04 | 1.98E-05 | 6.31E-05 | 6.31E-05 | 1.46E-04 | 2.82E+00 | 1.17E-06 | 4.44E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.03E-05 | 0.00E+00 | 1.70E-04 | 1.98E-05 | 3.16E-05 | 0.00E+00 | 5.14E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.95E-05 | 3.37E-04 | 6.36E-03 | 0.00E+00 | 4.33E-06 | 1.80E-04 | 4.33E-06 | 2.64E-04 | 1.98E-05 | 6.31E-05 | 3.99E-06 | 8.70E-05 | 2.26E+00 | 2.06E-03 | 4.60E-04 |
| 2.46E-05 | 2.93E-03 | 8.33E-05 | 2.56E-05 | 6.51E-05 | 1.80E-04 | 6.51E-05 | 3.25E-04 | 1.98E-05 | 6.31E-05 | 6.22E-05 | 1.45E-04 | 2.70E+00 | 1.14E-06 | 4.25E-04 |
| 2.54E-05 | 3.02E-03 | 8.58E-05 | 2.55E-05 | 6.89E-05 | 1.80E-04 | 6.89E-05 | 3.29E-04 | 1.98E-05 | 6.31E-05 | 6.59E-05 | 1.49E-04 | 2.70E+00 | 1.18E-06 | 4.25E-04 |
| 2.21E-05 | 2.72E-03 | 1.40E-04 | 2.86E-05 | 3.62E-05 | 2.08E-04 | 3.62E-05 | 3.23E-04 | 1.98E-05 | 7.27E-05 | 3.46E-05 | 1.27E-04 | 3.02E+00 | 1.03E-06 | 4.76E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.04E-04 | 0.00E+00 | 1.83E-04 | 1.98E-05 | 3.63E-05 | 0.00E+00 | 5.62E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.26E-05 | 2.82E-03 | 1.43E-04 | 2.85E-05 | 3.78E-05 | 2.08E-04 | 3.78E-05 | 3.25E-04 | 1.98E-05 | 7.27E-05 | 3.61E-05 | 1.29E-04 | 3.01E+00 | 1.05E-06 | 4.75E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.04E-04 | 0.00E+00 | 1.83E-04 | 1.98E-05 | 3.63E-05 | 0.00E+00 | 5.62E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3.70E-05 | 3.81E-04 | 1.10E-02 | 0.00E+00 | 5.57E-06 | 2.08E-04 | 5.57E-06 | 2.93E-04 | 1.98E-05 | 7.27E-05 | 5.12E-06 | 9.76E-05 | 2.54E+00 | 2.59E-03 | 5.18E-04 |
| 6.66E-05 | 4.57E-03 | 3.33E-04 | 3.38E-05 | 2.35E-05 | 2.37E-04 | 2.35E-05 | 3.40E-04 | 1.98E-05 | 8.28E-05 | 2.25E-05 | 1.25E-04 | 3.57E+00 | 3.09E-06 | 5.63E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-04 | 0.00E+00 | 1.99E-04 | 1.98E-05 | 4.19E-05 | 0.00E+00 | 6.17E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| | | | | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 5.38E-05 | 5.92E-04 | 1.78E-02 | 0.00E+00 | 7.25E-06 | 2.34E-04 | 7.25E-06 | 3.21E-04 | 1.98E-05 | 8.20E-05 | 6.66E-06 | 1.08E-04 | 3.22E+00 | 3.76E-03 | 6.57E-04 |
| 1.90E-05 | 1.77E-03 | 9.63E-05 | 3.02E-05 | 3.02E-05 | 1.95E-04 | 3.02E-05 | 3.05E-04 | 1.98E-05 | 6.84E-05 | 2.89E-05 | 1.17E-04 | 3.19E+00 | 8.83E-07 | 5.03E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.79E-05 | 0.00E+00 | 1.77E-04 | 1.98E-05 | 3.43E-05 | 0.00E+00 | 5.41E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3.36E-05 | 3.61E-04 | 8.92E-03 | 0.00E+00 | 4.97E-06 | 1.95E-04 | 4.97E-06 | 2.80E-04 | 1.98E-05 | 6.84E-05 | 4.57E-06 | 9.28E-05 | 2.48E+00 | 2.35E-03 | 5.05E-04 |
| 2.32E-05 | 2.45E-03 | 1.26E-04 | 3.11E-05 | 3.87E-05 | 1.92E-04 | 3.87E-05 | 3.10E-04 | 1.98E-05 | 6.71E-05 | 3.70E-05 | 1.24E-04 | 3.29E+00 | 1.08E-06 | 5.18E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.78E-05 | 0.00E+00 | 1.77E-04 | 1.98E-05 | 3.42E-05 | 0.00E+00 | 5.41E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3.36E-05 | 4.41E-04 | 9.99E-03 | 0.00E+00 | 4.80E-06 | 1.92E-04 | 4.80E-06 | 2.76E-04 | 1.98E-05 | 6.71E-05 | 4.41E-06 | 9.14E-05 | 2.54E+00 | 2.35E-03 | 5.18E-04 |
| 2.14E-05 | 2.22E-03 | 1.11E-04 | 3.08E-05 | 3.66E-05 | 1.92E-04 | 3.66E-05 | 3.08E-04 | 1.98E-05 | 6.74E-05 | 3.50E-05 | 1.22E-04 | 3.25E+00 | 9.92E-07 | 5.12E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.78E-05 | 0.00E+00 | 1.77E-04 | 1.98E-05 | 3.42E-05 | 0.00E+00 | 5.41E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3.36E-05 | 3.88E-04 | 9.27E-03 | 0.00E+00 | 4.91E-06 | 1.93E-04 | 4.91E-06 | 2.77E-04 | 1.98E-05 | 6.74E-05 | 4.52E-06 | 9.17E-05 | 2.50E+00 | 2.35E-03 | 5.10E-04 |
| 7.91E-05 | 1.24E-02 | 2.04E-04 | 8.26E-05 | 3.29E-05 | 4.63E-04 | 3.29E-05 | 5.75E-04 | 1.98E-05 | 1.62E-04 | 3.14E-05 | 2.13E-04 | 8.73E+00 | 3.67E-06 | 1.37E-03 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.31E-04 | 0.00E+00 | 3.11E-04 | 1.98E-05 | 8.10E-05 | 0.00E+00 | 1.01E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2.95E-05 | 7.68E-04 | 2.42E-02 | 0.00E+00 | 2.70E-06 | 4.63E-04 | 2.70E-06 | 5.45E-04 | 1.98E-05 | 1.62E-04 | 2.48E-06 | 1.84E-04 | 2.95E+00 | 1.57E-03 | 6.01E-04 |
| 2.27E-05 | 2.63E-03 | 1.07E-04 | 2.67E-05 | 4.85E-05 | 1.89E-04 | 4.85E-05 | 3.17E-04 | 1.98E-05 | 6.61E-05 | 4.64E-05 | 1.32E-04 | 2.82E+00 | 1.06E-06 | 4.44E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.54E-05 | 0.00E+00 | 1.75E-04 | 1.98E-05 | 3.34E-05 | 0.00E+00 | 5.32E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3.21E-05 | 4.00E-04 | 8.78E-03 | 0.00E+00 | 4.67E-06 | 1.89E-04 | 4.67E-06 | 2.73E-04 | 1.98E-05 | 6.60E-05 | 4.29E-06 | 9.01E-05 | 2.38E+00 | 2.25E-03 | 4.85E-04 |
| 2.47E-05 | 2.36E-03 | 2.26E-04 | 3.23E-05 | 1.60E-05 | 2.23E-04 | 1.60E-05 | 3.18E-04 | 1.98E-05 | 7.80E-05 | 1.53E-05 | 1.13E-04 | 3.41E+00 | 1.15E-06 | 5.38E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.14E-04 | 0.00E+00 | 1.94E-04 | 1.98E-05 | 4.01E-05 | 0.00E+00 | 5.99E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 9.72E-04 | 4.83E-03 | 6.63E-02 | 3.94E-05 | 3.43E-06 | 2.13E-04 | 3.43E-06 | 2.60E-04 | 1.10E-05 | 7.45E-05 | 3.16E-06 | 8.86E-05 | 3.99E+00 | 2.10E-04 | 2.24E-04 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.07E-04 | 0.00E+00 | 1.51E-04 | 1.10E-05 | 3.74E-05 | 0.00E+00 | 4.85E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 6.82E-06 | 3.30E-05 | 1.26E-03 | 1.85E-05 | 2.87E-06 | 2.01E-04 | 2.87E-06 | 2.21E-04 | 4.41E-06 | 7.02E-05 | 2.64E-06 | 7.73E-05 | 1.87E+00 | 2.51E-06 | 5.51E-06 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.21E-04 | 0.00E+00 | 1.85E-04 | 1.59E-05 | 4.24E-05 | 0.00E+00 | 5.83E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| MTens/Mile | | | | | | | | | | | | | | |
|------------|-----------|----------|-----------|------------|-----------|-----------|------------|-------------|------------|------------|--------------|-----------|-----------|-----------|
| ROG_RUNEX | NOx_RUNEX | CO_RUNEX | SOx_RUNEX | PM10_RUNEX | PM10_PMTW | PM10_PMBW | PM10_TOTAL | PM2.5_RUNEX | PM2.5_PMTW | PM2.5_PMBW | PM 2.5 Total | CO2_RUNEX | CH4_RUNEX | N2O_RUNEX |
| 4.82E-08 | 1.04E-06 | 1.75E-07 | 1.00E-08 | 1.20E-08 | 4.61E-08 | 1.33E-08 | 7.14E-08 | 3.00E-09 | 1.61E-08 | 1.27E-08 | 3.19E-08 | 1.06E-03 | 2.24E-09 | 1.66E-07 |
| 1.19E-08 | 1.06E-07 | 3.38E-06 | 0.00E+00 | 1.20E-08 | 4.61E-08 | 1.59E-09 | 5.97E-08 | 3.00E-09 | 1.61E-08 | 1.46E-09 | 2.06E-08 | 9.21E-04 | 8.36E-07 | 1.88E-07 |
| 2.80E-09 | 1.97E-08 | 4.59E-07 | 2.20E-09 | 8.00E-09 | 7.43E-09 | 4.94E-10 | 1.59E-08 | 2.00E-09 | 2.60E-09 | 4.54E-10 | 5.06E-09 | 2.23E-04 | 9.65E-10 | 3.21E-09 |
| 4.49E-09 | 1.86E-08 | 1.31E-07 | 1.73E-09 | 8.00E-09 | 7.46E-09 | 1.28E-09 | 1.67E-08 | 2.00E-09 | 2.61E-09 | 1.22E-09 | 5.83E-09 | 1.82E-04 | 2.09E-10 | 2.87E-08 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.00E-09 | 4.39E-09 | 0.00E+00 | 1.24E-08 | 2.00E-09 | 1.54E-09 | 0.00E+00 | 3.54E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.12E-09 | 2.64E-09 | 1.73E-07 | 1.11E-09 | 8.00E-09 | 4.00E-09 | 2.03E-10 | 1.22E-08 | 2.00E-09 | 1.40E-09 | 1.86E-10 | 3.58E-09 | 1.12E-04 | 3.42E-10 | 4.46E-10 |
| 3.12E-09 | 2.16E-08 | 4.92E-07 | 2.55E-09 | 8.00E-09 | 8.83E-09 | 5.45E-10 | 1.74E-08 | 2.00E-09 | 3.09E-09 | 5.01E-10 | 5.59E-09 | 2.58E-04 | 1.05E-09 | 3.38E-09 |
| 1.15E-08 | 2.68E-08 | 1.21E-07 | 3.19E-09 | 8.00E-09 | 8.75E-09 | 4.09E-09 | 2.08E-08 | 2.00E-09 | 3.06E-09 | 3.91E-09 | 8.98E-09 | 3.37E-04 | 5.36E-10 | 5.30E-08 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.00E-09 | 4.39E-09 | 0.00E+00 | 1.24E-08 | 2.00E-09 | 1.54E-09 | 0.00E+00 | 3.54E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.12E-09 | 2.63E-09 | 1.72E-07 | 1.11E-09 | 8.00E-09 | 4.00E-09 | 1.95E-10 | 1.22E-08 | 2.00E-09 | 1.40E-09 | 1.79E-10 | 3.58E-09 | 1.12E-04 | 3.43E-10 | 4.49E-10 |
| 3.93E-09 | 2.30E-08 | 5.42E-07 | 2.65E-09 | 8.00E-09 | 8.76E-09 | 5.14E-10 | 1.73E-08 | 2.00E-09 | 3.07E-09 | 4.72E-10 | 5.54E-09 | 2.68E-04 | 1.30E-09 | 3.49E-09 |
| 1.16E-08 | 2.74E-08 | 1.22E-07 | 2.37E-09 | 8.00E-09 | 8.76E-09 | 4.11E-09 | 2.09E-08 | 2.00E-09 | 3.07E-09 | 3.93E-09 | 9.00E-09 | 2.51E-04 | 5.38E-10 | 3.95E-08 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.00E-09 | 4.39E-09 | 0.00E+00 | 1.24E-08 | 2.00E-09 | 1.54E-09 | 0.00E+00 | 3.54E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.12E-09 | 2.64E-09 | 1.73E-07 | 1.11E-09 | 8.00E-09 | 4.00E-09 | 1.99E-10 | 1.22E-08 | 2.00E-09 | 1.40E-09 | 1.83E-10 | 3.58E-09 | 1.12E-04 | 3.43E-10 | 4.48E-10 |
| 4.23E-09 | 2.20E-08 | 5.94E-07 | 7.45E-09 | 8.00E-09 | 7.80E-08 | 1.27E-09 | 8.73E-08 | 2.00E-09 | 2.73E-08 | 1.17E-09 | 3.05E-08 | 7.54E-04 | 1.26E-09 | 1.86E-09 |
| 9.14E-08 | 3.02E-07 | 2.36E-07 | 5.73E-09 | 1.20E-08 | 7.80E-08 | 1.97E-08 | 1.10E-07 | 3.00E-09 | 2.73E-08 | 1.88E-08 | 4.91E-08 | 6.05E-04 | 4.24E-09 | 9.53E-08 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.00E-09 | 3.90E-08 | 0.00E+00 | 4.70E-08 | 2.00E-09 | 1.37E-08 | 0.00E+00 | 1.57E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3.60E-09 | 2.16E-08 | 6.03E-07 | 8.36E-09 | 8.00E-09 | 9.10E-08 | 1.26E-09 | 1.00E-07 | 2.00E-09 | 3.19E-08 | 1.16E-09 | 3.50E-08 | 8.45E-04 | 1.11E-09 | 2.18E-09 |
| 1.13E-07 | 4.31E-07 | 2.98E-07 | 6.70E-09 | 1.20E-08 | 9.10E-08 | 2.49E-08 | 1.28E-07 | 3.00E-09 | 3.19E-08 | 2.38E-08 | 5.86E-08 | 7.07E-04 | 5.26E-09 | 1.11E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.00E-09 | 4.55E-08 | 0.00E+00 | 5.35E-08 | 2.00E-09 | 1.59E-08 | 0.00E+00 | 1.79E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 7.80E-07 | 4.71E-07 | 9.83E-06 | 1.83E-09 | 4.00E-09 | 1.20E-08 | 2.12E-09 | 1.81E-08 | 1.00E-09 | 4.20E-09 | 1.98E-09 | 7.18E-09 | 1.85E-04 | 1.31E-07 | 3.55E-08 |
| 4.50E-09 | 2.70E-08 | 5.74E-07 | 3.23E-09 | 8.00E-09 | 8.91E-09 | 5.31E-10 | 1.74E-08 | 2.00E-09 | 3.12E-09 | 4.88E-10 | 5.61E-09 | 3.26E-04 | 1.43E-09 | 3.72E-09 |
| 4.43E-09 | 1.17E-08 | 1.37E-07 | 3.12E-09 | 8.00E-09 | 8.95E-09 | 1.11E-09 | 1.81E-08 | 2.00E-09 | 3.13E-09 | 1.07E-09 | 6.20E-09 | 3.29E-04 | 2.06E-10 | 5.18E-08 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.00E-09 | 4.40E-09 | 0.00E+00 | 1.24E-08 | 2.00E-09 | 1.54E-09 | 0.00E+00 | 3.54E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.12E-09 | 2.64E-09 | 1.73E-07 | 1.11E-09 | 8.00E-09 | 4.00E-09 | 2.04E-10 | 1.22E-08 | 2.00E-09 | 1.40E-09 | 1.87E-10 | 3.59E-09 | 1.12E-04 | 3.42E-10 | 4.44E-10 |
| 1.15E-08 | 1.96E-07 | 1.59E-07 | 1.92E-08 | 1.20E-08 | 4.50E-08 | 1.47E-09 | 5.85E-08 | 3.00E-09 | 1.58E-08 | 1.35E-09 | 2.01E-08 | 1.94E-03 | 4.04E-09 | 1.81E-08 |
| 8.62E-08 | 2.58E-06 | 2.54E-07 | 1.03E-08 | 1.60E-08 | 4.48E-08 | 2.84E-08 | 8.92E-08 | 4.00E-09 | 1.57E-08 | 2.72E-08 | 4.68E-08 | 1.09E-03 | 4.00E-09 | 1.71E-07 |
| 1.05E-08 | 9.33E-07 | 3.59E-08 | 1.45E-08 | 1.20E-08 | 8.15E-08 | 2.37E-08 | 1.17E-07 | 3.00E-09 | 2.85E-08 | 2.26E-08 | 5.42E-08 | 1.53E-03 | 4.89E-10 | 2.41E-07 |
| 2.46E-08 | 2.78E-07 | 4.90E-07 | 1.52E-08 | 1.20E-08 | 4.48E-08 | 1.28E-09 | 5.81E-08 | 3.00E-09 | 1.57E-08 | 1.18E-09 | 1.99E-08 | 1.54E-03 | 5.50E-09 | 1.66E-08 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.24E-08 | 0.00E+00 | 3.44E-08 | 3.00E-09 | 7.84E-09 | 0.00E+00 | 1.08E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.48E-08 | 2.56E-06 | 1.83E-07 | 1.66E-08 | 0.00E+00 | 0.00E+00 | 4.07E-09 | 4.07E-09 | 0.00E+00 | 0.00E+00 | 3.90E-09 | 3.90E-09 | 1.75E-03 | 6.86E-10 | 2.76E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 8.38E-09 | 1.29E-07 | 1.94E-07 | 7.29E-09 | 8.00E-09 | 4.49E-08 | 1.23E-09 | 5.41E-08 | 2.00E-09 | 1.57E-08 | 1.13E-09 | 1.89E-08 | 7.37E-04 | 1.99E-09 | 1.22E-08 |
| 7.87E-09 | 4.30E-07 | 5.81E-08 | 1.00E-08 | 1.20E-08 | 4.49E-08 | 3.61E-09 | 6.05E-08 | 3.00E-09 | 1.57E-08 | 3.46E-09 | 2.22E-08 | 1.06E-03 | 3.66E-10 | 1.66E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.06E-08 | 2.25E-08 | 0.00E+00 | 3.31E-08 | 2.66E-09 | 7.86E-09 | 0.00E+00 | 1.05E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3.84E-08 | 2.96E-07 | 8.14E-06 | 0.00E+00 | 1.20E-08 | 4.49E-08 | 3.67E-09 | 6.06E-08 | 3.00E-09 | 1.57E-08 | 3.38E-09 | 2.21E-08 | 1.13E-03 | 2.69E-06 | 2.30E-07 |
| 5.37E-09 | 1.78E-07 | 2.75E-08 | 9.62E-09 | 1.20E-08 | 4.23E-08 | 5.41E-09 | 5.97E-08 | 3.00E-09 | 1.48E-08 | 5.18E-09 | 2.30E-08 | 1.02E-03 | 2.50E-10 | 1.60E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.12E-08 | 0.00E+00 | 3.32E-08 | 3.00E-09 | 7.40E-09 | 0.00E+00 | 1.04E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 5.39E-09 | 1.80E-07 | 2.76E-08 | 9.62E-09 | 1.20E-08 | 4.23E-08 | 5.42E-09 | 5.97E-08 | 3.00E-09 | 1.48E-08 | 5.19E-09 | 2.30E-08 | 1.02E-03 | 2.50E-10 | 1.60E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.12E-08 | 0.00E+00 | 3.32E-08 | 3.00E-09 | 7.40E-09 | 0.00E+00 | 1.04E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 5.36E-09 | 1.79E-07 | 2.75E-08 | 9.61E-09 | 1.20E-08 | 4.23E-08 | 5.43E-09 | 5.97E-08 | 3.00E-09 | 1.48E-08 | 5.19E-09 | 2.30E-08 | 1.01E-03 | 2.49E-10 | 1.60E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.12E-08 | 0.00E+00 | 3.32E-08 | 3.00E-09 | 7.40E-09 | 0.00E+00 | 1.04E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 5.77E-09 | 1.95E-07 | 2.96E-08 | 8.49E-09 | 1.20E-08 | 4.23E-08 | 5.75E-09 | 6.01E-08 | 3.00E-09 | 1.48E-08 | 5.50E-09 | 2.33E-08 | 8.96E-04 | 2.68E-10 | 1.41E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.12E-08 | 0.00E+00 | 3.32E-08 | 3.00E-09 | 7.40E-09 | 0.00E+00 | 1.04E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 6.14E-09 | 3.70E-07 | 5.40E-08 | 9.95E-09 | 1.20E-08 | 4.76E-08 | 1.93E-09 | 6.15E-08 | 3.00E-09 | 1.66E-08 | 1.85E-09 | 2.15E-08 | 1.05E-03 | 2.85E-10 | 1.65E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.38E-08 | 0.00E+00 | 3.58E-08 | 3.00E-09 | 8.32E-09 | 0.00E+00 | 1.13E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.25E-08 | 6.03E-08 | 3.82E-06 | 0.00E+00 | 1.20E-08 | 4.76E-08 | 2.01E-09 | 6.16E-08 | 3.00E-09 | 1.66E-08 | 1.85E-09 | 2.15E-08 | 1.01E-03 | 8.73E-07 | 2.05E-07 |
| 6.12E-09 | 3.65E-07 | 5.37E-08 | 9.97E-09 | 1.20E-08 | 4.76E-08 | 1.93E-09 | 6.15E-08 | 3.00E-09 | 1.66E-08 | 1.84E-09 | 2.15E-08 | 1.05E-03 | 2.84E-10 | 1.66E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.38E-08 | 0.00E+00 | 3.58E-08 | 3.00E-09 | 8.32E-09 | 0.00E+00 | 1.13E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.25E-08 | 6.01E-08 | 3.82E-06 | 0.00E+00 | 1.20E-08 | 4.76E-08 | 2.02E-09 | 6.16E-08 | 3.00E-09 | 1.66E-08 | 1.85E-09 | 2.15E-08 | 1.01E-03 | 8.73E-07 | 2.05E-07 |
| 6.17E-09 | 3.71E-07 | 5.40E-08 | 9.96E-09 | 1.20E-08 | 4.76E-08 | 1.94E-09 | 6.15E-08 | 3.00E-09 | 1.66E-08 | 1.86E-09 | 2.15E-08 | 1.05E-03 | 2.87E-10 | 1.66E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.38E-08 | 0.00E+00 | 3.58E-08 | 3.00E-09 | 8.32E-09 | 0.00E+00 | 1.13E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

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|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1.25E-08 | 6.09E-08 | 3.82E-06 | 0.00E+00 | 1.20E-08 | 4.76E-08 | 2.01E-09 | 6.16E-08 | 3.00E-09 | 1.66E-08 | 1.85E-09 | 2.15E-08 | 1.01E-03 | 8.72E-07 | 2.05E-07 |
| 1.09E-08 | 7.86E-07 | 8.16E-08 | 1.02E-08 | 1.20E-08 | 4.76E-08 | 2.97E-09 | 6.25E-08 | 3.00E-09 | 1.66E-08 | 2.84E-09 | 2.25E-08 | 1.08E-03 | 5.06E-10 | 1.70E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.38E-08 | 0.00E+00 | 3.58E-08 | 3.00E-09 | 8.32E-09 | 0.00E+00 | 1.13E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.18E-08 | 1.41E-07 | 3.63E-06 | 0.00E+00 | 1.20E-08 | 4.76E-08 | 1.55E-09 | 6.11E-08 | 3.00E-09 | 1.66E-08 | 1.43E-09 | 2.11E-08 | 1.03E-03 | 8.24E-07 | 2.11E-07 |
| 5.53E-09 | 2.77E-07 | 4.28E-08 | 9.62E-09 | 1.20E-08 | 4.49E-08 | 3.15E-09 | 6.00E-08 | 3.00E-09 | 1.57E-08 | 3.02E-09 | 2.17E-08 | 1.02E-03 | 2.57E-10 | 1.60E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.24E-08 | 0.00E+00 | 3.44E-08 | 3.00E-09 | 7.85E-09 | 0.00E+00 | 1.09E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 9.96E-09 | 5.21E-08 | 2.67E-06 | 0.00E+00 | 1.20E-08 | 4.49E-08 | 1.56E-09 | 5.84E-08 | 3.00E-09 | 1.57E-08 | 1.43E-09 | 2.01E-08 | 8.78E-04 | 6.97E-07 | 1.79E-07 |
| 5.57E-09 | 2.76E-07 | 4.28E-08 | 9.63E-09 | 1.20E-08 | 4.49E-08 | 3.16E-09 | 6.00E-08 | 3.00E-09 | 1.57E-08 | 3.02E-09 | 2.17E-08 | 1.02E-03 | 2.59E-10 | 1.60E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.24E-08 | 0.00E+00 | 3.44E-08 | 3.00E-09 | 7.85E-09 | 0.00E+00 | 1.09E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 9.96E-09 | 5.24E-08 | 2.67E-06 | 0.00E+00 | 1.20E-08 | 4.49E-08 | 1.55E-09 | 5.84E-08 | 3.00E-09 | 1.57E-08 | 1.43E-09 | 2.01E-08 | 8.77E-04 | 6.97E-07 | 1.79E-07 |
| 5.57E-09 | 2.80E-07 | 4.29E-08 | 9.63E-09 | 1.20E-08 | 4.49E-08 | 3.17E-09 | 6.00E-08 | 3.00E-09 | 1.57E-08 | 3.03E-09 | 2.17E-08 | 1.02E-03 | 2.59E-10 | 1.60E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.24E-08 | 0.00E+00 | 3.44E-08 | 3.00E-09 | 7.85E-09 | 0.00E+00 | 1.09E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 9.96E-09 | 5.23E-08 | 2.67E-06 | 0.00E+00 | 1.20E-08 | 4.49E-08 | 1.56E-09 | 5.84E-08 | 3.00E-09 | 1.57E-08 | 1.43E-09 | 2.01E-08 | 8.77E-04 | 6.97E-07 | 1.79E-07 |
| 7.43E-09 | 4.88E-07 | 5.44E-08 | 9.76E-09 | 1.20E-08 | 4.49E-08 | 4.13E-09 | 6.10E-08 | 3.00E-09 | 1.57E-08 | 3.95E-09 | 2.27E-08 | 1.03E-03 | 3.45E-10 | 1.62E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.24E-08 | 0.00E+00 | 3.44E-08 | 3.00E-09 | 7.85E-09 | 0.00E+00 | 1.09E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 9.48E-09 | 9.57E-08 | 2.72E-06 | 0.00E+00 | 1.20E-08 | 4.49E-08 | 1.30E-09 | 5.82E-08 | 3.00E-09 | 1.57E-08 | 1.20E-09 | 1.99E-08 | 8.97E-04 | 6.63E-07 | 1.83E-07 |
| 5.43E-09 | 2.70E-07 | 4.19E-08 | 9.65E-09 | 1.20E-08 | 4.49E-08 | 3.11E-09 | 6.00E-08 | 3.00E-09 | 1.57E-08 | 2.98E-09 | 2.17E-08 | 1.02E-03 | 2.52E-10 | 1.61E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.24E-08 | 0.00E+00 | 3.44E-08 | 3.00E-09 | 7.85E-09 | 0.00E+00 | 1.09E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 9.96E-09 | 5.22E-08 | 2.67E-06 | 0.00E+00 | 1.20E-08 | 4.49E-08 | 1.56E-09 | 5.84E-08 | 3.00E-09 | 1.57E-08 | 1.43E-09 | 2.01E-08 | 8.79E-04 | 6.97E-07 | 1.79E-07 |
| 6.92E-09 | 4.43E-07 | 5.20E-08 | 9.01E-09 | 1.20E-08 | 4.49E-08 | 3.91E-09 | 6.08E-08 | 3.00E-09 | 1.57E-08 | 3.74E-09 | 2.24E-08 | 9.52E-04 | 3.22E-10 | 1.50E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.24E-08 | 0.00E+00 | 3.44E-08 | 3.00E-09 | 7.85E-09 | 0.00E+00 | 1.09E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 9.49E-09 | 9.48E-08 | 2.72E-06 | 0.00E+00 | 1.20E-08 | 4.49E-08 | 1.31E-09 | 5.82E-08 | 3.00E-09 | 1.57E-08 | 1.20E-09 | 1.99E-08 | 8.81E-04 | 6.64E-07 | 1.80E-07 |
| 5.26E-09 | 2.22E-07 | 2.69E-08 | 9.03E-09 | 1.20E-08 | 4.23E-08 | 5.58E-09 | 5.99E-08 | 3.00E-09 | 1.48E-08 | 5.34E-09 | 2.32E-08 | 9.54E-04 | 2.44E-10 | 1.50E-07 |
| 5.28E-09 | 2.25E-07 | 2.70E-08 | 9.04E-09 | 1.20E-08 | 4.23E-08 | 5.61E-09 | 5.99E-08 | 3.00E-09 | 1.48E-08 | 5.36E-09 | 2.32E-08 | 9.54E-04 | 2.45E-10 | 1.50E-07 |
| 5.23E-09 | 2.19E-07 | 2.68E-08 | 9.01E-09 | 1.20E-08 | 4.23E-08 | 5.56E-09 | 5.99E-08 | 3.00E-09 | 1.48E-08 | 5.32E-09 | 2.31E-08 | 9.51E-04 | 2.43E-10 | 1.50E-07 |
| 5.65E-09 | 2.32E-07 | 2.90E-08 | 8.12E-09 | 1.20E-08 | 4.23E-08 | 5.89E-09 | 6.02E-08 | 3.00E-09 | 1.48E-08 | 5.64E-09 | 2.34E-08 | 8.58E-04 | 2.62E-10 | 1.35E-07 |
| 1.60E-08 | 6.65E-07 | 6.61E-08 | 1.03E-08 | 1.20E-08 | 4.62E-08 | 4.70E-09 | 6.29E-08 | 3.00E-09 | 1.62E-08 | 4.50E-09 | 2.37E-08 | 1.09E-03 | 7.44E-10 | 1.72E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.31E-08 | 0.00E+00 | 3.51E-08 | 3.00E-09 | 8.08E-09 | 0.00E+00 | 1.11E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.26E-08 | 5.81E-08 | 3.06E-06 | 0.00E+00 | 1.20E-08 | 4.62E-08 | 1.79E-09 | 6.00E-08 | 3.00E-09 | 1.62E-08 | 1.65E-09 | 2.08E-08 | 9.77E-04 | 8.83E-07 | 1.99E-07 |
| 1.39E-08 | 5.55E-07 | 6.23E-08 | 1.04E-08 | 1.20E-08 | 4.62E-08 | 3.90E-09 | 6.21E-08 | 3.00E-09 | 1.62E-08 | 3.73E-09 | 2.29E-08 | 1.10E-03 | 6.44E-10 | 1.73E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.31E-08 | 0.00E+00 | 3.51E-08 | 3.00E-09 | 8.08E-09 | 0.00E+00 | 1.11E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.26E-08 | 6.89E-08 | 3.06E-06 | 0.00E+00 | 1.20E-08 | 4.62E-08 | 1.74E-09 | 5.99E-08 | 3.00E-09 | 1.62E-08 | 1.60E-09 | 2.08E-08 | 9.91E-04 | 8.79E-07 | 2.02E-07 |
| 1.20E-08 | 5.11E-07 | 5.72E-08 | 1.04E-08 | 1.20E-08 | 4.62E-08 | 3.78E-09 | 6.20E-08 | 3.00E-09 | 1.62E-08 | 3.62E-09 | 2.28E-08 | 1.09E-03 | 5.60E-10 | 1.72E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.31E-08 | 0.00E+00 | 3.51E-08 | 3.00E-09 | 8.08E-09 | 0.00E+00 | 1.11E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.26E-08 | 6.39E-08 | 3.06E-06 | 0.00E+00 | 1.20E-08 | 4.62E-08 | 1.77E-09 | 5.99E-08 | 3.00E-09 | 1.62E-08 | 1.62E-09 | 2.08E-08 | 9.81E-04 | 8.81E-07 | 2.00E-07 |
| 1.10E-08 | 4.82E-07 | 5.38E-08 | 1.02E-08 | 1.20E-08 | 4.62E-08 | 3.58E-09 | 6.17E-08 | 3.00E-09 | 1.62E-08 | 3.42E-09 | 2.26E-08 | 1.08E-03 | 5.10E-10 | 1.70E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.31E-08 | 0.00E+00 | 3.51E-08 | 3.00E-09 | 8.08E-09 | 0.00E+00 | 1.11E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.26E-08 | 6.36E-08 | 3.06E-06 | 0.00E+00 | 1.20E-08 | 4.62E-08 | 1.77E-09 | 5.99E-08 | 3.00E-09 | 1.62E-08 | 1.63E-09 | 2.08E-08 | 9.81E-04 | 8.81E-07 | 2.00E-07 |
| 5.09E-09 | 1.93E-07 | 3.56E-08 | 9.63E-09 | 1.20E-08 | 4.55E-08 | 2.32E-09 | 5.98E-08 | 3.00E-09 | 1.59E-08 | 2.22E-09 | 2.11E-08 | 1.02E-03 | 2.37E-10 | 1.60E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.27E-08 | 0.00E+00 | 3.47E-08 | 3.00E-09 | 7.96E-09 | 0.00E+00 | 1.10E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.11E-08 | 5.42E-08 | 2.75E-06 | 0.00E+00 | 1.20E-08 | 4.55E-08 | 1.64E-09 | 5.91E-08 | 3.00E-09 | 1.59E-08 | 1.50E-09 | 2.04E-08 | 9.16E-04 | 7.79E-07 | 1.87E-07 |
| 5.10E-09 | 1.88E-07 | 3.56E-08 | 9.63E-09 | 1.20E-08 | 4.55E-08 | 2.30E-09 | 5.98E-08 | 3.00E-09 | 1.59E-08 | 2.20E-09 | 2.11E-08 | 1.02E-03 | 2.37E-10 | 1.60E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.27E-08 | 0.00E+00 | 3.47E-08 | 3.00E-09 | 7.96E-09 | 0.00E+00 | 1.10E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.11E-08 | 5.42E-08 | 2.75E-06 | 0.00E+00 | 1.20E-08 | 4.55E-08 | 1.64E-09 | 5.91E-08 | 3.00E-09 | 1.59E-08 | 1.50E-09 | 2.04E-08 | 9.16E-04 | 7.79E-07 | 1.87E-07 |
| 5.05E-09 | 1.83E-07 | 3.52E-08 | 9.64E-09 | 1.20E-08 | 4.55E-08 | 2.29E-09 | 5.98E-08 | 3.00E-09 | 1.59E-08 | 2.19E-09 | 2.11E-08 | 1.02E-03 | 2.34E-10 | 1.60E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.27E-08 | 0.00E+00 | 3.47E-08 | 3.00E-09 | 7.96E-09 | 0.00E+00 | 1.10E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.11E-08 | 5.42E-08 | 2.75E-06 | 0.00E+00 | 1.20E-08 | 4.55E-08 | 1.64E-09 | 5.91E-08 | 3.00E-09 | 1.59E-08 | 1.50E-09 | 2.04E-08 | 9.16E-04 | 7.79E-07 | 1.87E-07 |
| 1.11E-08 | 6.94E-08 | 1.84E-07 | 1.52E-08 | 1.20E-08 | 4.50E-08 | 1.49E-09 | 5.85E-08 | 3.00E-09 | 1.58E-08 | 1.37E-09 | 2.01E-08 | 1.54E-03 | 3.02E-09 | 7.02E-09 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-08 | 2.25E-08 | 0.00E+00 | 3.45E-08 | 3.00E-09 | 7.88E-09 | 0.00E+00 | 1.09E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.15E-08 | 1.21E-06 | 3.88E-08 | 1.21E-08 | 3.60E-08 | 8.18E-08 | 2.99E-08 | 1.48E-07 | 9.00E-09 | 2.86E-08 | 2.86E-08 | 6.62E-08 | 1.28E-03 | 5.33E-10 | 2.01E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.60E-08 | 4.09E-08 | 0.00E+00 | 7.69E-08 | 9.00E-09 | 1.43E-08 | 0.00E+00 | 2.33E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.34E-08 | 1.53E-07 | 2.88E-06 | 0.00E+00 | 3.60E-08 | 8.18E-08 | 1.97E-09 | 1.20E-07 | 9.00E-09 | 2.86E-08 | 1.81E-09 | 3.94E-08 | 1.02E-03 | 9.35E-07 | 2.09E-07 |
| 1.12E-08 | 1.33E-06 | 3.78E-08 | 1.16E-08 | 3.60E-08 | 8.18E-08 | 2.95E-08 | 1.47E-07 | 9.00E-09 | 2.86E-08 | 2.82E-08 | 6.59E-08 | 1.22E-03 | 5.18E-10 | 1.93E-07 |
| 1.15E-08 | 1.37E-06 | 3.89E-08 | 1.16E-08 | 3.60E-08 | 8.18E-08 | 3.12E-08 | 1.49E-07 | 9.00E-09 | 2.86E-08 | 2.99E-08 | 6.75E-08 | 1.22E-03 | 5.34E-10 | 1.93E-07 |
| 1.00E-08 | 1.23E-06 | 6.35E-08 | 1.30E-08 | 3.60E-08 | 9.42E-08 | 1.64E-08 | 1.47E-07 | 9.00E-09 | 3.30E-08 | 1.57E-08 | 5.77E-08 | 1.37E-03 | 4.66E-10 | 2.16E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.60E-08 | 4.71E-08 | 0.00E+00 | 8.31E-08 | 9.00E-09 | 1.65E-08 | 0.00E+00 | 2.55E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.02E-08 | 1.28E-06 | 6.48E-08 | 1.29E-08 | 3.60E-08 | 9.42E-08 | 1.71E-08 | 1.47E-07 | 9.00E-09 | 3.30E-08 | 1.64E-08 | 5.83E-08 | 1.37E-03 | 4.75E-10 | 2.15E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.60E-08 | 4.71E-08 | 0.00E+00 | 8.31E-08 | 9.00E-09 | 1.65E-08 | 0.00E+00 | 2.55E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.68E-08 | 1.73E-07 | 4.98E-06 | 0.00E+00 | 3.60E-08 | 9.42E-08 | 2.52E-09 | 1.33E-07 | 9.00E-09 | 3.30E-08 | 2.32E-09 | 4.43E-08 | 1.15E-03 | 1.17E-06 | 2.35E-07 |
| 3.02E-08 | 2.07E-06 | 1.51E-07 | 1.53E-08 | 3.60E-08 | 1.07E-07 | 1.07E-08 | 1.54E-07 | 9.00E-09 | 3.76E-08 | 1.02E-08 | 5.68E-08 | 1.62E-03 | 1.40E-09 | 2.55E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.60E-08 | 5.43E-08 | 0.00E+00 | 9.03E-08 | 9.00E-09 | 1.90E-08 | 0.00E+00 | 2.80E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| | | | | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 2.44E-08 | 2.69E-07 | 8.08E-06 | 0.00E+00 | 3.60E-08 | 1.06E-07 | 3.29E-09 | 1.46E-07 | 9.00E-09 | 3.72E-08 | 3.02E-09 | 4.92E-08 | 1.46E-03 | 1.71E-06 | 2.98E-07 |
| 8.63E-09 | 8.05E-07 | 4.37E-08 | 1.37E-08 | 3.60E-08 | 8.86E-08 | 1.37E-08 | 1.38E-07 | 9.00E-09 | 3.10E-08 | 1.31E-08 | 5.31E-08 | 1.45E-03 | 4.01E-10 | 2.28E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.60E-08 | 4.44E-08 | 0.00E+00 | 8.04E-08 | 9.00E-09 | 1.55E-08 | 0.00E+00 | 2.45E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.52E-08 | 1.64E-07 | 4.04E-06 | 0.00E+00 | 3.60E-08 | 8.86E-08 | 2.26E-09 | 1.27E-07 | 9.00E-09 | 3.10E-08 | 2.07E-09 | 4.21E-08 | 1.12E-03 | 1.07E-06 | 2.29E-07 |
| 1.05E-08 | 1.11E-06 | 5.70E-08 | 1.41E-08 | 3.60E-08 | 8.70E-08 | 1.76E-08 | 1.41E-07 | 9.00E-09 | 3.04E-08 | 1.68E-08 | 5.62E-08 | 1.49E-03 | 4.90E-10 | 2.35E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.60E-08 | 4.44E-08 | 0.00E+00 | 8.04E-08 | 9.00E-09 | 1.55E-08 | 0.00E+00 | 2.45E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.52E-08 | 2.00E-07 | 4.53E-06 | 0.00E+00 | 3.60E-08 | 8.70E-08 | 2.18E-09 | 1.25E-07 | 9.00E-09 | 3.04E-08 | 2.00E-09 | 4.14E-08 | 1.15E-03 | 1.07E-06 | 2.35E-07 |
| 9.69E-09 | 1.01E-06 | 5.02E-08 | 1.40E-08 | 3.60E-08 | 8.73E-08 | 1.66E-08 | 1.40E-07 | 9.00E-09 | 3.06E-08 | 1.59E-08 | 5.54E-08 | 1.47E-03 | 4.50E-10 | 2.32E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.60E-08 | 4.44E-08 | 0.00E+00 | 8.04E-08 | 9.00E-09 | 1.55E-08 | 0.00E+00 | 2.45E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.52E-08 | 1.76E-07 | 4.21E-06 | 0.00E+00 | 3.60E-08 | 8.73E-08 | 2.23E-09 | 1.26E-07 | 9.00E-09 | 3.06E-08 | 2.05E-09 | 4.16E-08 | 1.14E-03 | 1.07E-06 | 2.31E-07 |
| 3.59E-08 | 5.64E-06 | 9.23E-08 | 3.75E-08 | 3.60E-08 | 2.10E-07 | 1.49E-08 | 2.61E-07 | 9.00E-09 | 7.35E-08 | 1.43E-08 | 9.68E-08 | 3.96E-03 | 1.67E-09 | 6.24E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.60E-08 | 1.05E-07 | 0.00E+00 | 1.41E-07 | 9.00E-09 | 3.68E-08 | 0.00E+00 | 4.58E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.34E-08 | 3.49E-07 | 1.10E-05 | 0.00E+00 | 3.60E-08 | 2.10E-07 | 1.22E-09 | 2.47E-07 | 9.00E-09 | 7.35E-08 | 1.13E-09 | 8.36E-08 | 1.34E-03 | 7.14E-07 | 2.73E-07 |
| 1.03E-08 | 1.19E-06 | 4.84E-08 | 1.21E-08 | 3.60E-08 | 8.57E-08 | 2.20E-08 | 1.44E-07 | 9.00E-09 | 3.00E-08 | 2.10E-08 | 6.00E-08 | 1.28E-03 | 4.79E-10 | 2.02E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.60E-08 | 4.33E-08 | 0.00E+00 | 7.93E-08 | 9.00E-09 | 1.51E-08 | 0.00E+00 | 2.41E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 1.46E-08 | 1.82E-07 | 3.98E-06 | 0.00E+00 | 3.60E-08 | 8.55E-08 | 2.12E-09 | 1.24E-07 | 9.00E-09 | 2.99E-08 | 1.95E-09 | 4.09E-08 | 1.08E-03 | 1.02E-06 | 2.20E-07 |
| 1.12E-08 | 1.07E-06 | 1.02E-07 | 1.47E-08 | 3.60E-08 | 1.01E-07 | 7.26E-09 | 1.44E-07 | 9.00E-09 | 3.54E-08 | 6.95E-09 | 5.13E-08 | 1.55E-03 | 5.20E-10 | 2.44E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.60E-08 | 5.19E-08 | 0.00E+00 | 8.79E-08 | 9.00E-09 | 1.82E-08 | 0.00E+00 | 2.72E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 4.41E-07 | 2.19E-06 | 3.01E-05 | 1.79E-08 | 2.00E-08 | 9.65E-08 | 1.56E-09 | 1.18E-07 | 5.00E-09 | 3.38E-08 | 1.43E-09 | 4.02E-08 | 1.81E-03 | 9.52E-08 | 1.02E-07 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.00E-08 | 4.85E-08 | 0.00E+00 | 6.85E-08 | 5.00E-09 | 1.70E-08 | 0.00E+00 | 2.20E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 3.09E-09 | 1.50E-08 | 5.69E-07 | 8.40E-09 | 8.00E-09 | 9.10E-08 | 1.30E-09 | 1.00E-07 | 2.00E-09 | 3.19E-08 | 1.20E-09 | 3.50E-08 | 8.50E-04 | 1.14E-09 | 2.50E-09 |
| 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.89E-08 | 5.50E-08 | 0.00E+00 | 8.39E-08 | 7.22E-09 | 1.93E-08 | 0.00E+00 | 2.65E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

We Can Model Regional Emissions, But Are the Results Meaningful for CEQA?

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On December 24, 2018, the California Supreme Court, *Sierra Club v. County of Fresno (Friant Ranch, L.P.)* (2018) 6 Cal.5th 502, Case No. S219783 (*Friant Ranch*), held that simply identifying that a project exceeds an emissions threshold is not sufficient to identify a project's significant effect on the environment relative to the health effects of project emissions. The Court found that an EIR should make a reasonable effort to substantively connect a project's criteria pollutant emissions to likely health consequences, or explain why it is not currently feasible to provide such an analysis. In 2019, there were several CEQA documents that included health effects modeling to provide additional analysis for projects with criteria air pollutant emissions that exceed a significance threshold. While it is technically possible to conduct this modeling, we argue that this additional layer of quantitative analysis may not always provide decision-makers and the public with additional meaningful information. It is the air districts that are best suited to provide frameworks for how to identify health effects of regional criteria pollutant emissions under CEQA.

Introduction

Significance thresholds for regional criteria pollutants used by California air districts and lead agencies represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable national or state ambient air quality standard (AAQS). By analyzing the project's emissions against these thresholds, the CEQA document assesses whether these emissions directly contribute to any regional or local exceedances of the applicable AAQS and exposure levels. The basis of the ruling in *Friant Ranch* was that the EIR did not provide a meaningful analysis of the adverse health effects that would be associated with the project's criteria pollutant emissions, which were identified as being far above the relevant thresholds. The discussion of the adverse health effects in the EIR was general in nature and did not connect the levels of the pollutants that would be emitted by the project to adverse health effects.

The process of correlating project-related criteria pollutant emissions to health-based consequences is called a health impact assessment (HIA). An HIA involves two steps: 1) running a regional photochemical grid model (PGM) to estimate the small increases in concentrations of ozone and particulate matter (PM) in the region as a result of a project's emissions of criteria and precursor pollutants; and 2) running the U.S. EPA Benefits Mapping and Analysis Program (BenMAP) to estimate the resulting health impacts from these increases in concentrations of ozone and PM.

Limitations of Regional-Scale Dispersion Models

It is technically feasible to conduct regional-scale criteria pollutant modeling for a development project. Particulate matter (PM) can be divided into two categories: directly emitted PM and secondary PM. Secondary PM, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as sulfur oxides (SO_x) and NO_x. Ozone (O₃) is a secondary pollutant formed from the oxidation of reactive organic gases (ROGs) and nitrogen oxides (NO_x) in the presence of sunlight. Rates of ozone formation are a function of a variety of complex physical factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Secondary formation of PM and ozone can occur far from the original emissions source from regional transport due to wind and topography (e.g. low-level jet stream). As such, modeling concentrations of secondary PM and ozone require photochemical grid models (PGMs), such as CMAQ and CAMx. These models have a much larger "grid" system and much lower resolution than localized dispersion modeling (e.g., AERMOD). For example, common grid cells in PGMs are 4x4 kilometers, while AERMOD can identify concentrations at the meter-level.

Photochemical modeling also depends on all emission sources in the entire domain. Low resolution and spatial averaging produces “noise” and model uncertainty that can exceed a project’s specific emissions. Additionally, regional-scale models are highly contingent upon background concentrations. Factors such as meteorology and topography greatly affect the certainty levels of predicted concentrations at receptor points. As a result, there are statistical ranges of uncertainty through all the modeling steps. Due to these factors, it is difficult to predict ground-level secondary PM and ozone concentrations associated with relatively small emission sources with a high degree of certainty. While it is possible to use a regional-scale model to predict these regional concentrations, when a project’s emissions are less than the regional model’s resolution, the resultant ambient air quality concentrations will be within the margin of uncertainty. In CEQA terms, this would fit the definition of “speculative”. Only when the scale of emissions would result in changes in ambient air quality beyond the model margin of uncertainty would the results not be “speculative” as defined by CEQA.

Identifying Health Effects due to Ambient Air Quality Changes

BenMap is a model developed by the USEPA to understand the health effects from changes in ozone and PM concentrations. If there is an acceptable level of confidence that the results provided by the regional dispersion modeling are valid, then these concentrations can be translated into health outcomes using BenMap. The health outcomes in BenMap are based on changes in ambient air concentrations and the population exposed to these changes. Data provided by this analysis may indicate increased number of workdays lost to illness, hospital admissions (respiratory), emergency room visits (asthma), or mortality, among other health effects. These are called “health incidences.”

Translating the incremental increase in PM and ozone concentrations to specific health effects is also subject to uncertainty. For example, regional models assign the same toxicity to PM regardless of the source of PM (such as road dust as exhaust), and thus potentially overpredict adverse health effects of PM. BenMap also assumes that health effects can occur at any concentration, including small incremental concentrations, and assumes that impacts seen at large concentration differences can be linearly scaled down to small increases in concentration, with no consideration of potential thresholds below which health impacts may not occur. Additionally, BenMap is used for assessing impacts over large areas and populations and was not intended to be used for individual projects. For health incidences, the number of hospitalizations or increase in morbidity predicted by BenMap is greatly affected by the population characteristics.¹ Small increases in emissions in an area with a high population have a much greater affect than large increases in emissions over an area with a small population. As a result, the same amount of emissions generated in an urban area could result in greater health consequences than if the same emissions occurred on the urban periphery, where fewer people may be affected. This will also depend on other factors including meteorology and photochemistry, as discussed above. Emissions in areas with conditions that favor high air dispersion or unfavorable ozone formation will likely have relatively lower effects on ambient air quality and health outcomes.

While BenMap provides additional statistical information about health consequences requested by the Court in the Friant Ranch decision, this information is only meaningful when presented with the full health context of the region or locality at hand. For example, if the BenMap analysis says that the project would result in two additional hospital admissions, this result alone is not useful unless one identifies how many hospital admissions are caused by poor air quality now (without the project) and how many hospital admissions occur

¹ BenMap assigns prevalence rate for asthma and other health effects based on indicators such as gender, race, age, ethnicity, etc. The BenMap user manual specifically states that there are a wide range of variables that can be included in the health effect function. The health effect function was developed based on epidemiological studies, and specifically states that “there are a number of issues that arise when deriving and choosing between health effect functions that go well beyond this user manual. Hence, it is important to have a trained health researcher assist in developing the impact function data file.”

overall (due to air quality and other causes). Because health is not solely influenced by ambient air quality, and has many factors that are highly variable across geographies and populations, there is an added level of uncertainty in using a generalized identification of health effects due to air quality conditions overlaid onto a specific diverse set of health conditions and other factors. Regardless of the uncertainty levels, if regional health effects are identified for a project, then the CEQA analysis needs to provide a full health baseline for decision-makers and the public to be able to understand the marginal change due to project criteria pollutant emissions. Given the margin of uncertainty at each step in the process (regional scale modeling, existing ambient air quality effects on health, population health conditions vulnerability, and marginal health effects of air pollution), the identification of marginal health effects due to individual projects using regional air quality modelling and tools such as BenMap are likely to be within the level of uncertainty and thus defined as “speculative” per CEQA.

The Role of Air Districts

Regional, community, multiscale air quality modeling conducted by the air districts for each individual air basin or locality within the air basin would be the most appropriate indicator of health effects for projects. The AQMPs provide a forecast of regional emissions based on regional dispersion modeling for all sources within the air basin. Regional-scale models attempt to account for all emissions sources within an air basin.

The regional scale model requires inputs such as existing and future regional sources of pollutants and global meteorological data, which are generally not accessible by CEQA practitioners. Modeling of future years should consider future concentrations of air pollutants based on regional growth projections and existing programs, rules, and regulations adopted by Federal, State, and local air districts. In general, air pollution in California is decreasing as a result of Federal and State laws. Based on the air quality management plans (AQMPs) required for air districts in a nonattainment area, air quality in the air basins are anticipated to improve despite an increase in population and employment growth. Air districts are charged with assessing programs, rules, and regulations so that the increase in population and employment does not conflict with the mandate to achieve the AAQS. Because emissions forecasting and health outcomes based on the regional growth projections to achieve the AAQS is under the purview of the air districts, it should also fall on the air districts to identify the potential health outcomes associated with individual project's criteria pollutant emissions.

The South Coast Air Quality Management District (South Coast AQMD) and the Sacramento Metropolitan Air Quality Management District (Sacramento Metropolitan AQMD) are exploring concepts for project-level analysis in light of Friant Ranch to assist local lead agencies.

- » South Coast AQMD is looking at the largest land use development project they have had in the air basin and doing a sensitivity analysis (using CAMx for photochemical grid modeling and BenMap for health outcomes) to see how locating a very large project in different parts of the air basin (Los Angeles, Inland Empire, v. Orange County) would affect the health incidence.
- » Sacramento Metropolitan AQMD is also looking at a screening process. Rather than looking at the upper end (i.e., largest project in the air basin), Sacramento Metropolitan AQMD is starting at the smallest project that exceeds the regional significance threshold and running CAMx and BenMap at different locations in the air basin to see how it affects regional health incidences.

Guidance from Air Districts would be the most effective way to incorporate meaningful information concerning regional health effects of project criteria pollutants in CEQA analyses, including guidance as to when modelling is and is not useful and meaningful, how modelling should be conducted, and how to best present additional information to inform decision-makers and the public about a project's impacts.

So...until air districts do their part, what should we do?

PROJECTS WITH CRITERIA POLLUTANT EMISSIONS BELOW AIR DISTRICT THRESHOLDS

The Friant Ranch ruling was about providing disclosure of health effects of project emissions that were well over the significance thresholds. Since the air district thresholds are tied to a level the air districts find to not have a significant effect on ambient air quality, there should be no need to discuss the health effects of criteria pollutant emissions that are less than the significance thresholds.

PROJECTS WITH CRITERIA POLLUTANT EMISSIONS ABOVE AIR DISTRICT THRESHOLDS

Pursuant to Section 15125 of the CEQA Guidelines, the environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. For CEQA, the health effects associated with buildout of a project would occur at the project's horizon year. Because CEQA requires an analysis of the change from existing conditions, the change in effects would be associated with changes in ambient air quality and associated health outcomes between existing conditions and the project's horizon year. Therefore, in order to show how a project affects health outcomes in an air basin, the CEQA documents will need to qualitatively or quantitatively address: (1) existing ambient criteria pollutant concentrations, health incidences due to existing air quality, and health incidences overall; 2) future (without project) ambient criteria pollutant concentrations and health incidences, and 3) future (with project) ambient criteria pollutant concentrations and health incidences.

Projects with significant criteria pollutant emissions could use regional modelling and BenMap to identify health effects of project emissions, but it is likely that many (or most) projects that are not regionally substantial in scale will be shown to have minimal regional changes in PM and ozone concentrations and therefore minimal changes in associated health effects. In addition, many projects may have emissions that are less than the uncertainty level of regional air quality models and BenMap health effects modeling; in these cases, quantitative results will not be meaningful. Thus, absent better direction from air districts, CEQA lead agencies will have to determine on a case by case basis whether a qualitative discussion of health effects will suffice, or whether regional modeling, despite its limitations, should be conducted for the project.

Where a project has substantial criteria pollutant emissions when considered on a regional scale, and there is reason to believe that the modeling of ambient air quality and regional health effects would produce non-speculative results when considering modeling uncertainties, then CEQA lead agencies should use regional modelling.

Conclusion

The purpose of CEQA is to inform the public as to the potential for a project to result in one or more significant adverse effects on the environment (including health effects). A CEQA document must provide an understandable and clear environmental analysis and provide an adequate basis for decision making and public disclosure. Regional dispersion modeling of criteria pollutants and secondary pollutants like PM and ozone can provide additional information, but that information may be within the margin of modelling uncertainty and/or may not be meaningful for the public and decision-makers unless a full health context is presented in the CEQA document. Simply providing health outcomes based on use of a regional-scale model and BenMap may not satisfy the goal to provide decision-makers and the public with information that would assist in weighting the environmental consequences of a project. A CEQA document must provide an analysis that is understandable for decision making and public disclosure. Regional scale modeling may provide a technical method for this type of analysis, but it does not necessarily provide a meaningful way to connect the magnitude of a project's criteria pollutant emissions to health effects without speculation.

In order to accurately connect the dots, we urge California air districts to provide more guidance on how to identify and describe the health effects of exceeding regional criteria pollutant thresholds. The air districts are the primary agency responsible for ensuring that the air basins attain the AAQS and ensure the health and welfare of its residents relative to air quality. Because emissions forecasting and health outcomes are based on the regional growth projections to achieve the AAQS is under the purview of the air districts, it should fall on the air districts to identify the potential health outcomes associated with exceeding the CEQA thresholds for projects. The air districts should provide lead agencies with a consistent, reliable, and meaningful analytical approach to correlate specific health effects that may result from a project's criteria pollutant emissions.

Glossary

AAQS – Ambient Air Quality Standards

BenMap – Benefits Mapping and Analysis Program

CAMx – Comprehensive Air Quality Model with extensions

CMAQ – Community Multiscale Air Quality

NOx – Nitrogen Oxides

PM – Particulate Matter

SOx – Sulfur Oxides

State – California

USEPA – United States Environmental Protection Agency

S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,

Plaintiffs and Appellants,

v.

COUNTY OF FRESNO,

Defendant and Respondent,

and,

FRIANT RANCH, L.P.,

Real Party in Interest and Respondent.

SUPREME COURT
FILED

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Frank A. McGuire Clerk
Deputy

After a Published Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726
Honorable Rosendo A. Pena, Jr.

**APPLICATION OF THE SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT FOR LEAVE TO FILE
BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY
AND [PROPOSED] BRIEF OF *AMICUS CURIAE***

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**TO THE HONORABLE CHIEF JUSTICE AND JUSTICES OF THE
SUPREME COURT:**

APPLICATION FOR LEAVE TO FILE *AMICUS CURIAE* BRIEF

Pursuant to Rule 8.520(f) of the California Rules of Court, the South Coast Air Quality Management District (SCAQMD) respectfully requests leave to file the attached *amicus curiae* brief. Because SCAQMD's position differs from that of either party, we request leave to submit this amicus brief in support of neither party.

HOW THIS BRIEF WILL ASSIST THE COURT

SCAQMD's proposed amicus brief takes a position on two of the issues in this case. In both instances, its position differs from that of either party. The issues are:

- 1) Does the California Environmental Quality Act (CEQA) require an environmental impact report (EIR) to correlate a project's air pollution emissions with specific levels of health impacts?
- 2) What is the proper standard of review for determining whether an EIR provides sufficient information on the health impacts caused by a project's emission of air pollutants?

This brief will assist the Court by discussing the practical realities of correlating identified air quality impacts with specific health outcomes. In short, CEQA requires agencies to provide detailed information about a project's air quality impacts that is sufficient for the public and decisionmakers to adequately evaluate the project and meaningfully understand its impacts. However, the level of analysis is governed by a rule of reason; CEQA only requires agencies to conduct analysis if it is reasonably feasible to do so.

With regard to health-related air quality impacts, an analysis that correlates a project's air pollution emissions with specific levels of health impacts will be feasible in some cases but not others. Whether it is feasible depends on a variety of factors, including the nature of the project and the nature of the analysis under consideration. The feasibility of analysis may also change over time as air districts and others develop new tools for measuring projects' air quality related health impacts. Because SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, it is uniquely situated to express an opinion on the extent to which the Court should hold that CEQA requires lead agencies to correlate air quality impacts with specific health outcomes.

SCAQMD can also offer a unique perspective on the question of the appropriate standard of review. SCAQMD submits that the proper standard of review for determining whether an EIR is sufficient as an informational document is more nuanced than argued by either party. In our view, this is a mixed question of fact and law. It includes determining whether additional analysis is feasible, which is primarily a factual question that should be reviewed under the substantial evidence standard. However, it also involves determining whether the omission of a particular analysis renders an EIR insufficient to serve CEQA's purpose as a meaningful, informational document. If a lead agency has not determined that a requested analysis is infeasible, it is the court's role to determine whether the EIR nevertheless meets CEQA's purposes, and courts should not defer to the lead agency's conclusions regarding the legal sufficiency of an EIR's analysis. The ultimate question of whether an EIR's analysis is "sufficient" to serve CEQA's informational purposes is predominately a question of law that courts should review de novo.

This brief will explain the rationale for these arguments and may assist the Court in reaching a conclusion that accords proper respect to a lead agency's factual conclusions while maintaining judicial authority over the ultimate question of what level of analysis CEQA requires.

STATEMENT OF INTEREST OF *AMICUS CURIAE*

The SCAQMD is the regional agency primarily responsible for air pollution control in the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of the Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410; Cal. Code Regs., tit. 17, § 60104.) The SCAQMD participates in the CEQA process in several ways. Sometimes it acts as a lead agency that prepares CEQA documents for projects. Other times it acts as a responsible agency when it has permit authority over some part of a project that is undergoing CEQA review by a different lead agency. Finally, SCAQMD also acts as a commenting agency for CEQA documents that it receives because it is a public agency with jurisdiction by law over natural resources affected by the project.

In all of these capacities, SCAQMD will be affected by the decision in this case. SCAQMD sometimes submits comments requesting that a lead agency perform an additional type of air quality or health impacts analysis. On the other hand, SCAQMD sometimes determines that a particular type of health impact analysis is not feasible or would not produce reliable and informative results. Thus, SCAQMD will be affected by the Court's resolution of the extent to which CEQA requires EIRs to correlate emissions and health impacts, and its resolution of the proper standard of review.

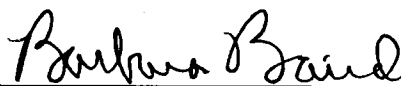
CERTIFICATION REGARDING AUTHORSHIP AND FUNDING

No party or counsel in the pending case authored the proposed amicus curiae brief in whole or in part, or made any monetary contribution intended to fund the preparation or submission of the brief. No person or entity other than the proposed *Amicus Curiae* made any monetary contribution intended to fund the preparation or submission of the brief.

Respectfully submitted,

DATED: April 3, 2015

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BRIEF OF AMICUS CURIAE

SUMMARY OF ARGUMENT

The South Coast Air Quality Management District (SCAQMD) submits that this Court should not try to establish a hard-and-fast rule concerning whether lead agencies are required to correlate emissions of air pollutants with specific health consequences in their environmental impact reports (EIR). The level of detail required in EIRs is governed by a few, core CEQA (California Environmental Quality Act) principles. As this Court has stated, “[a]n EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project.” (*Laurel Heights Improvement Assn. v. Regents of the Univ of Cal.* (1988) 47 Cal.3d 376, 405 [*“Laurel Heights I”*]) Accordingly, “an agency must use its best efforts to find out and disclose all that it reasonably can.” (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428 (quoting CEQA Guidelines § 15144)¹). However, “[a]nalysis of environmental effects need not be exhaustive, but will be judged in light of what is reasonably feasible.” (*Association of Irrigated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1390; CEQA Guidelines §§ 15151, 15204(a).)

With regard to analysis of air quality related health impacts, EIRs must generally quantify a project’s pollutant emissions, but in some cases it is not feasible to correlate these emissions to specific, quantifiable health impacts (e.g., premature mortality; hospital admissions). In such cases, a general description of the adverse health impacts resulting from the pollutants at issue may be sufficient. In other cases, due to the magnitude

¹ The CEQA Guidelines are found at Cal. Code Regs., tit. 14 §§ 15000, *et seq.*

or nature of the pollution emissions, as well as the specificity of the project involved, it may be feasible to quantify health impacts. Or there may be a less exacting, but still meaningful analysis of health impacts that can feasibly be performed. In these instances, agencies should disclose those impacts.

SCAQMD also submits that whether or not an EIR complies with CEQA's informational mandates by providing sufficient, feasible analysis is a mixed question of fact and law. Pertinent here, the question of whether an EIR's discussion of health impacts from air pollution is sufficient to allow the public to understand and consider meaningfully the issues involves two inquiries: (1) Is it feasible to provide the information or analysis that a commenter is requesting or a petitioner is arguing should be required?; and (2) Even if it is feasible, is the agency relying on other policy or legal considerations to justify not preparing the requested analysis? The first question of whether an analysis is feasible is primarily a question of fact that should be judged by the substantial evidence standard. The second inquiry involves evaluating CEQA's information disclosure purposes against the asserted reasons to not perform the requested analysis. For example, an agency might believe that its EIR meets CEQA's informational disclosure standards even without a particular analysis, and therefore choose not to conduct that analysis. SCAQMD submits that this is more of a legal question, which should be reviewed de novo as a question of law.

ARGUMENT

I. RELEVANT FACTUAL AND LEGAL FRAMEWORK.

A. Air Quality Regulatory Background

The South Coast Air Quality Management District (SCAQMD) is one of the local and regional air pollution control districts and air quality

management districts in California. The SCAQMD is the regional air pollution agency for the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410, 17 Cal. Code Reg. § 60104.) The SCAQMD also includes the Coachella Valley in Riverside County (Palm Springs area to the Salton Sea). (SCAQMD, *Final 2012 AQMP* (Feb. 2013), <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan>; then follow “chapter 7” hyperlink; pp 7-1, 7-3 (last visited Apr. 1, 2015).) The SCAQMD's jurisdiction includes over 16 million residents and has the worst or nearly the worst air pollution levels in the country for ozone and fine particulate matter. (SCAQMD, *Final 2012 AQMP* (Feb. 2013), <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan>; then follow “Executive Summary” hyperlink p. ES-1 (last visited Apr. 1, 2015).)

Under California law, the local and regional districts are primarily responsible for controlling air pollution from all sources except motor vehicles. (Health & Saf. Code § 40000.) The California Air Resources Board (CARB), part of the California Environmental Protection Agency, is primarily responsible for controlling pollution from motor vehicles. (*Id.*) The air districts must adopt rules to achieve and maintain the state and federal ambient air quality standards within their jurisdictions. (Health & Saf. Code § 40001.)

The federal Clean Air Act (CAA) requires the United States Environmental Protection Agency (EPA) to identify pollutants that are widely distributed and pose a threat to human health, developing a so-called “criteria” document. (42 U.S.C. § 7408; CAA § 108.) These pollutants are frequently called “criteria pollutants.” EPA must then establish “national ambient air quality standards” at levels “requisite to protect public health”,

allowing “an adequate margin of safety.” (42 U.S.C. § 7409; CAA § 109.) EPA has set standards for six identified pollutants: ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, particulate matter (PM), and lead. (U.S. EPA, National Ambient Air Quality Standards (NAAQS), <http://www.epa.gov/air/criteria.html> (last updated Oct. 21, 2014).)²

Under the Clean Air Act, EPA sets emission standards for motor vehicles and “nonroad engines” (mobile farm and construction equipment, marine vessels, locomotives, aircraft, etc.). (42 U.S.C. §§ 7521, 7547; CAA §§ 202, 213.) California is the only state allowed to establish emission standards for motor vehicles and most nonroad sources; however, it may only do so with EPA's approval. (42 U.S.C. §§ 7543(b), 7543(e); CAA §§ 209(b), 209(c).) Sources such as manufacturing facilities, power plants and refineries that are not mobile are often referred to as “stationary sources.” The Clean Air Act charges state and local agencies with the primary responsibility to attain the national ambient air quality standards. (42 U.S.C. § 7401(a)(3); CAA § 101(a)(3).) Each state must adopt and implement a plan including enforceable measures to achieve and maintain the national ambient air quality standards. (42 U.S.C. § 7410; CAA § 110.) The SCAQMD and CARB jointly prepare portion of the plan for the South Coast Air Basin and submit it for approval by EPA. (Health & Saf. Code §§ 40460, et seq.)

The Clean Air Act also requires state and local agencies to adopt a permit program requiring, among other things, that new or modified “major” stationary sources use technology to achieve the “lowest achievable emission rate,” and to control minor stationary sources as

² Particulate matter (PM) is further divided into two categories: fine particulate or PM_{2.5} (particles with a diameter of less than or equal to 2.5 microns) and coarse particulate (PM₁₀) (particles with a diameter of 10 microns or less). (U.S. EPA, Particulate Matter (PM), <http://www.epa.gov/airquality/particulatepollution/> (last visited Apr. 1, 2015).)

needed to help attain the standards. (42 U.S.C. §§ 7502(c)(5), 7503(a)(2), 7410(a)(2)(C); CAA §§ 172(c)(5), 173(a)(2), 110(a)(2)(C).) The air districts implement these permit programs in California. (Health & Saf. Code §§ 42300, et seq.)

The Clean Air Act also sets out a regulatory structure for over 100 so-called “hazardous air pollutants” calling for EPA to establish “maximum achievable control technology” (MACT) for sources of these pollutants. (42 U.S.C. § 7412(d)(2); CAA § 112(d)(2).) California refers to these pollutants as “toxic air contaminants” (TACs) which are subject to two state-required programs. The first program requires “air toxics control measures” for specific categories of sources. (Health & Saf. Code § 39666.) The other program requires larger stationary sources and sources identified by air districts to prepare “health risk assessments” for impacts of toxic air contaminants. (Health & Saf. Code §§ 44320(b), 44322, 44360.) If the health risk exceeds levels identified by the district as “significant,” the facility must implement a “risk reduction plan” to bring its risk levels below “significant” levels. Air districts may adopt additional more stringent requirements than those required by state law, including requirements for toxic air contaminants. (Health & Saf. Code § 41508; *Western Oil & Gas Assn. v. Monterey Bay Unified APCD* (1989) 49 Cal.3d 408, 414.) For example, SCAQMD has adopted a rule requiring new or modified sources to keep their risks below specified levels and use best available control technology (BACT) for toxics. (SCAQMD, *Rule 1401-New Source Review of Toxic Air Contaminants*, <http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiv>; then follow “Rule 1401” hyperlink (last visited Apr. 1, 2015).)

B. The SCAQMD's Role Under CEQA

The California Environmental Quality Act (CEQA) requires public agencies to perform an environmental review and appropriate analysis for projects that they implement or approve. (Pub. Resources Code § 21080(a).) The agency with primary approval authority for a particular project is generally the “lead agency” that prepares the appropriate CEQA document. (CEQA Guidelines §§ 15050, 15051.) Other agencies having a subsequent approval authority over all or part of a project are called “responsible” agencies that must determine whether the CEQA document is adequate for their use. (CEQA Guidelines §§ 15096(c), 15381.) Lead agencies must also consult with and circulate their environmental impact reports to “trustee agencies” and agencies “with jurisdiction by law” including “authority over resources which may be affected by the project.” (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines §§ 15086(a)(3), 15073(c).) The SCAQMD has a role in all these aspects of CEQA.

Fulfilling its responsibilities to implement its air quality plan and adopt rules to attain the national ambient air quality standards, SCAQMD adopts a dozen or more rules each year to require pollution reductions from a wide variety of sources. The SCAQMD staff evaluates each rule for any adverse environmental impact and prepares the appropriate CEQA document. Although most rules reduce air emissions, they may have secondary environmental impacts such as use of water or energy or disposal of waste—e.g., spent catalyst from control equipment.³

³ The SCAQMD's CEQA program for its rules is a “Certified Regulatory Program” under which it prepares a “functionally equivalent” document in lieu of a negative declaration or EIR. (Pub. Resources Code § 21080.5, CEQA Guidelines § 15251(l).)

The SCAQMD also approves a large number of permits every year to construct new, modified, or replacement facilities that emit regulated air pollutants. The majority of these air pollutant sources have already been included in an earlier CEQA evaluation for a larger project, are currently being evaluated by a local government as lead agency, or qualify for an exemption. However, the SCAQMD sometimes acts as lead agency for major projects where the local government does not have a discretionary approval. In such cases, SCAQMD prepares and certifies a negative declaration or environmental impact report (EIR) as appropriate.⁴ SCAQMD evaluates perhaps a dozen such permit projects under CEQA each year. SCAQMD is often also a “responsible agency” for many projects since it must issue a permit for part of the projects (e.g., a boiler used to provide heat in a commercial building). For permit projects evaluated by another lead agency under CEQA, SCAQMD has the right to determine that the CEQA document is inadequate for its purposes as a responsible agency, but it may not do so because its permit program already requires all permitted sources to use the best available air pollution control technology. (SCAQMD, *Rule 1303(a)(1) – Requirements*, <http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiii>; then follow “Rule 1303” hyperlink (last visited Apr. 1, 2015).)

Finally, SCAQMD receives as many as 60 or more CEQA documents each month (around 500 per year) in its role as commenting agency or an agency with “jurisdiction by law” over air quality—a natural resource affected by the project. (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines § 15366(a)(3).) The SCAQMD staff provides comments on as many as 25 or 30 such documents each month.

⁴ The SCAQMD's permit projects are not included in its Certified Regulatory Program, and are evaluated under the traditional local government CEQA analysis. (Pub. Resources Code §§ 21150-21154.)

(SCAQMD Governing Board Agenda, Apr. 3, 2015, Agenda Item 16, Attachment A, <http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-april-3-2015>; then follow “16. Lead Agency Projects and Environmental Documents Received by SCAQMD” hyperlink (last visited Apr. 1, 2015).) Of course, SCAQMD focuses its commenting efforts on the more significant projects.

Typically, SCAQMD comments on the adequacy of air quality analysis, appropriateness of assumptions and methodology, and completeness of the recommended air quality mitigation measures. Staff may comment on the need to prepare a health risk assessment detailing the projected cancer and noncancer risks from toxic air contaminants resulting from the project, particularly the impacts of diesel particulate matter, which CARB has identified as a toxic air contaminant based on its carcinogenic effects. (California Air Resources Board, Resolution 98-35, Aug. 27, 1998, <http://www.arb.ca.gov/regact/diesltac/diesltac.htm>; then follow Resolution 98-35 hyperlink (last visited Apr. 1, 2015).) Because SCAQMD already requires new or modified stationary sources of toxic air contaminants to use the best available control technology for toxics and to keep their risks below specified levels, (SCAQMD Rule 1401, *supra*, note 15), the greatest opportunity to further mitigate toxic impacts through the CEQA process is by reducing emissions—particularly diesel emissions—from vehicles.

II. THIS COURT SHOULD NOT SET A HARD-AND-FAST RULE CONCERNING THE EXTENT TO WHICH AN EIR MUST CORRELATE A PROJECT’S EMISSION OF POLLUTANTS WITH RESULTING HEALTH IMPACTS.

Numerous cases hold that courts do not review the correctness of an EIR’s conclusions but rather its sufficiency as an informative document. (*Laurel Heights 1*, *supra*, 47 Cal.3d at p. 392; *Citizens of Goleta Valley v.*

Bd. of Supervisors (1990) 52 Cal.3d 553, 569; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1197.)

As stated by the Court of Appeal in this case, where an EIR has addressed a topic, but the petitioner claims that the information provided about that topic is insufficient, courts must “draw[] a line that divides *sufficient* discussions from those that are *insufficient*.” (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) The Court of Appeal readily admitted that “[t]he terms themselves – sufficient and insufficient – provide little, if any, guidance as to where the line should be drawn. They are simply labels applied once the court has completed its analysis.” (*Id.*)

The CEQA Guidelines, however, provide guidance regarding what constitutes a sufficient discussion of impacts. Section 15151 states that “the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible.” Case law reflects this: “Analysis of environmental effects need not be exhaustive, but will be judged in light of what was reasonably feasible.” (*Association of Irrigated Residents v. County of Madera, supra*, 107 Cal.App.4th at p. 1390; see also CEQA Guidelines § 15204(a).)

Applying this test, this Court cannot realistically establish a hard-and-fast rule that an analysis correlating air pollution impacts of a project to quantified resulting health impacts is always required, or indeed that it is never required. Simply put, in some cases such an analysis will be “feasible”; in some cases it will not.

For example, air pollution control districts often require a proposed new source of toxic air contaminants to prepare a “health risk assessment” before issuing a permit to construct. District rules often limit the allowable cancer risk the new source may cause to the “maximally exposed individual” (worker and residence exposures). (See, e.g., SCAQMD Rule 1401(c)(8); 1401(d)(1), *supra* note 15.) In order to perform this analysis, it

is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). (SCAQMD, *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588)*, pp. 11-16; (last visited Apr. 1, 2015) [http://www.aqmd.gov/home/library/documents-support-material](http://www.aqmd.gov/home/library/documents-support-material;); "Guidelines" hyperlink; AB2588; then follow AB2588 Risk Assessment Guidelines hyperlink.)

Thus, it is feasible to determine the health risk posed by a new gas station locating at an intersection in a mixed use area, where receptor locations are known. On the other hand, it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk—it does not necessarily mean anyone will contract cancer as a result of the project.

In order to find the "cancer burden" or expected additional cases of cancer resulting from the project, it is also necessary to know the numbers and location of individuals living within the "zone of impact" of the project: i.e., those living in areas where the projected cancer risk from the project exceeds one in a million. (SCAQMD, Health Risk Assessment Summary form, <http://www.aqmd.gov/home/forms>; filter by "AB2588" category; then "Health Risk Assessment" hyperlink (last visited Apr. 1, 2015).) The affected population is divided into bands of those exposed to at least 1 in a million risk, those exposed to at least 10 in a million risk, etc. up to those exposed at the highest levels. (*Id.*) This data allows agencies to calculate an approximate number of additional cancer cases expected from

the project. However, it is not possible to predict which particular individuals will be affected.

For the so-called criteria pollutants⁵, such as ozone, it may be more difficult to quantify health impacts. Ozone is formed in the atmosphere from the chemical reaction of the nitrogen oxides (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. (U.S. EPA, Ground Level Ozone, <http://www.epa.gov/airquality/ozonepollution/> (last updated Mar. 25, 2015).) It takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources. (U.S. EPA, *Guideline on Ozone Monitoring Site Selection* (Aug. 1998) EPA-454/R-98-002 § 5.1.2, <http://www.epa.gov/ttnamti1/archive/cpreldoc.html> (last visited Apr. 1, 2015).) NO_x and VOC are known as “precursors” of ozone.

Scientifically, health effects from ozone are correlated with increases in the ambient level of ozone in the air a person breathes. (U.S. EPA, *Health Effects of Ozone in the General Population*, Figure 9, <http://www.epa.gov/apti/ozonehealth/population.html#levels> (last visited Apr. 1, 2015).) However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire region. For example, the SCAQMD's 2012 AQMP showed that reducing NO_x by 432 tons per day (157,680 tons/year) and reducing VOC by 187 tons per day (68,255 tons/year) would reduce ozone levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion. (South Coast Air Quality Management District, *Final 2012 AQMP* (February 2013), <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan>; then follow “Appendix V: Modeling & Attainment Demonstrations” hyperlink,

⁵ See discussion of types of pollutants, *supra*, Part I.A.

pp. v-4-2, v-7-4, v-7-24.) SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NO_x or VOC emissions from relatively small projects.

On the other hand, this type of analysis may be feasible for projects on a regional scale with very high emissions of NO_x and VOCs, where impacts are regional. For example, in 2011 the SCAQMD performed a health impact analysis in its CEQA document for proposed Rule 1315, which authorized various newly-permitted sources to use offsets from the districts “internal bank” of emission reductions. This CEQA analysis accounted for essentially *all* the increases in emissions due to new or modified sources in the District between 2010 and 2030.⁶ The SCAQMD was able to correlate this very large emissions increase (e.g., 6,620 pounds per day NO_x (1,208 tons per year), 89,180 pounds per day VOC (16,275 tons per year)) to expected health outcomes from ozone and particulate matter (e.g., 20 premature deaths per year and 89,947 school absences in the year 2030 due to ozone).⁷ (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System* (see hyperlink in fn 6) at p. 4.1-35, Table 4.1-29.)

⁶ (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, Attachment G, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System, Vol. 1, p.4.0-6*, <http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-february-4-2011>; the follow “26. Adopt Proposed Rule 1315 – Federal New Source Review Tracking System” (last visited April 1, 2015).)

⁷ The SCAQMD was able to establish the location of future NO_x and VOC emissions by assuming that new projects would be built in the same locations and proportions as existing stationary sources. This CEQA document was upheld by the Los Angeles County Superior Court in *Natural Res. Def. Council v SCAQMD*, Los Angeles Superior Court No. BS110792).

However, a project emitting only 10 tons per year of NO_x or VOC is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models that are currently used to determine ozone levels. Thus, in this case it would not be feasible to directly correlate project emissions of VOC or NO_x with specific health impacts from ozone. This is in part because ozone formation is not linearly related to emissions. Ozone impacts vary depending on the location of the emissions, the location of other precursor emissions, meteorology and seasonal impacts, and because ozone is formed some time later and downwind from the actual emission. (EPA Guideline on Ozone Monitoring Site Selection (Aug. 1998) EPA-454/R-98-002, § 5.1.2; <https://www.epa.gov/ttnamti1/archive/cpreldoc.html>; then search “Guideline on Ozone Monitoring Site Selection” click on pdf) (last viewed Apr. 1, 2015).)

SCAQMD has set its CEQA “significance” threshold for NO_x and VOC at 10 tons per year (expressed as 55 lb/day). (SCAQMD, *Air Quality Analysis Handbook*, <http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook>; then follow “SCAQMD Air Quality Significance Thresholds” hyperlink (last visited Apr. 1, 2015).) This is because the federal Clean Air Act defines a “major” stationary source for “extreme” ozone nonattainment areas such as SCAQMD as one emitting 10 tons/year. (42 U.S.C. §§ 7511a(e), 7511a(f); CAA §§ 182(e), 182(f).) Under the Clean Air Act, such sources are subject to enhanced control requirements (42 U.S.C. §§ 7502(c)(5), 7503; CAA §§ 172(c)(5), 173), so SCAQMD decided this was an appropriate threshold for making a CEQA “significance” finding and requiring feasible mitigation. Essentially, SCAQMD takes the position that a source that emits 10 tons/year of NO_x or VOC would contribute cumulatively to ozone formation. Therefore, lead agencies that use SCAQMD’s thresholds of significance may determine

that many projects have “significant” air quality impacts and must apply all feasible mitigation measures, yet will not be able to precisely correlate the project to quantifiable health impacts, unless the emissions are sufficiently high to use a regional modeling program.

In the case of particulate matter (PM_{2.5})⁸, another “criteria” pollutant, SCAQMD staff is aware of two possible methods of analysis. SCAQMD used regional modeling to predict expected health impacts from its proposed Rule 1315, as mentioned above. Also, the California Air Resources Board (CARB) has developed a methodology that can predict expected mortality (premature deaths) from large amounts of PM_{2.5}. (California Air Resources Board, *Health Impacts Analysis: PM Premature Death Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort_arch.htm (last reviewed Jan. 19, 2012).) SCAQMD used the CARB methodology to predict impacts from three very large power plants (e.g., 731-1837 lbs/day). (Final Environmental Assessment for Rule 1315, *supra*, pp 4.0-12, 4.1-13, 4.1-37 (e.g., 125 premature deaths in the entire SCAQMD in 2030), 4.1-39 (0.05 to 1.77 annual premature deaths from power plants.) Again, this project involved large amounts of additional PM_{2.5} in the District, up to 2.82 tons/day (5,650 lbs/day of PM_{2.5}, or, or 1029 tons/year. (*Id.* at table 4.1-4, p. 4.1-10.)

However, the primary author of the CARB methodology has reported that this PM_{2.5} health impact methodology is not suited for small projects and may yield unreliable results due to various uncertainties.⁹ (SCAQMD, *Final Subsequent Mitigated Negative Declaration for: Warren*

⁸ SCAQMD has not attained the latest annual or 24-hour national ambient air quality standards for “PM_{2.5}” or particulate matter less than 2.5 microns in diameter.

⁹ Among these uncertainties are the representativeness of the population used in the methodology, and the specific source of PM and the corresponding health impacts. (*Id.* at p. 2-24.)

E&P, Inc. WTU Central Facility, New Equipment Project (certified July 19, 2011), <http://www.aqmd.gov/home/library/documents-support-material/lead-agency-permit-projects/permit-project-documents---year-2011>; then follow “Final Subsequent Mitigated Negative Declaration for Warren E&P Inc. WTU Central Facility, New Equipment Project” hyperlink, pp. 2-22, 2-23 (last visited Apr. 1, 2015).) Therefore, when SCAQMD prepared a CEQA document for the expansion of an existing oil production facility, with very small PM_{2.5} increases (3.8 lb/day) and a very small affected population, staff elected not to use the CARB methodology for using estimated PM_{2.5} emissions to derive a projected premature mortality number and explained why it would be inappropriate to do so. (*Id.* at pp 2-22 to 2-24.) SCAQMD staff concluded that use of this methodology for such a small source could result in unreliable findings and would not provide meaningful information. (*Id.* at pp. 2-23, 2-25.) This CEQA document was not challenged in court.

In the above case, while it may have been technically possible to plug the data into the methodology, the results would not have been reliable or meaningful. SCAQMD believes that an agency should not be required to perform analyses that do not produce reliable or meaningful results. This Court has already held that an agency may decline to use even the “normal” “existing conditions” CEQA baseline where to do so would be misleading or without informational value. (*Neighbors for Smart Rail v. Exposition Metro Line* (2013) 57 Cal.4th 439, 448, 457.) The same should be true for a decision that a particular study or analysis would not provide reliable or meaningful results.¹⁰

¹⁰ Whether a particular study would result in “informational value” is a part of deciding whether it is “feasible.” CEQA defines “feasible” as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and

Therefore, it is not possible to set a hard-and-fast rule on whether a correlation of air quality impacts with specific quantifiable health impacts is required in all cases. Instead, the result turns on whether such an analysis is reasonably feasible in the particular case.¹¹ Moreover, what is reasonably feasible may change over time as scientists and regulatory agencies continually seek to improve their ability to predict health impacts. For example, CARB staff has been directed by its Governing Board to reassess and improve the methodology for estimating premature deaths. (California Air Resources Board, *Health Impacts Analysis: PM Mortality Relationship*, <http://www.arb.ca.gov/research/health/pm-mort/pm-mort.htm> (last reviewed Dec. 29, 2010).) This factor also counsels against setting any hard-and-fast rule in this case.

III. THE QUESTION OF WHETHER AN EIR CONTAINS SUFFICIENT ANALYSIS TO MEET CEQA'S REQUIREMENTS IS A MIXED QUESTION OF FACT AND LAW GOVERNED BY TWO DIFFERENT STANDARDS OF REVIEW.

A. Standard of Review for Feasibility Determination and Sufficiency as an Informative Document

A second issue in this case is whether courts should review an EIR's informational sufficiency under the "substantial evidence" test as argued by Friant Ranch or the "independent judgment" test as argued by Sierra Club.

technological factors." (Pub. Resources Code § 21061.1.) A study cannot be "accomplished in a *successful* manner" if it produces unreliable or misleading results.

¹¹ In this case, the lead agency did not have an opportunity to determine whether the requested analysis was feasible because the comment was non-specific. Therefore, SCAQMD suggests that this Court, after resolving the legal issues in the case, direct the Court of Appeal to remand the case to the lead agency for a determination of whether the requested analysis is feasible. Because Fresno County, the lead agency, did not seek review in this Court, it seems likely that the County has concluded that at least some level of correlation of air pollution with health impacts is feasible.

As this Court has explained, “a reviewing court must adjust its scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts.” (*Vineyard Area Citizens v. City of Rancho Cordova*, *supra*, 40 Cal.4th at 435.) For questions regarding compliance with proper procedure or other legal questions, courts review an agency’s action de novo under the “independent judgment” test. (*Id.*) On the other hand, courts review factual disputes only for substantial evidence, thereby “accord[ing] greater deference to the agency’s substantive factual conclusions.” (*Id.*)

Here, Friant Ranch and Sierra Club agree that the case involves the question of whether an EIR includes sufficient information regarding a project’s impacts. However, they disagree on the proper standard of review for answering this question: Sierra Club contends that courts use the independent judgment standard to determine whether an EIR’s analysis is sufficient to meet CEQA’s informational purposes,¹² while Friant Ranch contends that the substantial evidence standard applies to this question.

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¹² Sierra Club acknowledges that courts use the substantial evidence standard when reviewing predicate factual issues, but argues that courts ultimately decide as a matter of law what CEQA requires. (Answering Brief, pp. 14, 23.)

SCAQMD submits that the issue is more nuanced than either party contends. We submit that, whether a CEQA document includes sufficient analysis to satisfy CEQA's informational mandates is a mixed question of fact and law,¹³ containing two levels of inquiry that should be judged by different standards.¹⁴

The state CEQA Guidelines set forth standards for the adequacy of environmental analysis. Guidelines Section 15151 states:

An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good-faith effort at full disclosure.

In this case, the basic question is whether the underlying analysis of air quality impacts made the EIR "sufficient" as an informative document. However, whether the EIR's analysis was sufficient is judged in light of what was reasonably feasible. This represents a mixed question of fact and law that is governed by two different standards of review.

¹³ Friant Ranch actually states that the claim that an EIR lacks sufficient relevant information is, "most properly thought of as raising mixed questions of fact and law." (Opening Brief, p. 27.) However, the remainder of its argument claims that the court should apply the substantial evidence standard of review to all aspects of the issue.

¹⁴ Mixed questions of fact and law issues may implicate predominantly factual subordinate questions that are reviewed under the substantial evidence test even though the ultimate question may be reviewed by the independent judgment test. *Crocker National Bank v. City and County of San Francisco* (1989) 49 Cal.3d 881, 888-889.

SCAQMD submits that an EIR's sufficiency as an informational document is ultimately a legal question that courts should determine using their independent judgment. This Court's language in *Laurel Heights I* supports this position. As this Court explained: "The court does not pass upon the correctness of the EIR's environmental conclusions, but only upon its *sufficiency as an informative document*." (*Laurel Heights I, supra*, 47 Cal.3d at 392-393) (emphasis added.) As described above, the Court in *Vineyard Area Citizens v. City of Rancho Cordova, supra*, 40 Cal.4th at 431, also used its independent judgment to determine what level of analysis CEQA requires for water supply impacts. The Court did not defer to the lead agency's opinion regarding the law's requirements; rather, it determined for itself what level of analysis was necessary to meet "[t]he law's informational demands." (*Id.* at p. 432.) Further, existing case law also holds that where an agency fails to comply with CEQA's information disclosure requirements, the agency has "failed to proceed in the manner required by law." (*Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 118.)

However, whether an EIR satisfies CEQA's requirements depends in part on whether it was reasonably feasible for an agency to conduct additional or more thorough analysis. EIRs must contain "a detailed statement" of a project's impacts (Pub. Res. Code § 21061), and an agency must "use its best efforts to find out and disclose all that it reasonably can." (CEQA Guidelines § 15144.) Nevertheless, "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." (CEQA Guidelines § 15151.)

SCAQMD submits that the question of whether additional analysis or a particular study suggested by a commenter is "feasible" is generally a question of fact. Courts have already held that whether a particular alternative is "feasible" is reviewed by the substantial evidence test.

(*Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 598-99; *Center for Biological Diversity v. County of San Bernardino* (2010) 185 Cal.App.4th 866, 883.) Thus, if a lead agency determines that a particular study or analysis is infeasible, that decision should generally be judged by the substantial evidence standard. However, SCAQMD urges this Court to hold that lead agencies must explain the basis of any determination that a particular analysis is infeasible in the EIR itself. An EIR must discuss information, including issues related to the feasibility of particular analyses “in sufficient detail to enable meaningful participation and criticism by the public. ‘[W]hatever is required to be considered in an EIR must be in that formal report; what any official might have known from other writings or oral presentations cannot supply what is lacking in the report.’” (*Laurel Heights I, supra*, 47 Cal.3d at p. 405 (quoting *Santiago County Water District v. County of Orange* (1981) 118 Cal.App.3d 818, 831) (discussing analysis of alternatives).) The evidence on which the determination is based should also be summarized in the EIR itself, with appropriate citations to reference materials if necessary. Otherwise commenting agencies such as SCAQMD would be forced to guess where the lead agency's evidence might be located, thus thwarting effective public participation.

Moreover, if a lead agency determines that a particular study or analysis would not result in reliable or useful information and for that reason is not feasible, that determination should be judged by the substantial evidence test. (See *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority, supra*, 57 Cal.4th 439, 448, 457:

whether “existing conditions” baseline would be misleading or uninformative judged by substantial evidence standard.¹⁵)

If the lead agency’s determination that a particular analysis or study is not feasible is supported by substantial evidence, then the agency has not violated CEQA’s information disclosure provisions, since it would be infeasible to provide additional information. This Court’s decisions provide precedent for such a result. For example, this Court determined that the issue of whether the EIR should have included a more detailed discussion of future herbicide use was resolved because substantial evidence supported the agency’s finding that “the precise parameters of future herbicide use could not be predicted.” *Ebbetts Pass Forest Watch v. California Dept. of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 955.

Of course, SCAQMD expects that courts will continue to hold lead agencies to their obligations to consult with, and not to ignore or misrepresent, the views of sister agencies having special expertise in the area of air quality. (*Berkeley Keep Jets Over the Bay v. Board of Port Commissioners* (2007) 91 Cal.App.4th 1344, 1364 n.11.) In some cases, information provided by such expert agencies may establish that the purported evidence relied on by the lead agency is not in fact “substantial”. (*Id.* at pp. 1369-1371.)

In sum, courts retain ultimate responsibility to determine what CEQA requires. However, the law does not require exhaustive analysis, but only what is reasonably feasible. Agencies deserve deference for their factual determinations regarding what type of analysis is reasonably feasible. On the other hand, if a commenter requests more information, and the lead agency declines to provide it but does *not* determine that the

¹⁵ The substantial evidence standard recognizes that the courts “have neither the resources nor the scientific expertise” to weigh conflicting evidence on technical issues. (*Laurel Heights I, supra*, 47 Cal.3d 376, 393.)

requested study or analysis would be infeasible, misleading or uninformative, the question becomes whether the omission of that analysis renders the EIR inadequate to satisfy CEQA's informational purposes. (*Id.* at pp. 1370-71.) Again, this is predominantly a question of law and should be judged by the de novo or independent judgment standard of review. Of course, this Court has recognized that a "project opponent or reviewing court can always imagine some additional study or analysis that might provide helpful information. It is not for them to design the EIR. That further study...might be helpful does not make it necessary." (*Laurel Heights I, supra*, 47 Cal.3d 376, 415 – see also CEQA Guidelines § 15204(a) [CEQA "does not require a lead agency to conduct every test. . . recommended or demanded by commenters."].) Courts, then, must adjudicate whether an omission of particular information renders an EIR inadequate to serve CEQA's informational purposes.¹⁶

¹⁶ We recognize that there is case law stating that the substantial evidence standard applies to "challenges to the scope of an EIR's analysis of a topic" as well as the methodology used and the accuracy of the data relied on in the document "because these types of challenges involve factual questions." (*Bakersfield Citizens for Local Control v. City of Bakersfield, supra*, 124 Cal.App.4th 1184, 1198, and cases relied on therein.) However, we interpret this language to refer to situations where the question of the scope of the analysis really is factual—that is, where it involves whether further analysis is feasible, as discussed above. This interpretation is supported by the fact that the *Bakersfield* court expressly rejected an argument that a claimed "omission of information from the EIR should be treated as inquiries whether there is substantial evidence supporting the decision approving the project." *Bakersfield, supra*, 124 Cal.App.4th at p. 1208. And the *Bakersfield* court ultimately decided that the lead agency must analyze the connection between the identified air pollution impacts and resulting health impacts, even though the EIR already included some discussion of air-pollution-related respiratory illnesses. *Bakersfield, supra*, 124 Cal.App.4th at p. 1220. Therefore, the court must not have interpreted this question as one of the "scope of the analysis" to be judged by the substantial evidence standard.

B. Friant Ranch's Rationale for Rejecting the Independent Judgment Standard of Review is Unsupported by Case Law.

In its brief, Friant Ranch makes a distinction between cases where a required CEQA topic is not discussed at all (to be reviewed by independent judgment as a failure to proceed in the manner required by law) and cases where a topic is discussed, but the commenter claims the information provided is insufficient (to be judged by the substantial evidence test). (Opening Brief, pp. 13-17.) The Court of Appeal recognized these two types of cases, but concluded that both raised questions of law. (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) We believe the distinction drawn by Friant Ranch is unduly narrow, and inconsistent with cases which have concluded that CEQA documents are insufficient. In many instances, CEQA's requirements are stated broadly, and the courts must interpret the law to determine what level of analysis satisfies CEQA's mandate for providing meaningful information, even though the EIR discusses the issue to some extent.

For example, the CEQA Guidelines require discussion of the existing environmental baseline. In *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 954-955, the lead agency had discussed the environmental baseline by describing historic month-end water levels in the affected lakes. However, the court held that this was not an adequate baseline discussion because it failed to discuss the timing and amounts of past actual water releases, to allow comparison with the proposed project. The court evidently applied the independent judgment test to its decision, even though the agency discussed the issue to some extent.

Likewise, in *Vineyard Area Citizens* (2007) 40 Cal.4th 412, this Court addressed the question of whether an EIR's analysis of water supply impacts complied with CEQA. The parties agreed that the EIR was required to analyze the effects of providing water to the development project, "and that in order to do so the EIR had, in some manner, to identify the planned sources of that water." (*Vineyard Area Citizens, supra*, at p. 428.) However, the parties disagreed as to the level of detail required for this analysis and "what level of uncertainty regarding the availability of water supplies can be tolerated in an EIR" (*Id.*) In other words, the EIR had analyzed water supply impacts for the project, but the petitioner claimed that the analysis was insufficient.

This Court noted that neither CEQA's statutory language or the CEQA Guidelines specifically addressed the question of how precisely an EIR must discuss water supply impacts. (*Id.*) However, it explained that CEQA "states that '[w]hile foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can.'" (*Id.*, [Guidelines § 15144].) The Court used this general principle, along with prior precedent, to elucidate four "principles for analytical adequacy" that are necessary in order to satisfy "CEQA's informational purposes." (*Vineyard Area Citizens, supra*, at p. 430.) The Court did not defer to the agency's determination that the EIR's analysis of water supply impacts was sufficient. Rather, this Court used its independent judgment to determine for itself the level of analysis required to satisfy CEQA's fundamental purposes. (*Vineyard Area Citizens, supra*, at p. 441: an EIR does not serve its purposes where it neglects to explain likely sources of water and "... leaves long term water supply considerations to later stages of the project.")

Similarly, the CEQA Guidelines require an analysis of noise impacts of the project. (Appendix G, “Environmental Checklist Form.”¹⁷) In *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1123, the court held that the lead agency’s noise impact analysis was inadequate even though it had addressed the issue and concluded that the increase would not be noticeable. If the court had been using the substantial evidence standard, it likely would have upheld this discussion.

Therefore, we do not agree that the issue can be resolved on the basis suggested by Friant Ranch, which would apply the substantial evidence standard to *every* challenge to an analysis that addresses a required CEQA topic. This interpretation would subvert the courts’ proper role in interpreting CEQA and determining what the law requires.

Nor do we agree that the Court of Appeal in this case violated CEQA’s prohibition on courts interpreting its provisions “in a manner which imposes procedural or substantive requirements beyond those explicitly stated in this division or in the state guidelines.” (Pub. Resources Code § 21083.1.) CEQA requires an EIR to describe *all* significant impacts of the project on the environment. (Pub. Resources Code § 21100(b)(2); *Vineyard Area Citizens, supra*, at p. 428.) Human beings are part of the environment, so CEQA requires EIRs to discuss a project’s significant impacts on human health. However, except in certain particular circumstances,¹⁸ neither the CEQA statute nor Guidelines specify the precise level of analysis that agencies must undertake to satisfy the law’s requirements. (see, e.g., CEQA Guidelines § 15126.2(a) [EIRs must describe “health and safety problems caused by {a project’s} physical changes”].) Accordingly, courts must interpret CEQA as a whole to

¹⁷ Association of Environmental Professionals, 2015 CEQA Statute and Guidelines (2015) p.287.

¹⁸ E.g., Pub. Resources Code § 21151.8(C)(3)(B)(iii) (requiring specific type of health risk analysis for siting schools).

determine whether a particular EIR is sufficient as an informational document. A court determining whether an EIR's discussion of human health impacts is legally sufficient does not constitute imposing a new substantive requirement.¹⁹ Under Friant Ranch's theory, the above-referenced cases holding a CEQA analysis inadequate would have violated the law. This is not a reasonable interpretation.

IV. COURTS MUST SCRUPULOUSLY ENFORCE THE REQUIREMENTS THAT LEAD AGENCIES CONSULT WITH AND OBTAIN COMMENTS FROM AIR DISTRICTS

Courts must "scrupulously enforce" CEQA's legislatively mandated requirements. (*Vineyard Area Citizens, supra*, 40 Cal.4th 412, 435.) Case law has firmly established that lead agencies must consult with the relevant air pollution control district before conducting an initial study, and must provide the districts with notice of the intention to adopt a negative declaration (or EIR). (*Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 958.) As *Schenck* held, neither publishing the notice nor providing it to the State Clearinghouse was a sufficient substitute for sending notice directly to the air district. (*Id.*) Rather, courts "must be satisfied that [administrative] agencies have fully complied with the procedural requirements of CEQA, since only in this way can the important public purposes of CEQA be protected from subversion." *Schenck*, 198 Cal.App.4th at p. 959 (citations omitted).²⁰

¹⁹ We submit that Public Resources Code Section 21083.1 was intended to prevent courts from, for example, holding that an agency must analyze economic impacts of a project where there are no resulting environmental impacts (see CEQA Guidelines § 15131), or imposing new procedural requirements, such as imposing additional public notice requirements not set forth in CEQA or the Guidelines.

²⁰ Lead agencies must consult air districts, as public agencies with jurisdiction by law over resources affected by the project, *before* releasing an EIR. (Pub. Resources Code §§ 21104(a); 21153.) Moreover, air

Lead agencies should be aware, therefore, that failure to properly seek and consider input from the relevant air district constitutes legal error which may jeopardize their project approvals. For example, the court in *Fall River Wild Trout Foundation v. County of Shasta*, (1999) 70 Cal.App.4th 482, 492 held that the failure to give notice to a trustee agency (Department of Fish and Game) was prejudicial error requiring reversal. The court explained that the lack of notice prevented the Department from providing any response to the CEQA document. (*Id.* at p. 492.) It therefore prevented relevant information from being presented to the lead agency, which was prejudicial error because it precluded informed decision-making. (*Id.*)²¹

districts should be considered “state agencies” for purposes of the requirement to consult with “trustee agencies” as set forth in Public Resources Code § 20180.3(a). This Court has long ago held that the districts are not mere “local agencies” whose regulations are superseded by those of a state agency regarding matters of statewide concern, but rather have concurrent jurisdiction over such issues. (*Orange County Air Pollution Control District v. Public Util. Com.* (1971) 4 Cal.3d 945, 951, 954.) Since air pollution is a matter of statewide concern, *Id.* at 952, air districts should be entitled to trustee agency status in order to ensure that this vital concern is adequately protected during the CEQA process.

²¹ In *Schenck*, the court concluded that failure to give notice to the air district was not prejudicial, but this was partly because the trial court had already corrected the error before the case arrived at the Court of Appeal. The trial court issued a writ of mandate requiring the lead agency to give notice to the air district. The air district responded by concurring with the lead agency that air impacts were not significant. (*Schenck*, 198 Cal.App.4th 949, 960.) We disagree with the *Schenck* court that the failure to give notice to the air district would not have been prejudicial (even in the absence of the trial court writ) merely because the lead agency purported to follow the air district’s published CEQA guidelines for significance. (*Id.*, 198 Cal.App.4th at p. 960.) In the first place, absent notice to the air district, it is uncertain whether the lead agency properly followed those guidelines. Moreover, it is not realistic to expect that an air district’s published guidelines would necessarily fully address all possible air-quality related issues that can arise with a CEQA project, or that those

Similarly, lead agencies must obtain additional information requested by expert agencies, including those with jurisdiction by law, if that information is necessary to determine a project's impacts. (*Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1236-37.) Approving a project without obtaining that information constitutes a failure to proceed in the manner prescribed by CEQA. (*Id.* at p. 1236.)

Moreover, a lead agency can save significant time and money by consulting with the air district early in the process. For example, the lead agency can learn what the air district recommends as an appropriate analysis on the facts of its case, including what kinds of health impacts analysis may be available, and what models are appropriate for use. This saves the lead agency from the need to do its analysis all over again and possibly needing to recirculate the document after errors are corrected, if new significant impacts are identified. (CEQA Guidelines § 15088.5(a).) At the same time, the air district's expert input can help the lead agency properly determine whether another commenter's request for additional analysis or studies is reasonable or feasible. Finally, the air district can provide input on what mitigation measures would be feasible and effective.

Therefore, we suggest that this Court provide guidance to lead agencies reminding them of the importance of consulting with the relevant air districts regarding these issues. Otherwise, their feasibility decisions may be vulnerable to air district evidence that establishes that there is no substantial evidence to support the lead agency decision not to provide specific analysis. (*See Berkeley Keep Jets Over the Bay, supra*, 91 Cal.App.4th 1344, 1369-1371.)

guidelines would necessarily be continually modified to reflect new developments. Therefore we believe that, had the trial court not already ordered the lead agency to obtain the air district's views, the failure to give notice would have been prejudicial, as in *Fall River, supra*, 70 Cal.App.4th 482, 492.

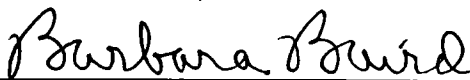
CONCLUSION

The SCAQMD respectfully requests this Court *not* to establish a hard-and-fast rule concerning whether CEQA requires a lead agency to correlate identified air quality impacts of a project with resulting health outcomes. Moreover, the question of whether an EIR is “sufficient as an informational document” is a mixed question of fact and law containing two levels of inquiry. Whether a particular proposed analysis is feasible is predominantly a question of fact to be judged by the substantial evidence standard of review. Where the requested analysis is feasible, but the lead agency relies on legal or policy reasons not to provide it, the question of whether the EIR is nevertheless sufficient as an informational document is predominantly a question of law to be judged by the independent judgment standard of review.

DATED: April 3, 2015

Respectfully submitted,

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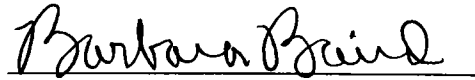
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.520(c)(1) of the California Rules of Court, I hereby certify that this brief contains 8,476 words, including footnotes, but excluding the Application, Table of Contents, Table of Authorities, Certificate of Service, this Certificate of Word Count, and signature blocks. I have relied on the word count of the Microsoft Word Vista program used to prepare this Certificate.

DATED: April 3, 2015

Respectfully submitted,


Barbara Baird

PROOF OF SERVICE

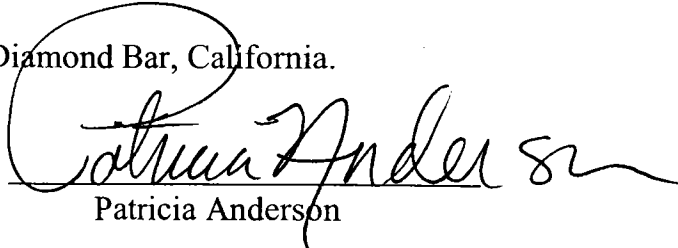
I am employed in the County of Los Angeles, California. I am over the age of 18 years and not a party to the within action. My business address is 21865 Copley Drive, Diamond Bar, California 91765.

On April 3, 2015 I served true copies of the following document(s) described as **APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND [PROPOSED] BRIEF OF *AMICUS CURIAE*** by placing a true copy of the foregoing document(s) in a sealed envelope addressed as set forth on the attached service list as follows:

BY MAIL: I enclosed the document(s) in a sealed envelope or package addressed to the persons at the addresses listed in the Service List and placed the envelope for collection and mailing following our ordinary business practices. I am readily familiar with this District's practice for collection and processing of correspondence for mailing. Under that practice, the correspondence would be deposited with the United States Postal Service, with postage thereon fully prepaid at Diamond Bar, California, in the ordinary course of business. I am aware that on motion of the party served, service is presumed invalid if postal cancellation date or postage meter date is more than one day after date of deposit for mailing in affidavit.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on April 3, 2015 at Diamond Bar, California.


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SUPREME COURT COPY

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

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LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

SUPREME COURT
FILED

APR 13 2015

Frank A. McGuire Clerk
Deputy

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

**APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF
SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN
SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND
REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.**

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APPLICATION

Pursuant to California Rules of Court 8.520(f)(1), proposed Amicus Curiae San Joaquin Valley Unified Air Pollution Control District hereby requests permission from the Chief Justice to file an amicus brief in support of Defendant and Respondent, County of Fresno, and Defendant and Real Parties in Interest Friant Ranch, L.P. Pursuant to Rule 8.520(f)(5) of the California Rules of Court, the proposed amicus curiae brief is combined with this Application. The brief addresses the following issue certified by this Court for review:

Is an EIR adequate when it identifies the health impacts of air pollution and quantifies a project's expected emissions, or does CEQA further require the EIR to *correlate* a project's air quality emissions to specific health impacts?

As of the date of this filing, the deadline for the final reply brief on the merits was March 5, 2015. Accordingly, under Rule 8.520(f)(2), this application and brief are timely.

1. Background and Interest of San Joaquin Valley Unified Air Pollution Control District

The San Joaquin Valley Unified Air Pollution Control District ("Air District") regulates air quality in the eight counties comprising the San Joaquin Valley ("Central Valley"): Kern, Tulare, Madera, Fresno, Merced, San Joaquin, Stanislaus, and Kings, and is primarily responsible for attaining air quality standards within its jurisdiction. After billions of dollars of investment by Central Valley businesses, pioneering air quality regulations, and consistent efforts by residents, the Central Valley air basin has made historic improvements in air quality.

The Central Valley's geographical, topographical and meteorological features create exceptionally challenging air quality

conditions. For example, it receives air pollution transported from the San Francisco Bay Area and northern Central Valley communities, and the southern portion of the Central Valley includes three mountain ranges (Sierra, Tehachapi, and Coastal) that, under some meteorological conditions, effectively trap air pollution. Central Valley air pollution is only a fraction of what the Bay Area and Los Angeles produce, but these natural conditions result in air quality conditions that are only marginally better than Los Angeles, even though about ten times more pollution is emitted in the Los Angeles region. Bay Area air quality is much better than the Central Valley's, even though the Bay Area produces about six times more pollution. The Central Valley also receives air pollution transported from the Bay Area and northern counties in the Central Valley, including Sacramento, and transboundary anthropogenic ozone from as far away as China.

Notwithstanding these challenges, the Central Valley has reduced emissions at the same or better rate than other areas in California and has achieved unparalleled milestones in protecting public health and the environment:

- In the last decade, the Central Valley became the first air basin classified by the federal government under the Clean Air Act as a “serious nonattainment” area to come into attainment of health-based National Ambient Air Quality Standard (“NAAQS”) for coarse particulate matter (PM₁₀), an achievement made even more notable given the Valley's extensive agricultural sector. Unhealthy levels of particulate matter can cause and exacerbate a range of chronic and acute illnesses.
- In 2013, the Central Valley became the first air basin in the country to improve from a federal designation of “extreme” nonattainment to

actually attain (and quality for an attainment designation) of the 1-hour ozone NAAQS; ozone creates “smog” and, like PM10, causes adverse health impacts.

- The Central Valley also is in full attainment of federal standards for lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide.
- The Central Valley continues to make progress toward compliance with its last two attainment standards, with the number of exceedences for the 8-hour ozone NAAQS reduced by 74% (for the 1997 standard) and 38% (for the 2008 standard) since 1991, and for the small particulate matter (PM2.5) NAAQS reduced by 85% (for the 1997 standard) and 61% (for the 2006 standard).

Sustained improvement in Central Valley air quality requires a rigorous and comprehensive regulatory framework that includes prohibitions (e.g., on wood-burning fireplaces in new residences), mandates (e.g., requiring the installation of best available pollution reduction technologies on new and modified equipment and industrial operations), innovations (e.g., fees assessed against residential development to fund pollution reduction actions to “offset” vehicular emissions associated with new residences), incentive programs (e.g., funding replacements of older, more polluting heavy duty trucks and school buses)¹, ongoing planning for continued air quality improvements, and enforcement of Air District permits and regulations.

The Air District is also an expert air quality agency for the eight counties and cities in the San Joaquin Valley. In that capacity, the Air District has developed air quality emission guidelines for use by the Central

¹ San Joaquin’s incentive program has been so successful that through 2012, it has awarded over \$ 432 million in incentive funds and has achieved 93,349 tons of lifetime emissions reductions. See SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 2012 PM2.5 PLAN, 6-6 (2012) available at <http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/06%20Chapter%206%20Incentives.pdf>.

Valley counties and cities that implement the California Environment Quality Act (CEQA).² In its guidance, the Air District has distinguished between toxic air contaminants and criteria air pollutants.³ Recognizing this distinction, the Air District's CEQA Guidance has adopted distinct thresholds of significance for *criteria* pollutants (i.e., ozone, PM2.5 and their respective precursor pollutants) based upon scientific and factual data which demonstrates the level that can be accommodated on a cumulative basis in the San Joaquin Valley without affecting the attainment of the applicable NAAQS.⁴ For *toxic air* pollutants, the District has adopted different thresholds of significance which scientific and factual data demonstrates has the potential to expose sensitive receptors (i.e., children, the elderly) to levels which may result in localized health impacts.⁵

The Air District's CEQA Guidance was followed by the County of Fresno in its environment review of the Friant Ranch project, for which the Air District also served as a commenting agency. The Court of Appeal's holding, however, requiring correlation between the project's criteria

² See, e.g., SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, PLANNING DIVISION, GUIDE FOR ASSESSING AND MITIGATING AIR QUALITY IMPACTS (2015), available at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf ("CEQA Guidance").

³ Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health, they are distinguishable from toxic air contaminants and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of toxic air contaminants occurs solely under section 112 of the Act. Compare 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 with 42 U.S.C. § 7411.

⁴ See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 64-66, 80.

⁵ See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 66, 99-101.

pollutants and local health impacts, departs from the Air District's Guidance and approved methodology for assessing criteria pollutants. A close reading of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants (for which a local health risk assessment is feasible and routinely performed) and criteria air pollutants (for which a local health risk assessment is not feasible and would result in speculative results).⁶ The Air District has a direct interest in ensuring the lawfulness and consistent application of its CEQA Guidance, and will explain how the Court of Appeal departed from the Air District's long-standing CEQA Guidance in addressing criteria pollutants and toxic air contaminants in this amicus brief.

2. How the Proposed Amicus Curiae Brief Will Assist the Court

As counsel for the proposed amicus curiae, we have reviewed the briefs filed in this action. In addition to serving as a "commentary agency" for CEQA purposes over the Friant Ranch project, the Air District has a strong interest in assuring that CEQA is used for its intended purpose, and believes that this Court would benefit from additional briefing explaining the distinction between criteria pollutants and toxic air contaminants and the different methodologies employed by local air pollution control agencies such as the Air District to analyze these two categories of air pollutants under CEQA. The Air District will also explain how the Court of Appeal's opinion is based upon a fundamental misunderstanding of these two different approaches by requiring the County of Fresno to correlate the project's *criteria* pollution emissions with *local* health impacts. In doing

⁶ CEQA does not require speculation. *See, e.g., Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.*, 6 Cal. 4th 1112, 1137 (1993) (upholding EIR that failed to evaluate cumulative toxic air emission increases given absence of any acceptable means for doing so).

so, the Air District will provide helpful analysis to support its position that at least insofar as criteria pollutants are concerned, CEQA does not require an EIR to correlate a project's air quality emissions to specific health impacts, because such an analysis is not reasonably feasible.

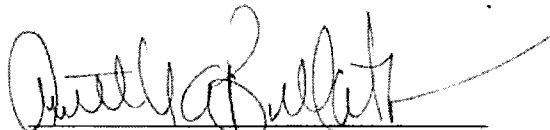
Rule 8.520 Disclosure

Pursuant to Cal. R. 8.520(f)(4), neither the Plaintiffs nor the Defendant or Real Party In Interest or their respective counsel authored this brief in whole or in part. Neither the Plaintiffs nor the Defendant or Real Party in Interest or their respective counsel made any monetary contribution towards or in support of the preparation of this brief.

CONCLUSION

On behalf of the San Joaquin Valley Unified Air Pollution Control District, we respectfully request that this Court accept the filing of the attached brief.

Dated: April 2, 2015



Annette A. Ballatore-Williamson
District Counsel
Attorney for Proposed Amicus Curiae

SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL
DISTRICT

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SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN
SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND
REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.**

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I. INTRODUCTION.

The San Joaquin Valley Unified Air Pollution Control District (“Air District”) respectfully submits that the Court of Appeal erred when it held that the air quality analysis contained in the Environmental Impact Report (“EIR”) for the Friant Ranch development project was inadequate under the California Environmental Quality Act (“CEQA”) because it did not include an analysis of the correlation between the project’s criteria air pollutants and the potential adverse human health impacts. A close reading of the portion of the administrative record that gave rise to this issue demonstrates that the Court’s holding is based on a misunderstanding of the distinction between toxic air contaminants and criteria air pollutants.

Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants (hereinafter referred to as “TACs”) regulated by the United States Environmental Protection Agency (“EPA”) and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health,

they are distinguishable from TACs and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of TACs occurs solely under section 112 of the Act. *Compare* 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 *with* 42 U.S.C. § 7411.

The most relevant difference between criteria pollutants and TACs for purposes of this case is the manner in which human health impacts are accounted for. While it is common practice to analyze the correlation between an individual facility's TAC emissions and the expected localized human health impacts, such is not the case for criteria pollutants. Instead, the human health impacts associated with criteria air pollutants are analyzed and taken into consideration when EPA sets the national ambient air quality standard ("NAAQS") for each criteria pollutant. 42 U.S.C. § 7409(b)(1). The health impact of a particular criteria pollutant is analyzed on a regional and not a facility level based on how close the area is to complying with (attaining) the NAAQS. Accordingly, while the type of individual facility / health impact analysis that the Court of Appeal has required is a customary practice for TACs, it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task.

It is clear from a reading of both the administrative record and the Court of Appeal's decision that the Court did not have the expertise to fully

appreciate the difference between TACs and criteria air pollutants. As a result, the Court has ordered the County of Fresno to conduct an analysis that is not practicable and not likely yield valid information. The Air District respectfully requests that this portion of the Court of Appeal's decision be reversed.

II. THE COURT OF APPEAL ERRED IN FINDING THE FRIANT RANCH EIR INADEQUATE FOR FAILING TO ANALYZE THE SPECIFIC HUMAN HEALTH IMPACTS ASSOCIATED CRITERIA AIR POLLUTANTS.

Although the Air District does not take lightly the amount of air emissions at issue in this case, it submits that the Court of Appeal got it wrong when it required Fresno County to revise the Friant Ranch EIR to include an analysis correlating the criteria air pollutant emissions associated with the project with specific, localized health-impacts. The type of analysis the Court of Appeal has required will not yield reliable information because currently available modeling tools are not well suited for this task. Further, in reviewing this issue de novo, the Court of Appeal failed to appreciate that it lacked the scientific expertise to appreciate the significant differences between a health risk assessment commonly performed for toxic air contaminants and a similar type of analysis it felt should have been conducted for criteria air pollutants.

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A. Currently Available Modeling Tools are not Equipped to Provide a Meaningful Analysis of the Correlation between an Individual Development Project's Air Emissions and Specific Human Health Impacts.

In order to appreciate the problematic nature of the Court of Appeals' decision requiring a health risk type analysis for criteria air pollutants, it is important to understand how the relevant criteria pollutants (ozone and particulate matter) are formed, dispersed and regulated.

Ground level ozone (smog) is not directly emitted into the air, but is formed when precursor pollutants such as oxides of nitrogen (NO_x) and volatile organic compounds (VOCs) are emitted into the atmosphere and undergo complex chemical reactions in the process of sunlight.¹ Once formed, ozone can be transported long distances by wind.² Because of the complexity of ozone formation, a specific tonnage amount of NO_x or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area. In fact, even rural areas that have relatively low tonnages of emissions of NO_x or VOCs can have high levels of ozone concentration simply due to wind transport.³ Conversely, the San Francisco Bay Area has six times more NO_x and VOC emissions per square mile than the San Joaquin Valley, but experiences lower

¹ See United States Environmental Protection Agency, *Ground-level Ozone: Basic Information*, available at: <http://www.epa.gov/airquality/ozonepollution/basic.html> (visited March 10, 2015).

² *Id.*

³ *Id.*

concentrations of ozone (and better air quality) simply because sea breezes disperse the emissions.⁴

Particulate matter (“PM”) can be divided into two categories: directly emitted PM and secondary PM.⁵ While directly emitted PM can have a localized impact, the tonnage emitted does not always equate to the local PM concentration because it can be transported long distances by wind.⁶ Secondary PM, like ozone, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as sulfur dioxides (SO_x) and NO_x.⁷ Because of the complexity of secondary PM formation, the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area.

The disconnect between the *tonnage* of precursor pollutants (NO_x, SO_x and VOCs) and the *concentration* of ozone or PM formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects, but the concentration of resulting ozone or PM. Indeed, the national ambient air quality standards (“NAAQS”), which are statutorily required to be set by the United States Environmental Protection

⁴ *San Joaquin Valley Air Pollution Control District 2007 Ozone Plan*, Executive Summary p. ES-6, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/03%20Executive%20Summary.pdf (visited March 10, 2015).

⁵ United States Environmental Protection Agency, *Particulate Matter: Basic Information*, available at: <http://www.epa.gov/airquality/particlepollution/basic.html> (visited March 10, 2015).

⁶ *Id.*

⁷ *Id.*

Agency (“EPA”) at levels that are “requisite to protect the public health,” 42 U.S.C. § 7409(b)(1), are established as concentrations of ozone or particulate matter and not as tonnages of their precursor pollutants.⁸

Attainment of a particular NAAQS occurs when the concentration of the relevant pollutant remains below a set threshold on a consistent basis throughout a particular region. For example, the San Joaquin Valley attained the 1-hour ozone NAAQS when ozone concentrations remained at or below 0.124 parts per million Valley-wide on 3 or fewer days over a 3-year period.⁹ Because the NAAQS are focused on achieving a particular concentration of pollution region-wide, the Air District’s tools and plans for attaining the NAAQS are regional in nature.

For instance, the computer models used to simulate and predict an attainment date for the ozone or particulate matter NAAQS in the San Joaquin Valley are based on regional inputs, such as regional inventories of precursor pollutants (NO_x, SO_x and VOCs) and the atmospheric chemistry and meteorology of the Valley.¹⁰ At a very basic level, the models simulate future ozone or PM levels based on predicted changes in precursor

⁸ See, e.g., United States Environmental Protection Agency, *Table of National Ambient Air Quality Standards*, available at: <http://www.epa.gov/air/criteria.html#3> (visited March 10, 2015).

⁹ *San Joaquin Valley Unified Air Pollution Control District 2013 Plan for the Revoked 1-Hour Ozone Standard*, Ch. 2 p. 2-16, available at: http://www.valleyair.org/Air_Quality_Plans/OzoneOneHourPlan2013/02Chapter2ScienceTrendsModeling.pdf (visited March 10, 2015).

¹⁰ *Id.* at Ch. 2 p. 2-19 (visited March 12, 2015); *San Joaquin Valley Unified Air Pollution Control District 2008 PM_{2.5} Plan*, Appendix F, pp. F-2 – F-5, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Final_Adopted_PM2.5/20%20Appendix%20F.pdf (visited March 19, 2015).

emissions Valley wide.¹¹ Because the NAAQS are set levels necessary to protect human health, the closer a region is to attaining a particular NAAQS, the lower the human health impact is from that pollutant.

The goal of these modeling exercises is not to determine whether the emissions generated by a particular factory or development project will affect the date that the Valley attains the NAAQS. Rather, the Air District's modeling and planning strategy is regional in nature and based on the extent to which *all* of the emission-generating sources in the Valley (current and future) must be controlled in order to reach attainment.¹²

Accordingly, the Air District has based its thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the Valley can accommodate without affecting the attainment date for the NAAQS.¹³ The Air District has tied its CEQA significance thresholds to the level at which stationary pollution sources permitted by the Air District must "offset" their emissions.¹⁴ This "offset"

¹¹ *Id.*

¹² Although the Air District does have a dispersion modeling tool used during its air permitting process that is used to predict whether a particular project's directly emitted PM will either cause an exceedance of the PM NAAQS or contribute to an existing exceedance, this model bases the prediction on a worst case scenario of emissions and meteorology and has no provision for predicting any associated human health impacts. Further, this analysis is only performed for stationary sources (factories, oil refineries, etc.) that are required to obtain a New Source Review permit from the Air District and not for development projects such as Friant Ranch over which the Air District has no preconstruction permitting authority. See San Joaquin Valley Unified Air Pollution Control District Rule 2201 §§ 2.0; 3.3.9; 4.14.1, available at: <http://www.valleyair.org/rules/currntrules/Rule22010411.pdf> (visited March 19, 2015).

¹³ *San Joaquin Valley Unified Air Pollution Control District Guide to Assessing and Mitigating Air Quality Impacts*, (March 19, 2015) p. 22, available at: <http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf> (visited March 30, 2015).

¹⁴ *Id.* at pp. 22, 25.

level allows for growth while keeping the cumulative effects of all new sources at a level that will not impede attainment of the NAAQS.¹⁵ In the Valley, these thresholds are 15 tons per year of PM, and 10 tons of NOx or VOC per year. *Sierra Club, supra*, 172 Cal.Rptr.3d at 303; AR 4554. Thus, the CEQA air quality analysis for criteria pollutants is not really a localized, project-level impact analysis but one of regional, “cumulative impacts.”

Accordingly, the significance thresholds applied in the Friant Ranch EIR (15 tons per year of PM and 10 tons of NOx or VOCs) are not intended to be indicative of any localized human health impact that the project may have. While the health effects of air pollution are of primary concern to the Air District (indeed, the NAAQS are established to protect human health), the Air District is simply not equipped to analyze whether and to what extent the criteria pollutant emissions of an individual CEQA project directly impact human health in a particular area. This is true even for projects with relatively high levels of emissions of criteria pollutant precursor emissions.

For instance, according to the EIR, the Friant Ranch project is estimated to emit 109.52 tons per year of ROG (VOC), 102.19 tons per year of NOx, and 117.38 tons per year of PM. Although these levels well

¹⁵ ¹⁵ *San Joaquin Valley Unified Air Pollution Control District Environmental Review Guidelines* (Aug. 2000) p. 4-11, available at: http://www.valleyair.org/transportation/CEQA%20Rules/ERG%20Adopted%20_August%202000_.pdf (visited March 12, 2015).

exceed the Air District's CEQA significance thresholds, this does not mean that one can easily determine the concentration of ozone or PM that will be created at or near the Friant Ranch site on a particular day or month of the year, or what specific health impacts will occur. Meteorology, the presence of sunlight, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone or PM. This is especially true for a project like Friant Ranch where most of the criteria pollutant emissions derive not from a single "point source," but from area wide sources (consumer products, paint, etc.) or mobile sources (cars and trucks) driving to, from and around the site.

In addition, it would be extremely difficult to model the impact on NAAQS attainment that the emissions from the Friant Ranch project may have. As discussed above, the currently available modeling tools are equipped to model the impact of *all* emission sources in the Valley on attainment. According to the most recent EPA-approved emission inventory, the NO_x inventory for the Valley is for the year 2014 is 458.2 tons per day, or 167,243 tons per year and the VOC (or ROG) inventory is 361.7 tons per day, or 132,020.5 tons per year.¹⁶ Running the photochemical grid model used for predicting ozone attainment with the

¹⁶ *San Joaquin Valley Unified Air Pollution Control District 2007 Ozone Plan*, Appendix B pp. B-6, B-9, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/19%20Appendix%20B%20April%202007.pdf (visited March 12, 2015).

emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NOx and VOC in the Valley) is not likely to yield valid information given the relative scale involved.

Finally, even once a model is developed to accurately ascertain local increases in concentrations of photochemical pollutants like ozone and some particulates, it remains impossible, using today's models, to correlate that increase in concentration to a specific health impact. The reason is the same: such models are designed to determine regional, population-wide health impacts, and simply are not accurate when applied at the local level.

For these reasons, it is not the norm for CEQA practitioners, including the Air District, to conduct an analysis of the localized health impacts associated with a project's criteria air pollutant emissions as part of the EIR process. When the accepted scientific method precludes a certain type of analysis, "the court cannot impose a legal standard to the contrary." *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 717 n. 8. However, that is exactly what the Court of Appeal has done in this case. Its decision upends the way CEQA air quality analysis of criteria pollutants occurs and should be reversed.

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B. The Court of Appeal Improperly Extrapolated a Request for a Health Risk Assessment for Toxic Air Contaminants into a Requirement that the EIR contain an Analysis of Localized Health Impacts Associated with Criteria Air Pollutants.

The Court of Appeal's error in requiring the new health impact analysis for criteria air pollutants clearly stems from a misunderstanding of terms of art commonly used in the air pollution field. More specifically, the Court of Appeal (and Appellants Sierra Club et al.) appear to have confused the health risk analysis ("HRA") performed to determine the health impacts associated with a project's toxic air contaminants ("TACs"), with an analysis correlating a project's criteria air pollutants (ozone, PM and the like) with specific localized health impacts.

The first type of analysis, the HRA, is commonly performed during the Air District's stationary source permitting process for projects that emit TACs and is, thus, incorporated into the CEQA review process. An HRA is a comprehensive analysis to evaluate and predict the dispersion of TACs emitted by a project and the potential for exposure of human populations. It also assesses and quantifies both the individual and population-wide health risks associated with those levels of exposure. There is no similar analysis conducted for criteria air pollutants. Thus, the second type of analysis (required by the Court of Appeal), is not currently part of the Air District's process because, as outlined above, the health risks associated

with exposure to criteria pollutants are evaluated on a regional level based on the region's attainment of the NAAQS.

The root of this confusion between the types of analyses conducted for TACs versus criteria air pollutants appears to stem from a comment that was presented to Fresno County by the City of Fresno during the administrative process.

In its comments on the draft EIR, the City of Fresno (the only party to raise this issue) stated:

[t]he EIR must disclose the human health related effects of the Project's air pollution impacts. (CEQA Guidelines section 15126.2(a).) The EIR fails completely in this area. The EIR should be revised to disclose and determine the significance of TAC impacts, and of human health risks due to exposure to Project-related air emissions.

(AR 4602.)

In determining that the issue regarding the correlation between the Friant Ranch project's criteria air pollutants and adverse health impacts was adequately exhausted at the administrative level, the Court of Appeal improperly read the first two sentences of the City of Fresno's comment in isolation rather than in the context of the entire comment. *See Sierra Club v. County of Fresno* (2014) 172 Cal.Rptr.3d 271, 306. Although the comment first speaks generally in terms of "human health related effects" and "air pollution," it requests only that the EIR be revised to disclose "the significance of TACs" and the "human health risks due to exposure."

The language of this request in the third sentence of the comment is significant because, to an air pollution practitioner, the language would only have indicated only that a HRA for TACs was requested, and not a separate analysis of the health impacts associated with the project's criteria air pollutants. Fresno County clearly read the comment as a request to perform an HRA for TACs and limited its response accordingly. (AR 4602.)¹⁷ The Air District submits that it would have read the City's comment in the same manner as the County because the City's use of the terms "human health risks" and "TACs" signal that an HRA for TACs is being requested. Indeed, the Air District was also concerned that an HRA be conducted, but understood that it was not possible to conduct such an analysis until the project entered the phase where detailed site specific information, such as the types of emission sources and the proximity of the sources to sensitive receptors became available. (AR 4553.)¹⁸ The City of Fresno was apparently satisfied with the County's discussion of human health risks, as it did not raise the issue again when it commented on the final EIR. (AR 8944 – 8960.)

¹⁷ Appellants do not challenge the manner in which the County addressed TACs in the EIR. (Appellants' Answer Brief p. 28 fn. 7.)

¹⁸ Appellants rely on the testimony of Air District employee, Dan Barber, as support for their position that the County should have conducted an analysis correlating the project's criteria air pollutant emissions with localized health impacts. (Appellants Answer Brief pp. 10-11; 28.) However, Mr. Barber's testimony simply reinforces the Air District's concern that a risk assessment (HRA) be conducted once the actual details of the project become available. (AR 8863.) As to criteria air pollutants, Mr. Barber's comments are aimed at the Air District's concern about the amount of emissions and the fact that the emissions will make it "more difficult for Fresno County and the Valley to reach attainment which means that the health of Valley residents maybe [sic] adversely impacted." Mr. Barber says nothing about conducting a separate analysis of the localized health impacts the project's emissions may have.

The Court of Appeal's holding, which incorrectly extrapolates a request for an HRA for TACs into a new analysis of the localized health impacts of the project's criteria air pollutants, highlights two additional errors in the Court's decision.

First, the Court of Appeal's holding illustrates why the Court should have applied the deferential substantial evidence standard of review to the issue of whether the EIR's air quality analysis was sufficient. The regulation of air pollution is a technical and complex field and the Court of Appeal lacked the expertise to fully appreciate the difference between TACs and criteria air pollutants and tools available for analyzing each type of pollutant.

Second, it illustrates that the Court likely got it wrong when it held that the issue regarding the criteria pollutant / localized health impact analysis was properly exhausted during the administrative process. In order to preserve an issue for the court, '[t]he "exact issue" must have been presented to the administrative agency....' [Citation.] *Citizens for Responsible Equitable Environmental Development v. City of San Diego*, (2011) 196 Cal.App.4th 515, 527 129 Cal.Rptr.3d 512, 521; *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 535, 78 Cal.Rptr.3d 1, 13. "[T]he objections must be sufficiently specific so that the agency has the

opportunity to evaluate and respond to them.’ [Citation.]” *Sierra Club v. City of Orange*, 163 Cal.App.4th at 536.¹⁹

As discussed above, the City’s comment, while specific enough to request a commonly performed HRA for TACs, provided the County with no notice that it should perform a new type of analysis correlating criteria pollutant tonnages to specific human health effects. Although the parties have not directly addressed the issue of failure to exhaust administrative remedies in their briefs, the Air District submits that the Court should consider how it affects the issues briefed by the parties since “[e]xhaustion of administrative remedies is a jurisdictional prerequisite to maintenance of a CEQA action.” *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1199, 22 Cal.Rptr.3d 203.

III. CONCLUSION

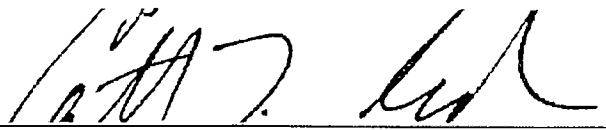
For all of the foregoing reasons, the Air District respectfully requests that the portion of the Court of Appeal’s decision requiring an analysis correlating the localized human health impacts associated with an individual project’s criteria air pollutant emissions be reversed.

¹⁹ *Sierra Club v. City of Orange*, is illustrative here. In that case, the plaintiffs challenged an EIR approved for a large planned community on the basis that the EIR improperly broke up the various environmental impacts by separate project components or “piecemealed” the analysis in violation of CEQA. In evaluating the defense that the plaintiffs had failed to adequately raise the issue at the administrative level, the Court held that comments such as “the use of a single document for both a project-level and a program-level EIR [is] ‘confusing’,” and “[t]he lead agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project,” were too vague to fairly raise the argument of piecemealing before the agency. *Sierra Club v. City of Orange*, 163 Cal.App.4th at 537.

correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

Respectfully submitted,

Dated: April 2, 2015

A handwritten signature in black ink, appearing to read 'C. Redmond', is written over a horizontal line.

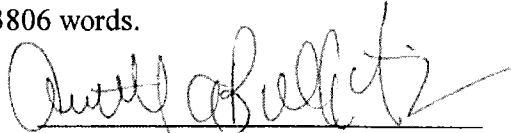
Catherine T. Redmond
Attorney for Proposed Amicus
Curiae

SAN JOAQUIN VALLEY
UNIFIED
AIR POLLUTION CONTROL
DISTRICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.204 of the California Rules of Court, I hereby certify that this document, based on the Word County feature of the Microsoft Word software program used to compose and print this document, contains, exclusive of caption, tables, certificate of word count, signature block and certificate of service, 3806 words.

Dated: April 2, 2015

A handwritten signature in cursive script, appearing to read "Annette A. Ballatore-Williamson", written over a horizontal line.

Annette A. Ballatore-Williamson
District Counsel (SBN 192176)

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

PROOF OF SERVICE

I am over the age of 18 years and not a party to the above-captioned action; that my business address is San Joaquin Valley Unified Air Pollution Control District located at 1990 E. Gettysburg Avenue, Fresno, California 93726.

On April 2, 2015, I served the document described below:

**APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF
SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN
SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO**

On all parties to this action at the following addresses and in the following manner:

PLEASE SEE ATTACHED SERVICE LIST

- (XX) **(BY MAIL)** I caused a true copy of each document(s) to be laced in a sealed envelope with first-class postage affixed and placed the envelope for collection. Mail is collected daily at my office and placed in a United State Postal Service collection box for pick-up and delivery that same day.
- () **(BY ELECTRONIC MAIL)** I caused a true and correct scanned image (.PDF file) copy to be transmitted via electronic mail transfer system in place at the San Joaquin Valley Unified Air Pollution Control District ("District"), originating from the undersigned at 1990 E. Gettysburg Avenue, Fresno, CA, to the address(es) indicated below.
- () **(BY OVERNIGHT MAIL)** I caused a true and correct copy to be delivered via Federal Express to the following person(s) or their representative at the address(es) listed below.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that I executed this document on April 2, 2015, at Fresno, California.



Esthela Soto

SERVICE LIST

Sierra Club et al, v. County of Fresno, et al

Supreme Court of California Case No.: S219783

Fifth District Court of Appeal Case No.: F066798

Fresno County Superior Court Case No.: 11CECG00726

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APPENDIX D:
REVISIONS TO
SECTION 5.6, ENERGY,
OF THE DEIR

5. Environmental Analysis

5.6 ENERGY

This section describes the potential energy impacts associated with the adoption and implementation of the proposed project. This section describes the regulatory framework and existing conditions, identifies criteria used to determine impact significance, provides an analysis of the potential energy impacts, and identifies proposed General Plan policies and feasible mitigation measures that could mitigate any potentially significant impacts.

5.6.1 Environmental Setting

Section 21100(b)(3) of the California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) include a detailed statement setting for the mitigation measures proposed to minimize significant effects on the environment, including but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy. Appendix F of State CEQA Guidelines states that, to ensure that energy implications are considered in project decisions, the potential energy implications of a project shall be considered in an EIR, to the extent relevant and applicable to the project. Appendix F further states that a project's energy consumption and proposed conservation measures may be addressed, as relevant and applicable, in the project description, environmental setting, and impact analysis portions of technical sections, as well as through mitigation measures and alternatives.

In accordance with Appendices F and G of the State CEQA Guidelines, this EIR includes relevant information and analyses that address the energy implications of the proposed project. This section summarizes the proposed project's anticipated energy needs, impacts, and conservation measures. Information found herein, as well as related aspects of the proposed project's energy implications, are discussed in greater detail elsewhere in this EIR, including Sections 5.3, *Air Quality*; 5.8, *Greenhouse Gas Emissions*; and 5.16, *Transportation*.

5.6.1.1 REGULATORY BACKGROUND

Federal

Federal Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 was established in response to the 1973 oil crisis. The Act created the Strategic Petroleum Reserve, established vehicle fuel economy standards, and prohibited the export of U.S. crude oil (with a few limited exceptions). It also created Corporate Average Fuel Economy (CAFE) standards for passenger cars starting in model year 1978. The CAFE Standards are updated periodically to account for changes in vehicle technologies, driver behavior, and/or driving conditions.

The federal government issued new CAFE standards in 2012 for model years 2017 to 2025 that required a fleet average of 54.5 miles per gallon (MPG) for model year 2025. However, on March 30, 2020, the U.S. Environmental Protection Agency (USEPA) finalized updated CAFE and greenhouse gas (GHG) emissions standards for passenger cars and light trucks, covering model years 2021 through 2026, known as the Safer Affordable Fuel Efficient (SAFE) Vehicles Final Rule for Model Years 2021–2026. Under SAFE, the fuel economy standards will increase 1.5 percent per year compared to the 5 percent per year under the CAFE

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standards established in 2012. Overall, SAFE requires a fleet average of 40.4 MPG for model year 2026 vehicles (85 Federal Register 24174 [April 30, 2020]).

On December 21, 2021, under direction of Executive Order (EO) 13990 issued by President Biden, the National Highway Traffic Safety Administration repealed SAFE Vehicles Rule Part One, which had preempted state and local laws related to fuel economy standards. In addition, on March 31, 2022, the National Highway Traffic Safety Administration finalized new fuel standards in response to EO 13990. Fuel efficiency under the standards proposed will increase 8 percent annually for model years 2024 to 2025 and 10 percent for model year 2026. Overall, the new CAFE standards require a fleet average of 49 MPG for passenger vehicles and light trucks for model year 2026, which would be a 10 MPG increase relative to model year 2021 (National Highway Traffic Safety Administration 2022).

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 (Public Law 110-140) seeks to provide the nation with greater energy independence and security by increasing the production of clean renewable fuels; improving vehicle fuel economy; and increasing the efficiency of products, buildings, and vehicles. The Act sets increased CAFE standards; the Renewable Fuel Standard; appliance energy efficiency standards; building energy efficiency standards; and accelerated research and development tasks on renewable energy sources (e.g., solar energy, geothermal energy, and marine and hydrokinetic renewable energy technologies), carbon capture, and sequestration (USEPA 2022).

Energy Policy Act of 2005

Passed by Congress in July 2005, the Energy Policy Act includes a comprehensive set of provisions to address energy issues. This Act includes tax incentives for energy conservation improvements in commercial and residential buildings, fossil fuel production and clean coal facilities, and construction and operation of nuclear power plants, among other things. Subsidies are also included for geothermal, wind energy, and other alternative energy producers.

National Energy Policy

Established in 2001 by the National Energy Policy Development Group, the National Energy Policy is designed to help the private sector and state and local governments promote dependable, affordable, and environmentally sound production and distribution of energy for the future. Key issues addressed by the energy policy are energy conservation, repair and expansion of energy infrastructure, and ways of increasing energy supplies while protecting the environment.

Natural Gas Pipeline Safety Act of 1968

The Natural Gas Pipeline Safety Act of 1968 authorizes the U.S. Department of Transportation to regulate pipeline transportation of flammable, toxic, or corrosive natural gas and other gases as well as the transportation and storage of liquefied natural gas. The Pipeline and Hazardous Materials Safety Administration within the Department of Transportation develops and enforces regulations for the safe, reliable, and environmentally sound operation of the nation's 2.6 million-mile pipeline transportation system.

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State

Warren-Alquist Act

Enacted in 1974, the Warren-Alquist Act created the California Energy Commission (CEC) in response to the energy crisis of the early 1970s and the state's unsustainable growing demand for energy resources. As discussed further below, the CEC's core responsibilities include advancing State energy policy, encouraging energy efficiency, certifying thermal power plants, investing in energy innovation, developing renewable energy, transforming transportation, and preparing for energy emergencies. The Warren-Alquist Act is updated annually to address current energy needs and issues, and its latest edition is from January 2023.

California Energy Commission

The CEC was created in 1974 as the State's principal energy planning organization in order to meet the energy challenges facing the state in response to the 1973 oil embargo. The CEC is charged with six basic responsibilities when designing State energy policy:

- Forecast statewide electricity needs.
- License power plants to meet those needs.
- Promote energy conservation and efficiency measures.
- Develop renewable energy resources and alternative energy technologies.
- Promote research, development, and demonstration.
- Plan for and direct the State's response to energy emergencies.

California Public Utilities Commission

In September 2008, the California Public Utilities Commission (CPUC) adopted the Long-Term Energy Efficiency Strategic Plan, which provides a framework for energy efficiency in California through the year 2020 and beyond. It articulates a long-term vision, as well as goals for each economic sector, identifying specific near-term, mid-term, and long-term strategies to assist in achieving these goals. This Plan sets forth the following four goals, known as Big Bold Energy Efficiency Strategies, to achieve significant reductions in energy demand (CPUC 2011):

- All new residential construction in California will be zero net energy (ZNE) by 2020;¹
- All new commercial construction in California will be ZNE by 2030;
- Heating, ventilation, and air conditioning commonly referred to as "HVAC" will be transformed to ensure that its energy performance is optimal for California's climate; and
- All eligible low-income customers will be given the opportunity to participate in the low-income energy efficiency program by 2020.

¹ ZNE buildings are buildings in which the total amount of energy used on an annual basis is equal to or less than the amount of renewable energy created on the site.

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With respect to the commercial sector, the Long-Term Energy Efficiency Strategic Plan notes that commercial buildings, which include schools, hospitals, and public buildings, consume more electricity than any other end-use sector in California. The commercial sector's five billion-plus square feet of space accounts for 38 percent of the state's power use and over 25 percent of natural gas consumption. Lighting, cooling, refrigeration, and ventilation account for 75 percent of all commercial electric use, while space heating, water heating, and cooking account for over 90 percent of gas use. In 2006, office, retail, and schools and colleges were in the top five facility types for electricity and gas consumption, accounting for approximately 10 percent of state's electricity and gas use (CPUC 2011).

The CPUC and CEC have adopted the following goals to achieve ZNE levels by 2030 in the commercial sector:

- **Goal 1.** New construction will increasingly embrace ZNE performance (including clean, distributed generation), reaching 100 percent penetration of new starts in 2030.
- **Goal 2.** 50 percent of existing buildings will be retrofit to ZNE by 2030 through achievement of deep levels of energy efficiency and with the addition of clean distributed generation.
- **Goal 3.** Transform the commercial lighting market through technological advancement and innovative utility initiatives.

Renewables Portfolio Standard

Senate Bills 1078, 107, X1-2, and Executive Order S-14-08

The California Renewables Portfolio Standard (RPS) Program was established in 2002 under Senate Bill (SB) 1078 (Sher) and 107 (Simitian). The RPS program required investor-owned utilities, electric service providers, and community choice aggregators to increase the use of eligible renewable energy resources to 33 percent of total procurement by 2020. Initially under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. Executive Order S-14-08 was signed in November 2008, which expanded the State's Renewable Energy Standard to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). The CPUC is required to provide quarterly progress reports on progress toward RPS goals. This has accelerated the development of renewable energy projects throughout the state. For year 2020, the three largest retail energy utilities provided an average of 43 percent of their supplies from renewable energy sources. Community choice aggregators provided an average of 41 percent of its supplies from renewable sources (CPUC 2021).

Senate Bill 350

Governor Jerry Brown signed SB 350 on October 7, 2015, which expanded the RPS by establishing a goal of 50 percent of the total electricity sold to retail customers in California per year to be from renewable sources by December 31, 2030. In addition, SB 350 included a goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also required the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal. SB 350 also provided for the transformation of the California Independent System Operator (CAISO) into a regional organization to promote the development of regional

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electricity transmission markets in the western states and to improve the access of consumers served by the CAISO to those markets, pursuant to a specified process.

Senate Bill 100

On September 10, 2018, Governor Brown signed SB 100, which replaces the SB 350 requirements, now requiring 50 percent renewable by 2026 and 60 percent by 2050. SB 100 also establishes RPS requirements for publicly owned utilities that consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. The bill establishes an overall State policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all State agencies by December 31, 2045. Under the bill, the State cannot increase carbon emissions elsewhere in the western grid or allow resources shuffling to achieve the 100 percent carbon-free electricity target.

Senate Bill 1020

SB 1020 was signed into law on September 16, 2022. It requires renewable energy and zero-carbon resources to supply 90 percent of all retail electricity sales by 2035 and 95 percent by 2040. Additionally, SB 1020 requires all State agencies to procure 100 percent of electricity from renewable energy and zero-carbon resources by 2035.

Energy Efficiency

Appliance Efficiency Regulations

California's Appliance Efficiency Regulations contain energy performance, energy design, water performance, and water design standards for appliances (including refrigerators, ice makers, vending machines, freezers, water heaters, fans, boilers, washing machines, dryers, air conditioners, pool equipment, and plumbing fittings) that are sold or offered for sale in California (California Code of Regulations [CCR] Title 20, Parts 1600–1608). These standards are updated regularly to allow consideration of new energy efficiency technologies and methods (CEC 2023a).

California Building Energy Code: Title 24, Part 6, Energy Efficiency Standards

Energy efficiency standards for new development were adopted by the California Energy Resource Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2022 (CCR Title 24, Part 6). Title 24, Part 6, *Building Energy Code* ("Energy Code") requires the design of building shells and building components to conserve energy. The standards are updated every 3 years and replace the preceding code cycle. The 2022 standards became effective and replaced the 2019 standards on January 1, 2023.

The Energy Code contains mandatory requirements, which are required for all new development and include standards covering space conditioning, water heating, cooking and furnace equipment, building insulation, lighting controls, electrical distribution, and solar readiness. In addition to the mandatory requirements, for a new development to demonstrate compliance with the Energy Code, it must demonstrate compliance with either the *Prescriptive Approach* or *Performance Approach*. The *Prescriptive Approach* contains various prescribed features, such as solar water heaters, solar panel arrays, and battery storage, depending on the building

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occupancy types and location. For instance, the single-family and low-rise (three or fewer habitable stories) multifamily residential occupancy types would require a photovoltaic (solar) system but no battery storage under the prescriptive pathway, while high-rise (greater than three habitable stories) multifamily residential, grocery, office, financial institution, unleased tenant space, retail, school, warehouse, auditorium, convention center, hotel, motel, library, medical office building/clinic, restaurant, and theater occupancy types would require both solar and battery storage systems under the *Prescriptive Approach*.

Under the *Prescriptive Approach*, a new development's building design is called the "Standard Design Building," which represents the energy efficiency performance of that project should it include all prescribed features (e.g., solar, battery storage) with no additional energy efficiency features beyond what is required at minimum under the mandatory requirements and prescriptive pathway. A project may instead demonstrate compliance with the Energy Code using the *Performance Approach* without including prescriptive features like solar or battery storage; however, that building design must match or exceed the energy efficiency performance of the Standard Design Building—that is, what the building's energy efficiency performance would be if it were to include solar and battery storage. For example, if a project would be required to include solar and battery storage under the *Prescriptive Approach*, it can instead choose to comply with the *Performance Approach* and not include solar and battery storage so long as it can demonstrate that it would achieve the same energy efficiency performance as if solar and battery storage were included, as applicable.

California Building Code: Title 24, Part 11, Green Building Standards

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (CCR Title 24, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code (CBSC). It includes mandatory requirements for new residential and nonresidential buildings throughout California. CALGreen is intended to: 1) reduce GHG emissions from buildings; 2) promote environmentally responsible, cost-effective, healthier places to live and work; 3) reduce energy and water consumption; and 4) respond to the directives by the governor. The mandatory provisions of CALGreen became effective January 1, 2011, and were last updated in 2022. The 2022 CALGreen update, which was approved as part of the 2022 Energy Code, became effective on January 1, 2023, and provides updates to the residential and non-residential voluntary measures.

Overall, the Code reduces construction waste, makes buildings more efficient in the use of materials and energy, and reduces environmental impacts during and after construction. CALGreen contains requirements for construction site selection, stormwater control during construction, construction waste reduction, indoor water use reduction, materials selection, natural resource conservation, and site irrigation conservation, among other requirements. It provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. CALGreen also requires building commissioning, which is a process for verifying that all building systems (e.g., heating and cooling equipment and lighting systems) are functioning at their maximum efficiency (CBSC 2022).

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2006 Appliance Efficiency Regulations

The 2006 Appliance Efficiency Regulations (20 CCR Section 1601–1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances. They contain energy performance, energy design, water performance, and water design standards for appliances (including refrigerators, ice makers, vending machines, freezers, water heaters, fans, boilers, washing machines, dryers, air conditioners, pool equipment, and plumbing fittings) that are sold or offered for sale in California (CCR Title 20, Parts 1600–1608). These standards are updated regularly to allow consideration of new energy efficiency technologies and methods.

Off-Road Equipment and Transportation-Related Regulations

Assembly Bill 1493

California vehicle GHG emission standards were enacted under Assembly Bill (AB) 1493 (Pavley I). Pavley I is a clean-car standard that reduced GHG emissions from new passenger vehicles (i.e., light-duty auto to medium-duty vehicles) from 2009 through 2016 and was anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implemented the Pavley I Standards through a waiver granted to California by the USEPA. In 2012, the USEPA issued a Final Rulemaking that set even more stringent fuel economy and GHG emissions standards for model year 2017 through 2025 light-duty vehicles. In January 2012, the California Air Resources Board (CARB) approved the Pavley Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combined the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025, new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions (CARB 2017).

Title 13, Chapter 9, Article 4.8, Section 2449

Section 2449 of the CCR, Title 13, Chapter 9, Article 4.8 was adopted on May 2, 2008, limiting non-essential idling of fleets to no more than five consecutive minutes at any location. This idling restriction applies to all vehicles in California with a diesel-fueled or alternative diesel-fueled off-road engine, unless a waiver provides sufficient justification that such idling is necessary.

Senate Bill 375

In 2008, SB 375, the Sustainable Communities and Climate Protection Act, was adopted to connect the GHG emissions reductions targets established in the State's 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (i.e., it excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce vehicle miles traveled (VMT) and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations (MPOs) in the state. The Association of Bay Area Governments (ABAG) is the MPO for the Bay Area region, which includes Contra Costa County. Pursuant to the recommendations of the Regional Transportation Advisory Committee (RTAC), CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target.

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Executive Order N-79-20

On September 23, 2020, Executive Order N-79-20 was issued, which sets a time frame for the transition to zero-emissions (ZE) passenger vehicles and trucks in addition to off-road equipment. It directs CARB to develop and propose the following:

- Passenger vehicle and truck regulations requiring increasing volumes of new zero-emission vehicles (ZEV) sold in California toward the target of 100 percent of in-state sales by 2035.
- Medium- and heavy-duty vehicle regulations requiring increasing volumes of new ZE trucks and buses sold and operated in California toward the target of 100 percent of the fleet transitioning to ZEVs by 2045 everywhere feasible, and for all drayage trucks (i.e., short-haul transport, typically in an urban area) to be ZE by 2035.

On August 25, 2022, CARB adopted the Advanced Clean Cars II (ACC II) regulations that codify the EO goal of 100 percent of in-state sales of new passenger vehicles and trucks be ZE by 2035. Starting in year 2026, ACC II requires that 35 percent of new vehicles sold be ZE or plug-in hybrids.

Advanced Clean Fleets Regulation

In April 2023, CARB released the Advanced Clean Fleets (ACF) regulation to accelerate the transition to ZE medium- and heavy-duty vehicles (CARB 2023). In conjunction with the Advanced Clean Trucks (ACT) regulation, the ACF regulations help to ensure that medium- and heavy-duty ZEVs are brought to the market by requiring certain fleets to purchase ZEVs. The ACF ZEV phase-in approach, which provides initial focus where the best fleet electrification opportunities exist, sets clear targets for regulated fleets to make a full conversion to ZEVs and creates a catalyst to accelerate development of a heavy-duty public infrastructure network.

The ACF regulations cover four main elements:

- **Manufacturer sales mandate.** Manufacturers may sell only ZE medium- and heavy-duty vehicles starting in 2036.
- **Drayage fleets.** Beginning January 1, 2024, trucks must be registered in the CARB Online System to conduct drayage activities in California. Non-ZE “legacy” drayage trucks may register in the CARB Online System through December 31, 2023. Legacy drayage trucks can continue to operate through their minimum useful life. Beginning January 1, 2024, only ZE drayage trucks may register in the CARB Online System. All drayage trucks entering seaports and intermodal railyards would be required to be ZE by 2035.
- **High-priority and federal fleets.** High priority and federal fleets must comply with the Model Year Schedule or may elect to use the optional ZEV Milestones Option to phase ZEVs into their fleets:
 - **Model Year Schedule:** Fleets must purchase only ZEVs beginning 2024 and, starting January 1, 2025, must remove internal combustion engine vehicles at the end of their useful life as specified in the regulation.
 - **ZEV Milestones Option (Optional):** Instead of the Model Year Schedule, fleets may elect to meet ZEV targets as a percentage of the total fleet starting with vehicle types that are most suitable for electrification.

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- **State and local agencies.** State and local government fleets, including city, county, special district, and State agency fleets, are required to ensure 50 percent of vehicle purchases are ZE beginning in 2024 and 100 percent are ZE by 2027. Small government fleets (those with 10 or fewer vehicles) and those in designated counties would start their ZEV purchase requirements beginning in 2027. Alternately, State and local government fleet owners may elect to meet ZEV targets using the ZEV Milestones Option. State and local government fleets may purchase either ZEVs or near-ZEVs, or a combination of ZEVs and near-ZEVs, until 2035. Starting in 2035, only ZEVs will meet the requirements.

The ACF regulations also establish requirements that transform the medium- and heavy-duty vehicle sector and demonstrate independent utility through achievement of the following objectives:

- Achieve criteria and GHG emissions reductions consistent with the goals identified in the State Implementation Plan (SIP) Strategy and Scoping Plan.
- Provide emissions reductions in disadvantaged communities (DAC), thereby supporting the implementation of AB 617 (Garcia, C., Chapter 136, Statutes of 2017).
- Support the goals of Executive Order N-79-20, which call for accelerated ZEV deployment with these targets:
 - 100 percent ZE drayage by 2035
 - 100 percent ZE trucks and buses where feasible by 2045
- Ensure requirements, such as ZEV deployment schedules and related infrastructure buildout, are technologically feasible, cost-effective, and support market conditions.
- Lead the transition away from petroleum fuels and towards electric drivetrains.
- Contribute towards achieving carbon neutrality in California pursuant to SB 100, and in accordance with Executive Order B-55-18.
- Mindfully set requirements to allow time for public ZE infrastructure buildout for smaller fleets or for regional haul applications who would be reliant on a regional network of public chargers.
- Ensure manufacturers and fleets work together to place ZEVs in service suitably and successfully as market expands.
- Establish a fair and level playing field among fleet owners.
- Ensure institutional capacity for CARB to manage, implement, and enforce requirements.

Energy Storage

California has set ambitious long-term goals for energy storage beyond 2026 to support its clean energy and climate goals. The State aims to reach 100 percent carbon-free electricity by 2045, which will require significant investment in renewable energy sources like wind and solar, as well as energy storage technologies, to balance the variability of these sources.

CAISO has a total energy storage capacity of more than 3,160 megawatts (MW) as of June 2022 (CAISO 2022). This includes both large-scale and distributed energy storage systems, such as batteries, pumped hydroelectric storage, and thermal storage. CAISO is responsible for managing the electricity grid for much of California, and it has set a target of adding 3,300 MW of additional energy storage capacity by 2024 to support the

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integration of more renewable energy sources like wind and solar (CAISO 2022). As part of SB 100, load serving entities (LSEs) were required to procure no less than 1.3 gigawatts (GW) of energy storage capacity by 2020, and 3 GW by 2030. Additionally, the CPUC has established a target of 15 GW of energy storage capacity by 2030 (CPUC 2022).

The Integrated Resource Plan (IRP)

CAISO develops a coordinated grid management plan to integrate the generation and storage capacities of LSEs, called the Integrated Resource Plan (IRP). The IRP is a comprehensive planning document that outlines CAISO's forecasts for electricity demand, supply, and transmission needs over a 20-year planning horizon, as well as its strategies for integrating renewable energy resources and other grid services to meet those needs. The IRP is developed in collaboration with LSEs, regulators, and other stakeholders, and is updated periodically to reflect changes in the energy landscape and evolving policy goals. Overall, the IRP plays a critical role in ensuring the reliability and resilience of California's electricity grid as the state continues to transition to a cleaner and more sustainable energy system.

When an individual Battery Energy Storage (BES) facility or generation infrastructure (i.e., solar panels) comes online in California, it is typically included in the IRP through a process known as the Interconnection Queue. The Interconnection Queue is managed by the CAISO, which oversees the operation of the State's electricity grid.

The Interconnection Queue

The Interconnection Queue is an application process that functions as a waiting list of proposed electricity generation and storage projects that are seeking to connect to the grid. When a new BES facility or generation infrastructure is proposed, the developer submits an application to CAISO to request an interconnection to the grid. CAISO evaluates the application to ensure that the facility meets technical and operational requirements, such as voltage regulation and frequency response, and that it can be integrated effectively into the grid.

Once the BES facility or generation infrastructure is approved by CAISO, it is assigned a point of interconnection on the grid, and its output is added to the IRP as a resource that can provide electricity and other grid services, such as frequency regulation or ramping support. The facility is then dispatched by CAISO based on its bids into the day-ahead and real-time electricity markets, and its output is used to help balance supply and demand on the grid in real-time.

Overall, the Interconnection Queue is an important mechanism for integrating new BES facilities and other electricity resources into the California grid, and for ensuring that the grid remains reliable and resilient as the State continues to transition to a cleaner and more sustainable energy system.

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Regional

Plan Bay Area 2050

The Metropolitan Transportation Commission (MTC) and ABAG adopted *Plan Bay Area 2050* on October 21, 2021 (ABAG/MTC 2021a). *Plan Bay Area 2050* provides transportation and environmental strategies to continue to meet the regional transportation-related GHG reduction goals of SB 375. Under the *Plan Bay Area 2050* strategies, just under half of all Bay Area households would live within one half-mile of frequent transit by 2050, with this share increasing to over 70 percent for households with low incomes. Transportation and environmental strategies that support active and shared modes, combined with a transit-supportive land use pattern, are forecasted to lower the share of Bay Area residents that drive to work alone from over 50 percent in 2015 to 36 percent in 2050. GHG emissions from transportation would decrease significantly as a result of these transportation and land use changes, and the Bay Area would meet the State mandate of a 19-percent reduction in per-capita emissions by 2035 — but only if all strategies are implemented (ABAG/MTC 2021a).

To achieve MTC's/ABAG's sustainable vision for the Bay Area, the *Plan Bay Area* land use concept plan for the region concentrates the majority of new population and employment growth in the region in Priority Development Areas (PDAs). PDAs are transit-oriented, infill development opportunity areas within existing communities. An overarching goal of the regional plan is to concentrate development in areas where there are existing services and infrastructure rather than allocate new growth to outlying areas where substantial transportation investments would be necessary to achieve the per capita passenger vehicle, VMT, and associated GHG emissions reductions. Several PDAs have been designated in the EIR Study Area (ABAG/MTC 2021b).

Bay Area Clean Air Plan

The Bay Area Air Quality Management District (BAAQMD) adopted the 2017 Clean Air Plan, *Spare the Air, Cool the Climate* on April 19, 2017. The 2017 Clean Air Plan also lays the groundwork for reducing GHG emissions in the Bay Area to meet the State's 2030 GHG reduction target and 2050 GHG reduction goal. It also includes a vision for the Bay Area in a post-carbon year 2050 that encompasses the following:

- Construct buildings that are energy efficient and powered by renewable energy.
- Walk, bicycle, and use public transit for the majority of trips and use electric-powered autonomous public transit fleets.
- Incubate and produce clean energy technologies.
- Live a low-carbon lifestyle by purchasing low-carbon foods and goods in addition to recycling and putting organic waste to productive use (BAAQMD 2017).

A comprehensive multipollutant control strategy has been developed to be implemented in the next three to five years to address public health and climate change and to set a pathway to achieve the 2050 vision. The control strategy includes 85 control measures to reduce emissions of ozone, particulate matter, toxic air contaminants, and GHG from a full range of emission sources. These control measures cover the following sectors: (1) stationary (industrial) sources; (2) transportation; (3) energy; (4) agriculture; (5) natural and working lands; (6) waste management; (7) water; and (8) super-GHG pollutants. Overall, the proposed control strategy is based on the following key priorities:

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- Reduce emissions of criteria air pollutants and toxic air contaminants from all key sources.
- Reduce emissions of “super-GHGs” such as methane, black carbon, and fluorinated gases.
- Decrease demand for fossil fuels (i.e., gasoline, diesel, and natural gas).
 - Increase efficiency of the energy and transportation systems.
 - Reduce demand for vehicle travel and high-carbon goods and services.
- Decarbonize the energy system.
 - Make the electricity supply carbon-free.
 - Electrify the transportation and building sectors.

Local

Contra Costa County Congestion Management Program

The Contra Costa Transportation Authority (CCTA) is Contra Costa County’s designated Congestion Management Agency (CMA). It is responsible for implementing programs to ensure traffic levels remain manageable. As the CMA, CCTA is in charge of coordinating land use, air quality, and transportation planning among local jurisdictions.

The Congestion Management Program (CMP) outlines transportation demand management efforts and a land use evaluation program – both of which are built on CCTA’s Growth Management Program established by Measure J. The CMP strives to enhance sensitivity to the environment, improve air quality, reduce GHG emissions, and promote sustainable communities (CCTA 2021).

Contra Costa County Ordinance Code

Chapter 718-12, *Solar Energy Systems*, of the Contra Costa County Ordinance Code requires a building permit to install a solar energy system. The County has an expedited, streamlined permitting process that applies for small residential rooftop solar energy systems, as described in Section 718-14.004, *Review of Applications for Small Residential Rooftop Solar Energy Systems*.

Chapter 88-3, *Wind Energy Conversion Systems*, of the Contra Costa County Ordinance Code promotes the effective and efficient use of wind energy conversion systems, regulates their placement, and establishes safeguards to ensure public health, safety, and welfare.

Chapter 88-30, *Solar Energy Facilities*, of the Contra Costa County Ordinance Code regulates the establishment of commercial solar energy facilities.

Ordinance No. 2022-02, *All-Electric Ordinance (New Construction)*, amends the 2019 California Energy Code to require the following building types to be all-electric:

- Residential (including single-family and multi-family buildings)
- Detached Accessory Dwelling Units
- Hotel
- Office
- Retail

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The County Ordinance Code includes other various directives pertaining to energy, including:

- Division 76, *Electrical Code*, adopts the 2022 California Electrical Code as the rules, regulations, and standards within the county as to all matters except as changes, additions, and deletions set forth in the County Ordinance Code.
- Division 74, *Building Code*, adopts the 2022 California Building Code, the 2022 California Residential Code, the 2022 California Existing Building Code, and the 2022 California Energy Code as amended by the changes, additions, and deletions set forth in the County Ordinance Code. This includes local amendments regarding electric vehicle charging and space design for different types of new constructions.

5.6.1.2 EXISTING CONDITIONS

Energy Providers

Two energy providers, Marin Clean Energy (MCE) and Pacific Gas and Electric Company (PG&E), serve the EIR Study Area. Both entities provide electrical services to the unincorporated county. PG&E is the sole provider for natural gas services. PG&E provides distribution of electrical services to the county, while MCE provides the electrical commodity for its customers. MCE works in conjunction with PG&E to provide electricity to consumers through the use of PG&E's distribution infrastructure and network. Both utilities are regulated by CPUC.

MCE

As of October 2023, the majority of Contra Costa County residents (i.e., residents in Concord, Danville, Martinez, Moraga, Oakley, Pinole, Pittsburg, Pleasant Hill, San Ramon, Walnut Creek, Lafayette, Richmond, San Pablo, El Cerrito, and the unincorporated areas) are buying electricity from MCE, a not-for-profit clean energy provider (Contra Costa 2023). On March 24, 2020, the Board of Supervisors voted to go Deep Green 100 percent renewable (i.e., all power which customers buy comes from 100 percent non-polluting wind and solar power) with MCE for the majority of the County's accounts (MCE 2020).

Customers also have the option of selecting MCE's Light Green, which provides 60 percent renewable electricity (MCE 2023). Conversely, customers have the option to opt out of MCE renewable energy sources and receive their energy service from PG&E. PG&E is responsible for maintaining transmission lines, handling customer billing, and responding to new service requests and emergencies. MCE determines the power source or electric generation, while PG&E continues to deliver the electricity, maintain power lines, provide repairs, and send customers a monthly bill within the MCE service area.

PG&E

PG&E is a publicly traded utility company that generates, purchases, and transmits energy under contract with the CPUC. Its service territory is 70,000 square miles in area, roughly extending north to south from Eureka to Bakersfield, and east to west from the Sierra Nevada range to the Pacific Ocean.

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In 2021, roughly half of PG&E's energy generated came from renewable resources including biopower, geothermal, small hydroelectric, solar, and wind power. PG&E's portfolio consists of 7 percent natural gas, 39 percent non-emitting nuclear generation, 4 percent large hydroelectric facilities, and 50 percent eligible renewable energies, which includes small hydroelectric and wind (PG&E 2023c).

Electricity

The electricity distribution system of PG&E consists of 106,681 circuit miles of electric distribution lines and 18,466 circuit miles of interconnected transmission lines (PG&E 2023a). PG&E owns and maintains above and below ground networks of electric and gas transmission and distribution facilities throughout the unincorporated county.

PG&E electricity is generated by a combination of sources such as nuclear power plants and hydro-electric dams, as well as newer sources of energy, such as wind turbines and photovoltaic plants or "solar farms." "The Grid," or bulk electric grid, is a network of high-voltage transmission lines, linked to power plants within the PG&E system. The distribution system, made up of lower voltage secondary lines, is at the street and neighborhood level, and consists of overhead or underground distribution lines, transformers, and individual service "drops" that connect to the individual customer.

Natural Gas

PG&E gas transmission pipeline systems serve approximately 4.5 million gas customers in northern and central California (PG&E 2023a). The system is operated under an inspection and monitoring program. The system operates in real time on a 24-hour basis, and includes leak inspections, surveys, and patrols of the pipelines. PG&E also adopted the Pipeline 2020 program, which aims to modernize critical pipeline infrastructure, expand the use of automatic or remotely operated shut-off valves, catalyze development of next-generation inspection technologies, develop industry-leading best practices, and enhance public safety partnerships with local communities, public officials, and first responders. Total natural gas consumption in PG&E's service area was 4,493,020,712 kilo-BTU (KBTU) in 2021 (CEC 2023b).

Electricity and Natural Gas

Electricity is quantified using kilowatts (kW) and kilowatt-hours (kWh). A kW is a measure of 1,000 watts of electrical power and a kWh is a measure of electrical energy equivalent to a power consumption of 1,000 watts for one hour. The kWh is commonly used as a billing unit for energy delivered to consumers by electric utilities. According to the CEC's "Tracking Progress" regarding statewide energy demand, total electric energy usage in California was 277,764 gigawatt hours in 2021 (CEC 2021b). A gigawatt is equal to one million kilowatts.

Natural gas is measured in therms. A therm is a measurement of the amount of heat energy in natural gas, equal to 100,000 British thermal units (BTUs). The volumetric billing unit used for natural gas delivered to customers is typically expressed in hundreds of cubic feet (Ccf)—approximately 0.01 therm per Ccf—or thousands of cubic feet (Mcf)—approximately 10.37 therms per Mcf (USEIA 2023).

The existing electricity and natural gas demand in Contra Costa County is shown in Table 5.6-1, *Estimated Existing Electricity and Natural Gas Demand*.

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Table 5.6-1 Estimated Existing Electricity and Natural Gas Demand

| Land Use | Electricity Usage (kWh per year) | Natural Gas Usage (Therms per year) |
|----------------|------------------------------------|-------------------------------------|
| Residential | 293,561,300 | 30,100,640 |
| Nonresidential | 626,049,910 229,243,970 | 13,784,410 |
| Total | 919,611,210 522,805,270 | 43,885,050 |

Source: Natural gas and electricity use for residential and nonresidential land uses in the county were modeled based on data provided by PG&E and MCE as part of the proposed CAAP (Appendix 5.8-1).

Note: Electricity total makes use of a five-year (2016–2020) annual electricity consumption average based on data provided by PG&E and MCE.

Propane

Liquefied petroleum gas (LPG), or propane, is a mixture of hydrocarbon gases predominantly composed of propane and butane and is used as an alternative source of fuel. Propane is commonly used for residential and commercial heating, cooking, transportation, agriculture, industrial processes, power generation, refrigeration, and air conditioning. Within Contra Costa County, propane suppliers include Suburban Propane, AmeriGas, US Alloys, Pacific States Petroleum, and Allied Propane Services, which generally supply propane for residential uses. Nonresidential propane consumption is not a substantial contribution to propane consumption in the unincorporated county.

The existing propane demand in Contra Costa County is shown in Table 5.6-2, *Estimated Existing Propane Demand*.

Table 5.6-2 Estimated Existing Propane Demand

| Land Use | Propane Usage (gallons per year) | Propane Usage (MMBTU per year) |
|-------------|----------------------------------|--------------------------------|
| Residential | 1,021,340 | 92,942 |
| Total | 1,021,340 | 92,942 |

Source: Activity data sourced as part of the proposed CAAP (see Appendix 5.3-1 & Appendix 5.8-1).

Note: Only residential propane demand was evaluated as part of the proposed CAAP.

Transportation Energy

California is among the top producers of petroleum in the country, with crude oil pipelines throughout the state connecting to oil refineries in the Los Angeles, San Francisco Bay, and Central Valley regions. In addition to producing petroleum, California is also one of the top consumers of fuel for transportation. California's transportation sector accounted for approximately 35 percent of California's total energy demand in 2020, amounting to approximately 2,355.5 trillion BTUs (USEIA 2020a). In addition, in 2020, California's transportation sector consumed approximately 433 million barrels of petroleum fuels (USEIA 2020b).

According to the CEC, California's 2021 fuel sales were approximately 13,818 million gallons of gasoline and 3,744 million gallons of diesel (CEC 2022). In Contra Costa County, approximately 374 million gallons of gasoline and 28 million gallons of diesel fuel were sold in 2021 (CEC 2022).

Alternative fuels for the transportation sector, such as hydrogen, biodiesel, and electricity, are used to reduce the demand of petroleum. Use of these fuels is encouraged through statewide regulations and plans, including the Low Carbon Fuel Standard (LCFS) and SB 32. In particular, use of electricity within the transportation sector has become more prominent. Electric and plug-in hybrid vehicles may rely directly on electricity from

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the power grid. In addition, emerging technology such as fuel cells are currently being explored to use electricity generated from the vehicle to power motors. California currently has 14,132 electric vehicle charging stations, with approximately 37,970 charging ports across all station locations (USDE 2023).

Table 5.6-3, *Existing Transportation-Related Annual Fuel Usage*, shows the fuel usage associated with VMT currently generated in the EIR Study Area under existing baseline conditions based on fuel usage data obtained from EMFAC2021, Version 1.0.1, and VMT data provided by Fehr and Peers (see Appendix 5.16-1, *Transportation Data*, of this Draft EIR). VMT is based on vehicle trips beginning and ending in the county and from external/internal trips (i.e., trips that either begin or end in the county).

Table 5.6-3 Existing Transportation-Related Annual Fuel Usage

| | Gas | | Diesel | | Compressed Natural Gas | | Electricity | |
|-------------------|---------------|------------|------------|-----------|------------------------|---------|-------------|-----------|
| | VMT | Gallons | VMT | Gallons | VMT | Gallons | VMT | kWh |
| Existing Baseline | 1,055,664,330 | 46,151,714 | 62,129,682 | 7,412,023 | 1,070,505 | 213,066 | 18,046,572 | 6,503,224 |

Source: EMFAC2021, version 1.0.1.

Note: VMT based on daily VMT provided by Fehr and Peers. VMT per year based on a conversion of VMT x 347 days per year to account for less travel on weekend, consistent with CARB statewide GHG emissions inventory methodology (CARB 2008).

5.6.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

- E-1 Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
- E-2 Conflict with or obstruct a State or local plan for renewable energy or energy efficiency.
- E-3 Require or result in the relocation or construction of new or expanded energy facilities, the construction or relocation of which could cause significant environmental effects.

5.6.3 Programs, Plans, and Policies

5.6.3.1 PROPOSED GENERAL PLAN GOALS, POLICIES, AND ACTIONS

The following goals, policies, and actions from the proposed General Plan are applicable to energy impacts. *Italicized goals, policies, and actions reduce environmental impacts associated with the proposed project.*

Land Use Element

- **Policy LU-P3.7:** Welcome development that supports the countywide goal of reducing VMT, thus reducing greenhouse gas emissions, to meet climate change targets. Require projects that do not support the County's VMT-reduction goals to incorporate necessary changes (e.g., design, land use mix) to ensure they support those goals.

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- **Action LU-A4.1:** Amend the County Ordinance Code to include requirements for Low-Impact Development, use of low-carbon concrete, water and energy conservation, reclaimed water, renewable energy use, green building, and other measures that reduce the environmental impacts of development, based on the best available science.

Transportation Element

- **Policy TR-P1.3:** Ensure emerging transportation technologies and travel options, such as autonomous and ZEV's and transportation network companies, support the County's goals for reducing emissions, adapting to climate change, improving public safety, and increasing equitable mobility.
- **Policy TR-P1.4:** *Reduce single-occupant vehicle usage and VMT by significantly enhancing the availability and safety of other travel modes through infrastructure investment, policy support (Vision Zero, at a minimum using strategies defined in the TDM Ordinance, and other best practices), and support for public transit.*
- **Policy TR-P1.11:** Support transitioning all on-road vehicles, including personal vehicles and business, government, and public transit fleets, to electric power from renewable sources or other ~~zero-emission-free~~ fuels.
- **Policy TR-P1.13:** *Require designs for new parking facilities to incorporate ZEV charging/fueling infrastructure and maximize opportunities for adaptive reuse.*
- **Policy TR-P2.3:** ~~Require~~ *Provide or require new projects to installation of or provide* energy-efficient street lighting to improve public safety and comfort in urbanized areas. Prioritize installation in Impacted Communities, particularly at parks, transit stops, alleyways, bike and pedestrian paths, trails, and other ~~appropriate high-need~~ areas, consistent with community preferences.
- **Policy TR-P4.7:** Encourage walkability and safety by streamlining implementation of traffic-calming measures through the Neighborhood Traffic Management Program.
- **Policy TR-P5.2:** Coordinate with Caltrans to provide safe and comfortable highway interchange crossings for people of all ages and abilities who walk, bike, or use micromobility.
- **Policy TR-P5.7:** Encourage walking, bicycling, and micromobility as the travel modes of choice for short to medium-length trips, such as trips to schools, parks, transit stops, local shopping areas, and neighborhood services.

Conservation, Open Space, and Working Lands Element

- **Policy COS-P7.1:** *Require new development to reduce ~~potable~~ water consumption through use of water-efficient devices and technology, drought-tolerant landscaping strategies, and treated recycled water, where available.*
- **Goal COS-14:** Increased generation of and reliance on renewable, sustainable, and ~~zero-carbon-free~~ energy and reduced energy use.
- **Policy COS-P14.1:** Implement Climate Action and Adaptation Plan strategies to improve energy efficiency and conservation, promote carbon-free energy sources, and reduce energy-related GHG emissions.

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- **Policy COS-P14.2:** Partner with State and regional ~~and State~~ agencies (e.g., California Public Utilities Commission, California Energy Commission, and ABAG/MTC) to support energy efficiency and renewable energy planning efforts.
- **Policy COS-P14.3:** Support distributed electricity generation, including development of microgrids, renewable energy sources, storage capacity, and associated technologies. Encourage these throughout urban areas, and in nonurban areas when significant environmental impacts can be avoided or successfully mitigated.
- **Policy COS-P14.5:** Support development of energy recovery projects (e.g., methane recovery from landfills and wastewater treatment plants).
- **Policy COS-P14.6:** Support efforts to convert existing buildings to be low-carbon or carbon-neutral.
- **Policy COS-P14.7:** Encourage installation of battery storage systems in new and existing buildings, especially buildings with solar energy systems and buildings that provide essential community services.
- **Policy COS-P14.8:** *Design and construct new County facilities to be zero-net energy to the extent feasible.*
- **Policy COS-P14.9:** Work with energy service providers and the Bay Area Regional Energy Network to encourage property owners to participate in weatherization, education, rate incentive, and other programs and measures to improve energy efficiency in existing buildings.
- ~~**Policy COS-P14.10:** Require replacement and new water heaters and space heating and cooling to be electric if the building electric panel has sufficient capacity in accordance with Bay Area Air Quality Management District Regulation 9, Rule 4, and Regulation 9, Rule 6.~~
- **Action COS-A14.2:** Amend County Ordinance Code Division 88, Special Land Uses, to consolidate Chapters 88-3 and 88-30 governing wind energy conversion systems and solar energy facilities, respectively, into a new renewable energy chapter, with added provisions related to microgrids, community solar projects, and battery energy storage systems. Simultaneously review the boundaries of the Solar Energy Generation Combining District to determine whether opportunities exist for increasing solar energy generation without encroaching upon HCP/NCCP priority acquisition areas, aesthetically sensitive areas, or other lands that are inappropriate for solar energy development.
- **Action COS-A14.3:** Amend County Ordinance Code Chapter 88-3 – Wind Energy Conversion Systems to require that decommissioned wind farms be returned to a condition consistent with the natural environment in the area at the time of decommissioning, rather than a return to pre-project condition. The following issues must be specifically addressed:
 - Unnecessary and poorly constructed roads that are sources of erosion.
 - Remaining turbine foundations/footings and underground conduit.
 - Abandoned equipment yards, turbine components, and other debris.
- ~~**Action COS-A14.4:** Consider adopting~~ **Adopt** new or modified reach codes that exceed the California Building Standards Code, as the State updates the Building Code every three years, to require ~~the use of lower-carbon intensive energy sources, to achieve higher feasible levels of energy conservation and efficiency performance, and to achieve lower feasible levels of GHG emissions.~~
- **Action COS-A14.5:** Maintain, update, and publicize County ordinances and programs, ~~and enforce the County Ordinance Code Title 7 – Building Regulations amendment~~ requiring new residential

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buildings, hotels, offices, and retail to be more energy efficient, with low levels of GHG emissions~~all-electric~~. Evaluate the feasibility of including other building types as appropriate.

- **Action COS-A14.6:** Create a County policy or program to facilitate making existing residential and nonresidential buildings more energy-efficient and powered by carbon-free energy.
- **Action COS-A14.9:** Ensure County-led and supported retrofit programs incentivize and prioritize conversion of buildings built before 1980 and emphasize assistance to owners of properties that are home to very low-, low-, and moderate- income residents or located in Impacted Communities, as permitted by available funding.
- **Action COS-A14.10:** Support legislative efforts to establish a green bank able to equitably finance sustainability projects, including renewable energy, energy efficiency, and green infrastructure, for residential and commercial customers.

Health and Safety Element

- **Policy HS-P1.8:** *Require new or expanded commercial and industrial projects ~~exceeding~~ resulting in 25,000 square feet or more of gross habitable floor area, such as warehouses and other large enclosed buildings, to be near-zero-emissions ~~(NZE)~~ operations, including the facilities themselves and the associated fleets. Require all necessary measures, such as the following, to achieve ~~NZE~~ near-zero emissions:*
 - a) *Reduce on-site energy consumption and increase on-site energy generation and energy storage.*
 - b) *Provide adequate on-site ~~ZE~~ zero-emission vehicle-capable parking for all anticipated truck traffic to prevent idling and off-site queuing.*
 - c) *Provide electrified loading docks with receptacles allowing plug-in of refrigerated trailers.*
 - d) *Use heavy-duty trucks that are model year 2014 or later and expedite a transition to ~~ZE~~ zero-emission trucks by establishing a clear timeline for electrification of trucks as they become commercially available. Ensure contracts with motor carriers include air quality incentives or requirements, such as providing incentives to fleets that meet United States Environmental Protection Agency (EPA) SmartWay standards or requiring use of ~~ZE~~ zero-emission or ~~near-NZE~~ near-zero-emission trucks.*
 - e) *Use a “clean fleet” of delivery vehicles as they become commercially available, but no later than 2025.*
 - f) *Use ~~ZE~~ zero-emission yard equipment, such as forklifts, pallet trucks and jacks, and stackers.*
 - g) *Implement practices to control and remove fugitive dust and other contaminants from paved areas.*

Uses with fewer than five vehicles domiciled on-site are exempt from this policy.
- **Policy HS-P3.2:** Facilitate carbon-neutral development projects and communities that support a circular economy, ~~net~~ zero-emission modes of transportation, reliable and renewable energy resources, energy-efficient buildings, zero waste, water efficiency and conservation, green infrastructure, soil conservation, and a system of natural and working lands that support natural carbon sequestration and climate resilience.

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5.6.3.2 PROPOSED CLIMATE ACTION AND ADAPTATION PLAN STRATEGIES AND ACTIONS

The following proposed Climate Action and Adaptation Plan (CAAP) strategies and actions pertain to energy:

Clean and Efficient Built Environment (BE)

Strategy BE-1: Require and incentivize new buildings or additions built in unincorporated Contra Costa County to be low-carbon or carbon neutral.

Strategy BE-1 Actions:

- Continue adopting new or modified reach codes and consider future updates that exceed the California Building Standards Code as the State updates the Building Code every three years, to require the use of low-carbon intensive energy sources, to achieve higher levels of energy performance, and to achieve lower levels of GHG emissions.
- Maintain, update, publicize, and enforce the Publicize County ordinances and programs Ordinance Code Title 7 – Building Regulations amendment requiring new residential buildings, hotels, offices, and retail to be all-electric more energy efficient, with lower levels of GHG emissions. Evaluate the feasibility of including other building types as appropriate.
- Design and construct new County facilities to be zero net energy to the extent feasible.
- Study the feasibility of establishing a low-carbon concrete requirement for all new construction and retrofit activities and consider additional strategies to reduce embedded carbon in construction materials. The intent is to determine what the County can and should do to support or exceed State requirements for net-zero emissions for cement use by 2045.
- ~~Promote additional~~ sustainable building strategies and designs, including small and “tiny” homes, to project applicants as site appropriate.
- ~~Consider requiring additional~~ sustainable features as a condition of approval, including reuse of materials to minimize embedded carbon.

Strategy BE-2: Retrofit existing buildings and facilities in the unincorporated county, and County infrastructure, to reduce energy use and convert to low-carbon or carbon-~~neutral~~-free fuels.

Strategy BE-2 Actions:

- Create a County policy or program to facilitate making existing residential and nonresidential buildings more energy-efficient and powered by carbon-free energy.
- ~~Require replacement and new water heaters and space heating and cooling systems to be electric if the building electric panel has sufficient capacity in accordance with BAAQMD Regulation 9, Rule 4, and Regulation 9, Rule 6~~
- Create a detailed County roadmap to convert existing homes and businesses to use low-carbon or ~~zero-carbon-free~~ appliances. The roadmap should include steps to support converting buildings to rely on low-carbon or ~~zero-carbon-free~~ energy using an equitable framework that minimizes the risk of displacement or significant disruptions to existing tenants.

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- Ensure County-led and supported retrofit programs incentivize and prioritize conversion of buildings built before 1980 and emphasize assistance to owners of properties that are home to very low-, low-, and moderate- income residents and/or located in Impacted Communities, as permitted by available funding.
- In partnership with MCE and BayREN, continue to support voluntary home and business energy efficiency retrofits, including all-electric measures.
- Facilitate participation by homes and businesses in demand response programs.
- Continue to conduct energy and water tracking activities, audits, and upgrades of County facilities, including conversion of feasible County facilities to all-electric space and water heating.
- Implement requirements for cool roofs and light-colored, non-reflective permeable paving materials as part of retrofit, repair, and replacement activities, using recycled materials or other materials with low embedded carbon as feasible and as established by the Building Standards Code.

Strategy BE-3: Increase the amount of electricity used and generated from renewable sources in the county.

Strategy BE-3 Actions:

- Require new commercial parking lots with 50 or more spaces to mitigate heat gain through installation of shade trees, solar arrays, or other emerging cooling technologies. Prioritize the use of solar arrays where feasible and appropriate.
- Work with MCE to increase enrollment, especially in the Deep Green tier.
- Continue to enroll all eligible, non-solar-equipped County facility electricity accounts in MCE territory in the Deep Green tier.
- Pursue implementation of recommendations of the 2018 Renewable Resource Potential Study.
- Evaluate the least-conflict feasible locations for stand-alone battery storage systems and modify land use regulations to enable such use in these locations.

No Waste Contra Costa (NW)

Strategy NW-4: Reduce emissions from landfill gas.

Strategy NW-4 Actions:

- Encourage efforts at Acme, Keller Canyon, and West Contra Costa landfills to install or enhance existing methane capture technology and associated monitoring systems with a goal of increasing the methane capture rate to the greatest extent feasible.
- Explore opportunities for partnering with agricultural and industrial operations to generate energy from methane gas generated by their ongoing activities.
- Support landfill operators in efforts to transition away from landfill gas flaring.

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Reduce Water Use and Increase Drought Resilience (DR)

Strategy DR-1: Reduce indoor and outdoor water use.

Strategy DR-1 Actions:

- Require new development to reduce ~~potable~~ water consumption through use of water-efficient devices and technology, drought-tolerant landscaping strategies, and treated recycled water, where available.
- Require homes and businesses to install water-efficient fixtures at time of retrofit activities, in accordance with the California Building Standards Code.
- Continue to enforce the Water Efficient Landscaping Ordinance and encourage the use of native and drought-tolerant landscaping for exempt residential and commercial landscapes through partnership with local and regional water agencies and other organizations.
- Partner with water and wastewater service providers, Groundwater Sustainability Agencies, irrigation districts, and private well owners to increase participation in water conservation programs countywide.
- ~~Identify~~ Evaluate opportunities for graywater use in public spaces and implement them as feasible.
- Promote the installation of composting toilets at appropriate County facilities in locations without wastewater service.

Strategy DR-2: Ensure sustainable and diverse water supplies.

Strategy DR-2 Actions:

- Require new development to demonstrate the availability of a safe, sanitary, and environmentally sound water delivery and wastewater treatment systems with adequate capacity.
- Require the use of permeable surfaces for new or reconstructed hardscaped areas where feasible.
- Work with water suppliers to expand recycled water systems as feasible, including considering additional treatment to allow for additional recycled water uses.

Clean Transportation Network (TR)

Strategy TR-1: Improve the viability of walking, biking, zero-emission commuting, and using public transit to travel within, to, and from the county.

Strategy TR-1 Actions:

- Prioritize expansion of bicycle, micromobility, and pedestrian infrastructure (e.g., Class IV separated bikeways) to address the significant latent demand for these active transportation modes.
- Develop and promote mobility alternatives to single-occupancy vehicles, including but not limited to public transit, micromobility, carbon-free rideshare strategies, and nonmotorized modes.
- Implement programs to encourage transit use, bicycling, walking, telecommuting, and use of alternative vehicle fuels by County employees.

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- Reduce single-occupant vehicle usage and VMT, by significantly enhancing the availability and safety of other travel modes through infrastructure investment, policy support (Vision Zero, and other best practices), and support for public transit.
- Plan, design, construct, and maintain facilities for walking, bicycling, and rolling to serve people of all ages, abilities, and income levels, including children, seniors, families, and people with limited mobility.
- Partner with CCTA and neighboring jurisdictions to build out the countywide bicycle and pedestrian network, prioritizing completion of the Low-Stress Countywide Bicycle Network and pedestrian safety improvement projects in the County's Pedestrian Priority Areas, as described in the Countywide Bicycle and Pedestrian Plan.
- Require transportation infrastructure serving new development to be designed using best practices, contemplating existing and planned land uses, roadways, bicycle and pedestrian facilities, transit facilities, and connections to adjoining areas.
- Create connections between unincorporated communities and neighborhoods in unincorporated areas and adjacent jurisdictions to improve multimodal access to local destinations, such as schools, parks, shopping, health services, and workplaces.
- Track over time projects that add pedestrian and bicycle facilities to document the County's implementation of the County Road Improvement and Preservation Program (CRIPP); Complete Streets checklist; Vision Zero Report and Action Plan; Active Transportation Plan; and equity-focused plans, programs, and policies.
- Improve the safety and comfort of bicycle, pedestrian, and public transit facilities using best practices to encourage more people to use such facilities.
- ~~Work with CCTA to fill in gaps in the countywide Low Stress Bike Network, as outlined in the 2018 Countywide Bicycle and Pedestrian Plan. Prioritize providing access for Impacted Communities and constructing protected bike facilities. Coordinate with Caltrans, CCTA, the Regional Transportation Planning Committees, and neighboring jurisdictions to plan, design, and implement Complete Streets concepts on Routes of Regional Significance.~~
- Support efforts to expand the service area and frequency of regional transit agencies, and reduced fares for students, seniors, and low-income residents on systems, including AC Transit, BART, Capitol Corridor, County Connection, Tri Delta Transit, the San Francisco Bay Ferry, and WestCAT. Encourage programs that support "last mile" transportation connection and options.
- Maximize development of jobs and affordable housing near high-quality transit service to support a jobs-housing balance.
- Maintain in place and enforce a Transportation Demand Management (TDM) Ordinance that reflects best practices, and, at a minimum, conforms to Contra Costa Transportation Authority's adopted model TDM ordinance or resolution.
- Secure additional funding for the maintenance and expansion of bicycle and pedestrian infrastructure improvements. Support efforts to obtain additional funding to maintain and expand public transit operations and infrastructure improvements.

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- Support CCTA to develop and implement methods for tracking EV and e-bike charging and availability across jurisdictions.
- Support CCTA and regional transit agencies in providing “last mile” transportation connections and options.
- Ensure emerging transportation technologies and travel options, such as autonomous and ZEVs and transportation network companies, support the County’s goals for reducing emissions, adapting to climate change, improving public safety, and increasing equitable mobility.

Strategy TR-2: Increase the use of zero-emissions vehicles. Transition to a zero-emission County fleet by 2035 and a community fleet that is at least 50 percent zero-emission by 2030.

Strategy TR-2 Actions:

- Require new County vehicles to be zero emission to the extent a viable vehicle is available on the market, that charging or zero-emission fueling equipment is conveniently located where the vehicle will be stored, and as required by the Advanced Clean Fleet regulations, with the goal that all County vehicles will be zero-emission by 2035.
- Continue adopting new or modified reach codes and consider future updates that exceed the California Building Standards Code as the State updates the Building Code, including the Green Building Code, to require zero-emission charging infrastructure in new multifamily and nonresidential buildings. Explore expanding it to include new single-family homes.
- Install electric vehicle charging equipment and other infrastructure needed to support the transition to a zero-emission County fleet at County facilities. Consider the appropriate locations, number, and capacity of infrastructure to facilitate the transition of the County fleet to zero-emission vehicles.
- Work with property owners and other potential partners to pursue installation of zero-emission vehicle charging stations in and near multifamily dwelling units.
- Update off-street parking ordinance to include a requirement for zero-emission vehicle charging infrastructure. Consider including incentives for developers to exceed minimum requirements (i.e., density bonus).
- Increase installation of electric vehicle charging stations for all vehicle types, including bicycles and scooters, at public facilities, emphasizing increased installation in Impacted Communities.
- In partnership with regional agencies, explore providing subsidies for households making less than the area median income to purchase or lease zero-emission vehicles and associated infrastructure.
- Pursue fees and regulatory efforts to convert transportation network company (TNC), taxi, and similar car-hire services to zero-emission vehicles.
- Work with BAAQMD and other regional agencies to convert off-road equipment to zero-emission clean fuels.
- Work with contractors, fleet operations, logistics companies, and other operators of heavy-duty vehicles to accelerate the transition to zero-emission heavy-duty vehicles.

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- In cases where battery-electric, hybrid-electric, and sustainably sourced hydrogen fuel-cell sources are not available, work with Public Works to pursue the use of renewable natural gas (sourced from recovered organic waste) for transportation fuel, electricity, or heating applications in cases where battery-electric, hybrid-electric, and sustainably sourced hydrogen fuel-cell sources are not available.
- Coordinate with CCTA and other local and regional agencies to support implementation of the Contra Costa County Electric Vehicle Readiness Blueprint and related policies and apply best practices in ZEV charging/fueling infrastructure requirements.

5.6.4 Environmental Impacts

5.6.4.1 METHODOLOGY

To determine whether the proposed project would result in wasteful, inefficient, or unnecessary consumption of energy resources, this analysis uses the guidance provided in Appendix F of the CEQA Guidelines as well as the analytical precedent set by *League to Save Lake Tahoe Mountain etc. v. County of Placer* (2022) (75 Cal.App.5th 63, 164-168).

According to Appendix F of the CEQA Guidelines, the goal of conserving energy is translated to include decreasing overall per capita energy consumption; decreasing reliance on fossil fuels such as coal, natural gas, and oil; and increasing reliance on renewable energy sources. In *League to Save Lake Tahoe Mountain etc. v. County of Placer* (2022) (75 Cal.App.5th 63, 164-168), the Appellate Court concluded that the analysis of wasteful, inefficient, and unnecessary energy consumption was not adequate because it did not consider whether additional renewable energy features could be added to the project.

The proposed project would be considered to result in a potentially significant impact if it would result in wasteful, inefficient, or unnecessary consumption of energy resources. Considering the guidance provided by Appendix F of the CEQA Guidelines and the Appellate Court decision in *League to Save Lake Tahoe Mountain etc. v. County of Placer* (2022) (75 Cal.App.5th 63, 164-168), the proposed project would be considered to result in wasteful, inefficient, or unnecessary consumption of energy resources if it would conflict with the following energy conservation goals:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas, or oil; and
- Increasing reliance on renewable energy sources.

The following is a summary of the assumptions used for this energy analysis:

- **On-Road Transportation.** Fuel use was based on Origin-Destination Method VMT provided by Fehr and Peers in the unincorporated county (see Section 5.16, *Transportation*). The VMT provided includes the full trip length for land uses in the county (origin-destination approach) and 50 percent of the trip length for external-internal/internal-external trips, consistent with the recommendations of CARB's Regional Targets Advisory Committee.

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- **Energy (Natural Gas and Electricity).** Emissions associated with natural gas and electricity use for residential land uses in the county were modeled based on data provided by PG&E and MCE as part of the CAAP Update (Appendix 5.3-1 to this Draft EIR). Propane use was approximated for residential use only as part of CAAP Update. Forecasts are adjusted for increases in population in the county based on the energy forecast with State actions conducted for the CAAP Update.

Impact 5.6-1: Implementation of the proposed project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

Proposed General Plan

Short-Term Construction Impacts

Development projects constructed under the proposed General Plan would create temporary demands for electricity. Natural gas is not generally required to power construction equipment, and therefore is not anticipated during construction phases. Electricity use would fluctuate according to the phase of construction. Additionally, it is anticipated that most electric-powered construction equipment would be hand tools (e.g., power drills, table saws, compressors) and lighting, which would result in minimal electricity usage during construction activities.

Construction of development projects facilitated by the proposed General Plan would also temporarily increase demands for energy associated with transportation. Transportation energy use depends on the type and number of trips, VMT, fuel efficiency of vehicles, and travel mode. Energy use during construction would come from the transport and use of construction equipment, delivery vehicles and haul trucks, and construction employee vehicles that would use diesel fuel or gasoline. The use of energy resources by these vehicles would fluctuate according to the phase of construction and would be temporary. It is anticipated that most off-road construction equipment, such as those used during demolition and grading, would be gas or diesel powered. In addition, all operation of construction equipment would cease on completion of project construction.

Furthermore, the construction contractors would be required to minimize nonessential idling of construction equipment during construction in accordance with the CCR Title 13, Chapter 9, Article 4.8, Section 2449. Such required practices would limit wasteful and unnecessary energy consumption. Also, future projects within the EIR Study Area would be similar to projects currently in development within Contra Costa County. Overall, there would be no unusual project characteristics anticipated that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of California. Therefore, short-term construction activities that occur as a result of implementation of the proposed General Plan would not result in inefficient, wasteful, or unnecessary fuel consumption.

Long-Term Impacts During Operation

Operation of potential future development accommodated under the proposed General Plan would create additional demands for electricity and natural gas compared to existing conditions. Operational use of electricity and natural gas would include heating, cooling, and ventilation of buildings; water heating; operation of

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electrical systems; use of on-site equipment and appliances; lighting; and charging electric vehicles. Land uses accommodated under the proposed General Plan would also result in additional demands for transportation fuels (e.g., gasoline, diesel, compressed natural gas, and electricity) associated with on-road vehicles.

Decreasing Overall per Capita Energy Consumption

Building Electricity

Electrical service to the county is provided by PG&E and MCE through connections to existing off-site electrical lines and new on-site infrastructure. As shown in Table 5.6-4, *Year 2045 Forecast Electricity Consumption*, by horizon year 2045, electricity use in the EIR Study Area is estimated to increase by 47,697,580 kWh/year, or approximately 52 percent, from existing conditions. As a result, the per service population electricity consumption is estimated to decrease from ~~4,319~~ 2,456 kWh per person per year in existing baseline to ~~3,360~~ 1,982 kWh per person per year in 2045, or a reduction of approximately ~~959~~ 474 kWh per person annually.

Table 5.6-4 Year 2045 Forecast Electricity Consumption

| Area | Electricity Usage, kWh per year (Subtotal) | | |
|---|---|---|----------------------------|
| | Existing Baseline ¹ | Year 2045 Forecast ² | Net Change |
| Residential | 293,561,300 | 328,353,050 | 34,791,750 |
| Nonresidential | 626,049,910 <u>229,243,970</u> | 638,955,740 <u>242,149,800</u> | 12,905,830 |
| Total | 919,611,210 <u>522,805,270</u> | 967,308,790 <u>570,502,850</u> | 47,697,580 |
| Service Population | 212,910 | 287,870 | 74,960 |
| Per Service Population Annual Consumption | 4,319 <u>2,456</u> | 3,360 <u>1,982</u> | -959 <u>474</u> |

¹ Electricity usage is provided by PG&E and MCE.

² Residential and nonresidential energy forecasts are adjusted for increases in housing in the EIR Study Area and account for reductions due to increases in energy efficiency from compliance with the Building Energy Efficiency Standards and CALGreen.

As previously discussed, all new development facilitated by the proposed General Plan would be required to demonstrate compliance with the current Energy Code and CALGreen standards in effect at the time the individual development applications are submitted and can therefore be expected to be more energy-efficient than the use being replaced, resulting in reductions in electricity consumption on a per dwelling unit and per square foot basis when compared to existing development. It should be noted that it is unknown how much more energy-efficient future iterations of the Energy Code and CALGreen standards would be in 2045 compared to existing conditions as those code updates are released on a 3-year cycle.

Moreover, the proposed General Plan Policies COS-P7.1, COS-P14.7, COS-P14.8, HS-P1.8, and HS-P3.2 would serve to improve energy efficiency and reduce energy consumption in new development facilitated by the proposed General Plan. As a result of compliance with Title 24 energy efficiency standards and implementation of the above proposed General Plan policies and actions, per service population building electricity consumption is expected to decrease in 2045 compared to existing conditions.

Building Natural Gas and Propane

As shown in Table 5.6-5, *Year 2045 Forecast Natural Gas and Propane Consumption*, existing natural gas use and propane use in the EIR Study Area totals 43,885,050 therms and 92,942 million British thermal units (MMBTU)

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annually. By 2045, natural gas use in the EIR Study Area would increase by 6,972,060 therms annually, or approximately 16 percent, from existing conditions to a total of 50,857,110 therms per year. Future development is unlikely to require propane in more rural areas of the county, especially due to the County's all-electric requirements for new construction. Therefore propane use in the EIR Study Area is anticipated to remain the same, for a total of 92,942 MMBTU per year.

As a result, the per service population natural gas consumption is estimated to decrease from 206 therms per person per year in existing baseline to 177 therms per person per year in 2045. Propane is also estimated to decrease from 0.44 MMBTU per person per year to 0.32 MMBTU per person per year in 2045.

Table 5.6-5 Year 2045 Forecast Natural Gas and Propane Consumption

| Area | Natural Gas Usage, therms per year | | |
|--|------------------------------------|---------------------------------|------------|
| | Existing Baseline ¹ | Year 2045 Forecast ² | Net Change |
| Residential | 30,100,640 | 35,500,210 | 5,399,570 |
| Nonresidential | 13,784,410 | 15,356,900 | 1,572,490 |
| Total | 43,885,050 | 50,857,110 | 6,972,060 |
| Service Population | 212,910 | 287,870 | 74,960 |
| Per Service Population Annual Consumption | 206 | 177 | -29 |
| Propane Usage, MMBTU per year ³ | | | |
| Residential | 92,942 | 92,942 | 0 |
| Service Population | 212,910 | 287,870 | 74,960 |
| Per Service Population Annual Consumption | 0.44 | 0.32 | -0.12 |

¹ Natural gas usage data provided by PG&E.

² Residential and nonresidential energy forecasts are adjusted for increases in housing and employment, respectively, in the EIR Study Area and account for reductions due to increases in energy efficiency from compliance with the Building Energy Efficiency Standards and CALGreen.

³ Propane use is approximated for residential uses only.

Similar to electricity consumption, all new development facilitated by the proposed General Plan would be required to demonstrate compliance with the current CBSC and CALGreen and would result in reductions in heating fuel (i.e., natural gas or propane) consumption on a per dwelling unit and per square foot basis when compared to existing development in the county. As stated previously, the proposed General Plan Policies COS-P7.1, COS-P14.7, COS-P14.8, HS-P1.8, and HS-P3.2 would serve to improve energy efficiency and reduce energy consumption in new development facilitated by the proposed General Plan. As a result, per service population heating fuel consumption is expected to decrease in 2045 compared to existing baseline conditions.

Transportation Energy

The growth accommodated under the proposed General Plan would consume transportation energy from the use of motor vehicles (e.g., gasoline, diesel, compressed natural gas, and electricity). Table 5.6-6, *Operation-Related Annual Fuel Usage: Net Change from Existing*, shows the net change in VMT, fuel usage, and fuel efficiency under forecast year 2045 proposed General Plan conditions from existing baseline year conditions.

As shown in Table 5.6-6, when compared to existing baseline year conditions, the proposed General Plan and CAAP would result in a decrease in VMT-fuel usage for gasoline-, compressed natural gas-, and diesel-powered vehicles, but not for electric-powered vehicles. The decrease in fuel usage for gasoline-powered vehicles and

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large increase in VMT and fuel usage for electric-powered vehicles are primarily based on the assumption in EMFAC that a greater mix of light-duty automobiles would be electric-powered in future years based on regulatory (e.g., Advanced Clean Cars) and consumer trends. Furthermore, per service population VMT generation would decrease by an estimated 722 VMT/SP from baseline conditions.

Table 5.6-6 Operation-Related Annual Fuel Usage: Net Change from Existing

| Fuel Type | Existing Baseline Year | Forecast Year 2045 (with CAAP) | Net Change from Existing Baseline |
|-------------------------|----------------------------------|--|--|
| Gasoline | | | |
| VMT ¹ | 1,055,664,330 | 198,793,298 185,288,137 | -856,871,032 -870,376,193 |
| Gallons | 49,151,714 46,151,714 | 6,219,583 5,797,051 | -39,932,132 -40,354,663 |
| Miles Per Gallon | 22.897 | 31.96 | 9.09 |
| Diesel | | | |
| VMT ¹ | 67,129,682 62,129,682 | 19,693,685 15,558,054 | -42,435,997 -46,571,628 |
| Gallons | 7,412,023 | 2,129,844 1,682,582 | -5,282,178 -5,729,441 |
| Miles Per Gallon | 8.38 | 9.25 | 0.86 |
| Compressed Natural Gas | | | |
| VMT ¹ | 1,070,505 | 551,190 432,925 | -519,316 -637,581 |
| Gallons | 213,066 | 95,605 75,091 | -117,461 -137,975 |
| Miles Per Gallon | 5.02 | 5.77 | 0.74 |
| Electricity | | | |
| VMT ¹ | 18,046,572 | 1,110,350,001 1,128,109,058 | 1,092,303,429 1,110,062,486 |
| kWh | 6,503,224 | 539,203,303 547,827,378 | 532,700,078 541,324,154 |
| Miles Per kWh | 2.78 | 2.06 | -0.72 |
| Total VMT | 1,136,911,090 | 1,329,388,174 1,329,388,174 | 192,477,084 |
| Service Population (SP) | 212,910 | 287,870 | 74,960 |
| VMT/SP | 5,340 | 4,618 4,618 | -722 |

Source: EMFAC2021 Version 1.0.2.

Notes:

¹ Based on daily VMT provided by Fehr and Peers. VMT per year based on a conversion of VMT x 347 days per year to account for less travel on weekend, consistent with CARB statewide GHG emissions inventory methodology (CARB 2008).

The overall VMT as shown in the table would be primarily attributable to the overall growth associated with the proposed General Plan compared to existing conditions. As discussed in Section 5.14, *Population and Housing*, implementation of the proposed General Plan would exceed current regional projections for housing by 26 percent and population by 18 percent. However, it is important to note that regional projections used were from *Plan Bay Area 2040* and not the updated *Plan Bay Area 2050*, which does not differentiate between Contra Costa County as a whole and only the unincorporated portion of the county.

As identified in Section 5.16, *Transportation*, the proposed General Plan Land Use Element includes goals, policies, and actions to minimize VMT and therefore reduce emissions from automobiles. Please see the impact discussion in Section 5.16 for a complete list of these goals, policies, and actions. Additionally, fuel efficiency of vehicles under year 2045 conditions would improve compared to existing baseline year conditions. The improvement in fuel efficiency would be attributable to regulatory compliance (e.g., CAFE standards), resulting in new cars that are more fuel efficient and the attrition of older, less fuel-efficient vehicles. The CAFE standards are not directly applicable to residents or land use development projects, but to car manufacturers. Thus, Contra Costa County and its residents do not have direct control in determining the fuel efficiency of vehicles manufactured and that are made available. However, compliance with the CAFE standards by car manufacturers would ensure that vehicles produced in future years have greater fuel efficiency and would

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generally result in an overall benefit of reducing fuel usage by providing the population of the county more fuel-efficient vehicle options.

While the demand in electricity would increase under the proposed General Plan, in conjunction with the regulatory (i.e., Renewables Portfolio Standard, SB 350, and SB 100) and general trend toward increasing the supply and production of energy from renewable sources, it is anticipated that a greater share of electricity used to power electric vehicles would be from renewable sources in future years (e.g., individual photovoltaic systems, purchased electricity from PG&E, and/or purchased electricity from MCE that is generated from renewable sources). In addition to regulatory compliance that would contribute to more fuel-efficient vehicles and less demand in fuels, the proposed General Plan includes policies that will contribute to minimizing overall VMT, and thus associated fuel usage (see Section 5.16, *Transportation*). In combination with improvements in fuel economy standards through 2045, the proposed General Plan would result in a decrease in transportation energy consumption. As a result, the proposed General Plan would result in an overall decrease in energy consumption through 2045.

Decreasing Reliance on Fossil Fuels

The proposed General Plan would be considered to conflict with this criterion if it did not take steps to decrease the reliance on fossil fuels. As discussed in Section 5.8, *Greenhouse Gas Emissions*, individual development projects accommodated by the proposed General Plan would be required to comply with the CBSC that is current at the time of their building application submittal. As the current CBSC is the 2022 CBSC, individual development projects going through the application process today would result in greater energy efficiency than the current performance of existing structures in the EIR Study Area. In addition, the 2022 CBSC currently includes provisions for development projects to include rooftop photovoltaic systems and BES infrastructure or demonstrate energy efficiency performance equivalent to including photovoltaic and BES features.

In addition to improvements in energy efficiency and on-site renewable energy generation and energy storage requirements, SB 100 requires that LSEs incrementally increase their energy procurement sources to include eligible renewable and carbon-free sources. By January 1, 2046, all LSEs in California are required to source 100 percent of their in-state electricity sales from renewable and carbon-free sources. As a result, individual development projects accommodated by the proposed General Plan would improve their energy efficiency through compliance with the CBSC current at the time of their building application submittal and LSEs would supply electricity that is increasingly sourced from carbon-free sources.

Moreover, consistent with Executive Order N-79-20 and CARB's Advanced Clean Cars II Regulation, which require that 100 percent of new passenger vehicles sold in-state are ZE (i.e., battery electric, hybrid plug-in electric, and fuel cell electric vehicles) by 2035, vehicles utilized by future residents and employees accommodated by the proposed General Plan are expected to consist more of EVs than what is experienced under existing conditions. In addition, the proposed General Plan includes policies that are intended to reduce the use of nonrenewable energy. Specifically, Policies COS-P14.7, COS-P14.8, HS-P1.8, and HS-P3.2 encourage the reduction of nonrenewable energy use and the utilization of new energy sources and building electrification. As a result, the proposed General Plan would incrementally decrease reliance on fossil fuel energy resources through 2045.

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Increasing Reliance on Renewable Energy

As previously discussed, the 2022 CBSC currently requires a variety of development projects that don't meet specific exceptions or exemptions to include rooftop photovoltaic systems and BES infrastructure or otherwise match or exceed the energy efficiency performance experienced by including photovoltaic and BES systems, as applicable. In addition, it is anticipated that each new Code cycle for the CBSC will improve on the last one by requiring higher performance for energy efficiency and incorporating additional requirements for on-site renewable energy and EV charging infrastructure. Future development projects accommodated by the proposed General Plan would therefore result in a net increase from existing conditions in on-site photovoltaic electricity generation and EV charging stations and associated infrastructure, further supporting and accelerating the adoption of EVs and the use of renewable energy in future years.

Similarly, LSEs that serve future development projects accommodated by the proposed General Plan, such as PG&E and MCE, would be required to incrementally increase their energy procurement sources to include eligible renewable and carbon-free sources through 2045 under SB 100. As a result, electricity consumed by individual development projects under the proposed General Plan, as well as existing structures in the county, would rely more on renewable and carbon-free sources for electricity in future years than is experienced under existing conditions.

Moreover, the proposed General Plan includes various policies that are intended to support the use of renewable energy beyond compliance with the CBSC, including creating a walkable urban environment to encourage future residents and employees in the county to use active modes of transportation instead of motorized vehicles.

The following proposed General Plan policies focus on minimizing VMT through land use and transportation planning efforts that work in conjunction, including:

- **Policy TR-P1.4:** Reduce single-occupant vehicle usage and VMT by significantly enhancing the availability and safety of other travel modes through infrastructure investment, policy support (Vision Zero, at a minimum using strategies defined in the TDM Ordinance, and other best practices), and support for public transit.
- **Policy TR-P4.7:** Encourage walkability and safety by streamlining implementation of traffic-calming measures through the Neighborhood Traffic Management Program.
- **Policy TR-P5.2:** Coordinate with Caltrans to provide safe and comfortable highway interchange crossings for people of all ages and abilities who walk, bike, or use micromobility.
- **Policy TR-P5.7:** Encourage walking, bicycling, and micromobility as the travel modes of choice for short to medium-length trips, such as trips to schools, parks, transit stops, local shopping areas, and neighborhood services.
- **Policy TR-P5.10:** Require generous parking for bicycles and other mobility devices at key destinations, such as shopping centers, parks, schools, workplaces, employment centers, transit stations, and multiple-family housing. This parking should be conveniently located near entrances, include charging infrastructure, and accommodate cargo bikes when appropriate for the land use.

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Summary

Compliance with federal, State, and local regulations (e.g., Energy Code, CALGreen, Renewables Portfolio Standard, and CAFE standards) would increase building energy efficiency and vehicle fuel efficiency. Compliance would also reduce building energy demand and transportation-related fuel usage in the future. Additionally, the proposed General Plan includes policies related to land use and transportation planning, energy efficiency, promotion of housing near public and active transit, and renewable energy generation that will contribute to minimizing building and transportation-related energy demands overall. As stated, development that could occur under the proposed General Plan would reduce the per capita transportation energy consumption, decrease reliance on fossil fuels, and increase reliance on renewable energy sources.

Implementation of policies under the proposed General Plan, in conjunction with and complementary to regulatory requirements, would ensure that energy demand associated with growth under the proposed General Plan would decrease overall energy consumption, decrease reliance on fossil fuels, and increase reliance on renewable energy. As such, the energy consumption under the proposed General Plan would not be considered inefficient, wasteful, or unnecessary. Therefore, energy impacts associated with implementation and operation of land uses accommodated under the proposed General Plan would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions; it does not involve any land use changes that would result in indirect growth or change in building density or intensity. Because there is no specific land use component associated with the proposed CAAP, its implementation would not directly result in energy impacts.

Furthermore, the proposed CAAP would help reduce GHG emissions and energy demand generated by existing and proposed land uses in the EIR Study Area. For example, proposed CAAP transportation strategies that reduce VMT (e.g., Strategy TR-1) would result in a reduction in transportation-related fuel usage. Likewise, the proposed CAAP also promotes building energy-efficiency improvements (e.g., Strategies BE-1 and BE-2), increasing water efficiency (e.g., Strategy DR-1 and DR-2), and reducing energy demand through renewable energy sources (e.g., Strategy BE-3) to minimize energy sector emissions. In addition, the proposed CAAP supports the East Bay Energy Watch, which is a partnership between PG&E and local governments in the East Bay region to conduct energy efficiency outreach to residents and businesses, retrofit existing government facilities to improve energy efficiency, and provide training to agency staff. Thus, implementation of the proposed CAAP would result in beneficial impacts to energy consumption. Overall, implementation of the proposed CAAP would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation and impacts would be less than significant.

Level of Significance Before Mitigation: Impact 5.6-1 would be less than significant.

Mitigation Measures

No mitigation measures are required.

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Level of Significance After Mitigation: Impact 5.6-1 would be less than significant.

Impact 5.6-2: Implementation of the proposed project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

Proposed General Plan

The state's electricity grid is transitioning to renewable energy under California's RPS Program. Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. In general, California has RPS requirements of 33 percent renewable energy by 2020 (SB X1-2), 40 percent by 2024 (SB 350), 50 percent by 2026 (SB 100), 60 percent by 2030 (SB 100), and 100 percent by 2045 (SB 100). SB 100 also establishes RPS requirements for publicly owned utilities that consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. Additionally, SB 1020 requires all State agencies to procure 100 percent of electricity from renewable energy and zero-carbon resources by 2035.

The statewide RPS requirements do not directly apply to individual development projects, but to utilities and energy providers such as PG&E and MCE, whose compliance with RPS requirements would contribute to the State's objective of transitioning to renewable energy. In addition, the County Board of Supervisors voted to go Deep Green 100 percent renewable (i.e., all power which customers buy comes from 100 percent non-polluting wind and solar power) with MCE for the majority of the County's accounts. Even if customers in the county were to opt-out of the Deep Green program, and therefore receive all their electricity from PG&E, 33 percent of PG&E's electricity has been generated from renewable energy since 2017 (PG&E 2023b). By 2030, PG&E is set to meet the State's new 60 percent renewable energy mandate set forth in SB 100.

The land uses accommodated under the proposed General Plan would be required to comply with the current and future iterations of the Building Energy Efficiency Standards and CALGreen. Furthermore, as described for Impact Discussion 5.6-1, the proposed General Plan includes policies that would support the statewide goal of transitioning the electricity grid to renewable sources. The net increase in energy demand associated with implementation of the proposed General Plan would be within the service capabilities of MCE and PG&E and would not impede their ability to implement California's renewable energy goals. Therefore, implementation of the proposed General Plan would not conflict with or obstruct implementation of California's Renewables Portfolio Standard program, and the impact would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions; it does not involve any land use changes that would result in indirect growth or change in building density or intensity. As discussed under Impact Discussion 5.6-1, the proposed CAAP transportation strategies would reduce VMT (e.g., Strategy TR-1) to aid in the reduction in transportation-related fuel usage. Likewise, the proposed CAAP also promotes building energy-efficiency improvements (e.g., Strategies BE-1 and BE-2), increasing water efficiency (e.g., Strategy DR-1 and DR-2), and reducing energy demand through renewable energy sources (e.g., Strategy BE-3) to minimize energy sector emissions. Furthermore, the proposed CAAP supports the East Bay Energy Watch, which is a partnership between PG&E and local governments in the East Bay region to conduct energy efficiency outreach to residents and businesses,

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retrofit existing government facilities to improve energy efficiency, and provide training to agency staff. Therefore, the proposed CAAP would complement the statewide goal of transitioning the electricity grid to renewable sources. Implementation of the proposed CAAP would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency and impacts would be less than significant.

Level of Significance Before Mitigation: Impact 5.6-2 would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation: Impact 5.6-2 would be less than significant.

Impact 5.6-3: Implementation of the proposed project would not require or result in the relocation or construction of new or expanded energy facilities, the construction or relocation of which could cause significant environmental effects.

Proposed General Plan

The proposed General Plan would accommodate future growth in the EIR Study Area that would require new or expanded energy facilities; however, the proposed General Plan would not directly result in the construction of new or expanded energy facilities that would not otherwise be reviewed and mitigated to reduce potentially significant environmental effects. As discussed in Section 5.6.1.1, *Regulatory Background*, the IRP is the principal planning document that identifies CAISO's forecasts for electricity demand, supply, and transmission needs over a 20-year planning horizon, as well as its strategies for integrating renewable energy resources and other grid services to meet those needs. These forecasts account for the expected growth in population and development in corresponding LSE's service areas, such as the population and development envisioned under the proposed General Plan within PG&E and MCE's service area.

The IRP is developed in collaboration with LSEs, regulators, and other stakeholders, and is updated periodically to reflect changes in the energy landscape and evolving policy goals (CEC 2020). Overall, the IRP plays a critical role in ensuring the reliability and resilience of California's electricity grid as the state continues to transition to a cleaner and more sustainable energy system. When an LSE identifies that new or expanded energy facilities are needed to accommodate the population and development growth in its service area, those proposed improvements are reviewed to identify consistency with local, State, and federal regulatory compliance as well as potential environmental effects that may result. For on-site systems, such as rooftop solar, the review would be conducted by the applicable lead agency as part of that individual development project. For energy infrastructure improvements that involve the construction of new or expansion of existing transmission lines, generation systems, or BES facilities separate from an individual development project, the review would be conducted by the CPUC and/or CEC depending on the type of facility. The CEC typically acts as a CEQA lead or responsible agency for energy infrastructure improvements involving generation or BES systems, whereas the CPUC typically acts as a CEQA lead or responsible agency for improvements involving transmission lines or other distribution infrastructure.

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Once the new or expanded energy facility is reviewed and approved, incorporating any necessary and appropriate mitigation, it is assigned a point of interconnection on the grid, and its output is added to the IRP as a resource that can provide electricity and other grid services, such as frequency regulation or ramping support. The facility is then dispatched by CAISO based on its bids into the day-ahead and real-time electricity markets, and its output is used to help balance supply and demand on the grid in real-time. CAISO operates a wholesale electricity market in which LSEs can participate by offering to buy or sell electricity and other grid services, such as demand response or energy storage. This market helps to ensure that the electricity system operates efficiently and reliably by providing economic incentives for electricity providers to use their resources effectively.

In addition to the IRP, which principally governs the planning efforts for new and expanded electricity and natural gas facilities, the CPUC in December 2022 adopted a new framework to comprehensively review utility natural gas infrastructure investments in order to help the State transition away from natural-gas-fueled technologies and avoid stranded assets in the gas system. The new framework requires utilities to seek CPUC approval of natural gas infrastructure projects of \$75 million or more or those with significant air quality impacts. The new framework is intended to capture natural gas projects likely to have the most substantial community and environmental impacts and to require demonstrate project compliance with CEQA (CPUC 2022). Therefore, while the proposed General Plan may result in increased energy resource demand by facilitating population and development growth in the EIR Study Area, and subsequently in PG&E and MCE's service area, any new or expanded facilities needed as a result of meeting that increased demand would undergo its own review to mitigate potentially significant environmental effects and demonstrate compliance with regulatory requirements. As such, the proposed General Plan would not result in new or expanded energy facilities which may cause significant environmental effects. This impact would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions; it does not involve any land use changes that would result in indirect growth or change in building density or intensity. Because there is no specific land use component associated with the proposed CAAP, its implementation would not directly result in relocation or construction of new or expanded energy facilities.

As discussed under Impact Discussion 5.6-1, the proposed CAAP promotes building energy-efficiency improvements (e.g., Strategies BE-1 through BE-2) and reducing energy demand through renewable energy sources (e.g., Strategy BE-3) to minimize energy sector emissions. Furthermore, the proposed CAAP supports the East Bay Energy Watch, which is a partnership between PG&E and local governments in the East Bay region to conduct energy efficiency outreach to residents and businesses, retrofit existing government facilities to improve energy efficiency, and provide training to agency staff. Therefore, implementation of the proposed CAAP would not directly result in new or expanded energy facilities which may cause significant environmental effects and impacts would be less than significant.

Level of Significance Before Mitigation: Impact 5.6-3 would be less than significant.

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Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation: Impact 5.6-3 would be less than significant.

5.6.5 Cumulative Impacts

All development projects within the vicinity of the EIR Study Area are within the service areas of MCE and PG&E. These projects would result in a long-term increase in operational energy demand for electricity and natural gas use associated with population and housing growth. In addition, construction activities would require the use of energy for purposes such as the operation of construction equipment and tools, and construction of development projects may overlap. However, all projects developed within the MCE and PG&E service area would implement the requirements of the Energy Code (CCR, Title 24, Part 6) and the California Green Building Code (CCR, Title 24, Part 11). Furthermore, new buildings would use new energy-efficient appliances and equipment, pursuant to the Appliance Efficiency Regulations.

Future housing development would also increase annual fuel consumption and VMT within the county. However, vehicles would be subject to the CAFE standards for vehicular fuel efficiency, and average corporate fuel economy continues to increase as a result of State and federal laws, including the Advanced Clean Cars II standards. Furthermore, as described in Impact Discussion 5.6-2, the proposed General Plan includes policies that would contribute toward minimizing inefficient, wasteful, or unnecessary transportation energy consumption. These policies, as well as the other proposed General Plan policies listed in Impact Discussion 5.6-1, would ensure compliance with State, regional, and local plans for renewable energy. Therefore, the proposed project would not result in a cumulatively considerable impact on energy consumption.

5.6.6 Level of Significance Before Mitigation

After implementation of regulatory requirements and standard conditions of approval, all impacts would be less than significant.

5.6.7 Mitigation Measures

No mitigation measures are required.

5.6.8 Level of Significance After Mitigation

Impacts would be less than significant.

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APPENDIX E:
REVISIONS TO SECTION
5.8, GREENHOUSE GAS
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5.8 GREENHOUSE GAS EMISSIONS

This section evaluates the potential for the adoption and implementation of the proposed project to impact greenhouse gas (GHG) emissions in a local and regional context. Because no single project is large enough to result in a measurable increase in global concentrations of GHG, climate change impacts of a project are considered on a cumulative basis based on the GHG emissions reduction goals identified in the California Air Resources Board's (CARB) 2022 Scoping Plan. GHG emissions modeling is based on emissions inventory, targets, and forecast in the Climate Action and Adaptation Plan (CAAP) included in Appendix 5.8-1, *Climate Action and Adaptation Plan*, of this Draft Environmental Impact Report (EIR).

5.8.1 Environmental Setting

5.8.1.1 TERMINOLOGY

The following are definitions for terms used throughout this section.

- **Greenhouse gases (GHG).** Gases in the atmosphere that absorb infrared light, thereby retaining heat in the atmosphere and contributing to a greenhouse effect.
- **Global warming potential (GWP).** Metric used to describe how much heat a molecule of a GHG absorbs relative to a molecule of carbon dioxide (CO₂) over a given period of time (20, 100, and 500 years). CO₂ has a GWP of 1.
- **Carbon dioxide-equivalent (CO₂e).** The standard unit to measure the amount of GHGs in terms of the amount of CO₂ that would cause the same amount of warming. CO₂e is based on the GWP ratios between the various GHGs relative to CO₂.
- **MTCO₂e.** Metric ton of CO₂e.
- **MMTCO₂e.** Million metric tons of CO₂e.

5.8.1.2 GREENHOUSE GASES AND CLIMATE CHANGE

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHGs, to the atmosphere. The primary source of these GHGs is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHGs—water vapor, carbon dioxide (CO₂), methane (CH₄), and ozone (O₃)—that are the likely cause of an increase in global average temperatures observed in the 20th and 21st centuries. Other GHGs identified by the IPCC that contributes to global warming to a lesser extent are nitrous oxide (N₂O), sulfur hexafluoride (SF₆),

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hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).^{1,2} The major GHGs applicable to the proposed project are briefly described.

- **Carbon dioxide (CO₂)** enters the atmosphere through the burning of fossil fuels (i.e., oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (i.e., sequestered) when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH₄)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in landfills and water treatment facilities.
- **Nitrous oxide (N₂O)** is emitted during agricultural and industrial activities as well as during the combustion of fossil fuels and solid waste.

GHGs are dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Some GHGs have stronger greenhouse effects than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 5.8-1, *GHG Emissions and Their Relative Global Warming Potential Compared to CO₂*. The GWP is used to convert GHGs to CO₂-equivalence (CO₂e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under the IPCC Fifth Assessment Report (AR5) GWP values for CH₄, 10 MT of CH₄ would be equivalent to 280 MT of CO₂.

Table 5.8-1 GHG Emissions and Their Relative Global Warming Potential Compared to CO₂

| GHGs | Fourth Assessment Report Global Warming Potential Relative to CO ₂ ¹ | Fifth Assessment Report Global Warming Potential Relative to CO ₂ ¹ | Sixth Assessment Report Global Warming Potential Relative to CO ₂ ¹ |
|---|--|---|---|
| Carbon Dioxide (CO ₂) | 1 | 1 | 1 |
| Methane (CH ₄) ² | 25 | 28 | 30 |
| Nitrous Oxide (N ₂ O) | 298 | 265 | 273 |

Source: IPCC 2007, 2013, and 2022.

Notes: The IPCC published updated GWP values in its Sixth Assessment Report (AR6) that reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO₂. However, GWP values identified in AR5 are used by the 2022 Scoping Plan for long-term emissions forecasting. Therefore, this analysis utilizes AR5 GWP values consistent with the current Scoping Plan.

¹ Based on 100-year time horizon of the GWP of the air pollutant compared to CO₂.

² The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO₂ is not included.

¹ Water vapor (H₂O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals); however, water vapor is not considered a pollutant because it is considered part of the feedback loop rather than a primary cause of change.

² Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. The share of black carbon emissions from transportation is dropping rapidly and is expected to continue to do so between now and 2030 as a result of California's air quality programs. The remaining black carbon emissions will come largely from woodstoves/fireplaces, off-road applications, and industrial/commercial combustion (CARB 2022). However, State and national GHG inventories do not include black carbon due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

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Human Influence on Climate Change

For approximately 1,000 years before the Industrial Revolution, the amount of GHGs in the atmosphere remained relatively constant. During the 20th century, scientists observed a rapid change in the climate and the quantity of climate change pollutants in the Earth's atmosphere that is attributable to human activities.

The recent IPCC Sixth Assessment Report (AR6) summarizes the latest scientific consensus on climate change. It finds that atmospheric concentrations of CO₂ have increased by 50 percent since the Industrial Revolution and continue to increase at a rate of two parts per million each year. By the 2030s, and no later than 2040, the world will exceed 1.5°C warming (CARB 2022b). These recent changes in the quantity and concentration of climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is warming at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants (CAT 2006). In the past, gradual changes in the Earth's temperature changed the distribution of species, availability of water, and other conditions. Human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic time frame but within a human lifetime (IPCC 2007).

Like the variability in the projections of the expected increase in global surface temperatures, the environmental consequences of gradual changes in the Earth's temperature are hard to predict. Projections of climate change depend heavily on future human activity. Therefore, climate models are based on different emission scenarios that account for historical trends in emissions and on observations of the climate record that assess the human influence of the trend and projections for extreme weather events. Climate-change scenarios are affected by varying degrees of uncertainty. For example, there are varying degrees of certainty on the magnitude of the trends for:

- Warmer and fewer cold days and nights over most land areas.
- Warmer and more frequent hot days and nights over most land areas.
- An increase in the frequency of warm spells and heat waves over most land areas.
- An increase in frequency of heavy precipitation events (or proportion of total rainfall from heavy falls) over most areas.
- Larger areas affected by drought.
- Intense tropical cyclone activity increases.
- Increased incidence of extreme high sea level (excluding tsunamis).

Potential Climate Change Impacts for California

There is at least a greater than 50 percent likelihood that global warming will reach or exceed 1.5°C in the near-term, even for the very low GHG emissions scenario (IPCC 2022). Climate change is already impacting California and will continue to affect it for the foreseeable future. For example, the average temperature in most areas of California is already 1°F higher than historical levels, and some areas have seen average increases in excess of 2°F (CalOES 2020). The California Fourth Climate Change Assessment identifies the following climate change impacts under a business-as-usual (BAU) scenario, in which no new actions are taken to curb GHG emissions:

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- Annual average daily high temperatures in California are expected to rise by 2.7°F by 2040, 5.8°F by 2070, and 8.8°F by 2100 compared to observed and modeled historical conditions. These changes are statewide averages. Heat waves are projected to become longer, more intense, and more frequent.
- Warming temperatures are expected to increase soil moisture loss and lead to drier seasonal conditions. Summer dryness may become prolonged, with soil drying beginning earlier in the spring and lasting longer into the fall and winter rainy season.
- High heat increases the risk of death from cardiovascular, respiratory, cerebrovascular, and other diseases.
- Droughts are likely to become more frequent and persistent through 2100.³
- Climate change is projected to increase the strength of the most intense precipitation and storm events affecting California.
- Mountain ranges in California are already seeing a reduction in the percentage of precipitation falling as snow. Snowpack levels are projected to decline significantly by 2100 due to reduced snowfall and faster snowmelt. California's water storage system is designed with the expectation that snow will stay frozen for many months, and that as it melts, it will be stored in a series of reservoirs and dams, many of which are used to generate electricity. Changing waterfall patterns therefore impact both water supply and electricity supply.
- Marine layer clouds are projected to decrease, though more research is needed to better understand their sensitivity to climate change.
- Extreme wildfires (i.e., fires larger than 10,000 hectares or 24,710 acres) are expected to occur 50 percent more frequently. The maximum area burned statewide may increase 178 percent by the end of the century. Drought and reduced water supplies can increase wildfire risk.
- Exposure to wildfire smoke is linked to increased incidence of respiratory illness.
- Sea-level rise is expected to continue to increase erosion of beaches, cliffs, and bluffs (CalOES 2020).

Global climate change risks to California are shown in Table 5.8-2, *Summary of GHG Emissions Risks to California*, and include impacts to public health, water resources, agriculture, coastal sea level, forest and biological resources, and energy.

³ Overall, California has become drier over time, with five of the eight years of severe to extreme drought occurring between 2007 and 2016, and with unprecedented dry years in 2014 and 2015 (OEHHA 2018). Statewide precipitation has become increasingly variable from year to year, with the driest consecutive four years occurring from 2012 to 2015 (OEHHA 2018).

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Table 5.8-2 Summary of GHG Emissions Risks to California

| Impact Category | Potential Risk |
|--|--|
| Public Health Impacts | Heat waves will be more frequent, hotter, and longer Fewer extremely cold nights Poor air quality made worse Higher temperatures increase ground-level ozone levels Deaths due to extreme heat |
| Water Resources Impacts | Decreasing Sierra Nevada snowpack Challenges in securing adequate water supply Potential reduction in hydropower Loss of winter recreation |
| Agricultural Impacts | Increasing temperature Increasing threats from pests and pathogens Expanded ranges of agricultural weeds Declining productivity Irregular blooms and harvests |
| Coastal Sea Level Impacts | Accelerated sea-level rise Increasing coastal floods Shrinking beaches Worsened impacts on infrastructure |
| Forest and Biological Resource Impacts | Increased risk and severity of wildfires Lengthening of the wildfire season Movement of forest areas Conversion of forest to grassland Declining forest productivity Increasing threats from pests and pathogens Shifting vegetation and species distribution Altered timing of migration and mating habits Loss of sensitive or slow-moving species |
| Energy Demand Impacts | Potential reduction in hydropower Increased energy demand |

Sources: CEC 2006, 2009; CCCC 2012; CNRA 2014; CalEOS 2020

5.8.1.3 REGULATORY BACKGROUND

Federal

The U.S. Environmental Protection Agency (USEPA) announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The USEPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings do not impose any emission reduction requirements but allowed the USEPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation (USEPA 2009).

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To regulate GHGs from passenger vehicles, the USEPA was required to issue an endangerment finding (USEPA 2023). The finding identified emissions of six key GHGs—CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons, and SF₆—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world. The first three are applicable to the proposed project's GHG emissions inventory because they constitute the majority of GHG emissions and, according to guidance by the Bay Area Air Quality Management District (BAAQMD), are the GHG emissions that should be evaluated as part of a project's GHG emissions inventory.

US Mandatory Report Rule for GHGs (2009)

In response to the endangerment finding, the USEPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (e.g., large stationary sources) to report GHG emissions data. Facilities that emit 25,000 MT or more of CO₂e per year are required to submit an annual report.

Update to Corporate Average Fuel Economy Standards (2017 to 2026)

The federal government issued new Corporate Average Fuel Economy (CAFE) standards in 2012 for vehicle model years 2017 to 2025, requiring a fleet average of 54.5 miles per gallon (MPG) in 2025. However, on March 30, 2020, the USEPA finalized updated CAFE and GHG emissions standards for passenger cars and light trucks, covering model years 2021 through 2026, known as the Safer Affordable Fuel Efficient (SAFE) Vehicles Final Rule for Model Years 2021 to 2026. Under SAFE, the fuel economy standards will increase 1.5 percent per year compared to the 5 percent per year under the CAFE standards established in 2012. Overall, SAFE requires a fleet average of 40.4 MPG for model year 2026 vehicles (85 Federal Register 24174 (April 30, 2020)).

On December 21, 2021, under the direction of Executive Order (EO) 13990 issued by President Biden, the National Highway Traffic Safety Administration (NHTSA) repealed SAFE Vehicles Rule Part One, which had preempted state and local laws related to fuel economy standards. In addition, the NHTSA announced new proposed fuel standards on March 31, 2022. Fuel efficiency under the new standards proposed will increase 8 percent annually for model years 2024 to 2025 and 10 percent for model year 2026. Overall, the new CAFE standards require a fleet average of 49 MPG for passenger vehicles and light trucks for model year 2026, which would be a 10 MPG increase relative to model year 2021 (NHTSA 2022).

State

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in EO S-03-05, EO B-30-15, EO B-55-18, Assembly Bill (AB) 32, AB 1279, Senate Bill (SB) 32, and SB 375.

Executive Order S-03-05

EO S-03-05 was signed June 1, 2005, and set the following GHG reduction targets for the State:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

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Assembly Bill 32, the Global Warming Solutions Act (2006)

AB 32 was passed by the California State legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in EO S-03-05. CARB prepared the 2008 Scoping Plan to outline a plan to achieve the GHG emissions reduction targets of AB 32.

Executive Order B-30-15

EO B-30-15, signed April 29, 2015, set a goal of reducing GHG emissions in the state to 40 percent of 1990 levels by year 2030. EO B-30-15 also directed CARB to update the Scoping Plan to quantify the 2030 GHG reduction goal for the State and requires State agencies to implement measures to meet the interim 2030 goal as well as the long-term goal for 2050 in EO S-03-05. It also requires the Natural Resources Agency to conduct triennial updates of the California adaption strategy, *Safeguarding California*, in order to ensure climate change is accounted for in State planning and investment decisions.

Senate Bill 32 and Assembly Bill 197

In September 2016, Governor Brown signed SB 32 and AB 197 into law, making the EO goal for year 2030 into a statewide mandated legislative target. AB 197 established a joint legislative committee on climate change policies and requires CARB to prioritize direct emissions reductions rather than the market-based cap-and-trade program for large stationary, mobile, and other sources.

Executive Order B-55-18

EO B-55-18, signed September 10, 2018, sets a goal “to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter.” EO B-55-18 directs CARB to work with relevant State agencies to ensure future scoping plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other State goals, meaning not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions be offset by equivalent net removals of CO_{2e} from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

Assembly Bill 1279

AB 1279, signed by Governor Newsom in September 2022, codifies the carbon neutrality targets of EO B-55-18 for year 2045 and sets a new legislative target for year 2045 of 85 percent below 1990 levels for anthropogenic GHG emissions. CARB was required to update the Scoping Plan to identify and recommend measures to achieve the net-zero and GHG emissions-reduction goals.

2022 Climate Change Scoping Plan

CARB adopted the *2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan) on December 15, 2022, which lays out a path to achieve carbon neutrality by 2045 or earlier and to reduce the state’s anthropogenic GHG emissions (CARB 2022b). The Scoping Plan was updated to address the carbon neutrality goals of EO B-55-18 and the ambitious GHG reduction target as directed by AB 1279. Previous scoping plans focused on

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specific GHG reduction targets for industrial, energy, and transportation sectors—to meet 1990 levels by 2020, and then the more aggressive 40 percent below that for the 2030 target. This Plan expands on earlier scoping plans with a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045. Carbon neutrality takes it one step further by expanding actions to capture and store carbon, including through natural and working lands and mechanical technologies, while drastically reducing anthropogenic sources of carbon pollution at the same time.

The path forward was informed by the recent IPCC AR6; the measures would achieve 85 percent below 1990 levels by 2045 in accordance AB 1279. CARB’s 2022 Scoping Plan identifies strategies as shown in Table 5.8-3, *Priority Strategies for Local Government Climate Action Plans*, that would be most impactful at the local level for ensuring substantial process towards the State’s carbon neutrality goals.

Table 5.8-3 Priority Strategies for Local Government Climate Action Plans

| Priority Area | Priority Strategies |
|--|--|
| Transportation Electrification | Convert local government fleets to zero-emission vehicles (ZEV) and provide electric vehicle (EV) charging at public sites. |
| | Create a jurisdiction-specific ZEV ecosystem to support deployment of ZEVs statewide (such as building standards that exceed State building codes, permit streamlining, infrastructure siting, consumer education, preferential parking policies, and ZEV readiness plans). |
| Vehicle Miles Traveled (VMT) Reduction | Reduce or eliminate minimum parking standards. |
| | Implement complete streets policies and investments, consistent with general plan circulation element requirements. |
| | Increase access to public transit by increasing density of development near transit, improving transit service by increasing service frequency, creating bus priority lanes, reducing or eliminating fares, microtransit, and other approaches. |
| | Increase public access to clean mobility options by planning for and investing in electric shuttles, bike share, car share, and walking. |
| | Implement parking pricing or transportation demand management pricing strategies. |
| | Amend zoning or development codes to enable mixed-use, walkable, transit-oriented, and compact infill development (such as increasing allowable density of the neighborhood). |
| | Preserve natural and working lands by implementing land use policies that guide development toward infill areas and do not convert “greenfield” land to urban uses (e.g., green belts, strategic conservation easements) . |
| Building Decarbonization | Adopt all-electric new construction reach codes for residential and commercial uses. |
| | Adopt policies and incentive programs to implement energy efficiency retrofits for existing buildings, such as weatherization, lighting upgrades, and replacing energy-intensive appliances and equipment with more efficient systems (such as Energy Star-rated equipment and equipment controllers). |
| | Adopt policies and incentive programs to electrify all appliances and equipment in existing buildings such as appliance rebates, existing building reach codes, or time of sale electrification ordinances. |
| | Facilitate deployment of renewable energy production and distribution and energy storage on privately owned land uses (e.g., permit streamlining, information sharing). |
| | Deploy renewable energy production and energy storage directly in new public projects and on existing public facilities (e.g., solar photovoltaic systems on rooftops of municipal buildings and on canopies in public parking lots, battery storage systems in municipal buildings). |

Source: CARB 2022b

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Residential and mixed-use development projects including the following key project attributes would accommodate growth in a manner consistent with State GHG reduction and equity prioritization goals. This is the first approach the State recommends for qualitatively determining whether a proposed residential or mixed-use residential development would align with the State's climate goals while simultaneously advancing fair housing.

Key residential and mixed-use project attributes that reduce GHGs:

- Transportation Electrification
 - Provide EV charging infrastructure that, at a minimum, meets the most ambitious voluntary standards in the California Green Building Standards Code at the time of project approval.
- VMT Reduction
 - Is located on infill sites that are surrounded by existing urban uses and reuses or redevelops previously undeveloped or underutilized land that is presently served by existing utilities and essential public services (e.g., transit, streets, water, and sewer).
 - Does not result in the loss or conversion of the state's natural and working lands.
 - Consists of transit-supportive densities (minimum of 20 residential dwelling units/acre), or is in proximity to existing transit stops (within a half mile), or satisfies more detailed and stringent criteria specified in the region's Sustainable Communities Strategy (SCS).
 - Reduces parking requirements by:
 - Eliminating parking requirements or including maximum allowable parking ratios (i.e., the ratio of parking spaces to residential units or square feet); or
 - Providing residential parking supply at a ratio of <1 parking space per dwelling unit; or
 - For multifamily residential development, requiring parking costs to be unbundled from costs to rent or own a residential unit.
 - At least 20 percent of the units are affordable to lower-income residents.
 - Result in no net loss of existing affordable units.
- Building Decarbonization
 - Use all electric appliances without any natural gas connections and does not use propane or other fossil fuels for space heating, water heating, or indoor cooking.

The second approach to project-level alignment with State climate goals is net zero GHG emissions, especially for new residential development. The third approach to demonstrating project-level alignment with State climate goals is to align with GHG thresholds of significance, which many local air quality management (AQMDs) and air pollution control districts (APCDs) have developed or adopted (CARB 2022b).

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Senate Bill 375

SB 375, the Sustainable Communities and Climate Protection Act, was adopted in 2008 to connect the GHG emissions reduction targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (i.e., excluding emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations (MPO). The Metropolitan Transportation Commission (MTC) is the MPO for the Bay Area region, which includes Contra Costa County. Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target.

2017 Update to the SB 375 Targets

CARB is required to update the targets for the MPOs every eight years. In June 2017, CARB released updated targets and technical methodology, and then released another update in February 2018, which became effective in October 2018. CARB adopted the updated targets and methodology on March 22, 2018. All SCSs adopted after October 1, 2018, are subject to these new targets. The updated targets consider the need to further reduce VMT, as identified in the 2017 Scoping Plan Update, while balancing the need for additional and more flexible revenue sources to incentivize positive planning and action toward sustainable communities. The updated SB 375 targets are in units of percentage per capita reduction in GHG emissions from automobiles and light trucks compared to 2005. This excludes reductions anticipated from implementation of State technology and fuels strategies and any potential future State strategies such as statewide road user pricing. The updated targets call for greater per-capita GHG emission reductions from SB 375 than were currently in place, which for 2035 translates into updated targets that either match or exceed the emission reduction levels in the MPOs' currently adopted SCSs. CARB's updated targets result in an additional reduction of over 8 MMTCO_{2e} in 2035 compared to the prior targets (CARB 2018).

Transportation Sector Specific Regulations

Advanced Clean Fleets and Advanced Clean Trucks

CARB adopted the Advanced Clean Fleets (ACF) regulation in 2023 to accelerate the transition to zero-emission medium- and heavy-duty vehicles. In conjunction with the Advanced Clean Trucks (ACT) regulation, the ACF regulations helps to ensure that medium- and heavy-duty ZEVs are brought to the market, by requiring certain fleets to purchase ZEVs. The ACF ZEV phase-in approach provides initial focus where the best fleet electrification opportunities exist, sets clear targets for regulated fleets to make a full conversion to ZEVs, and creates a catalyst to accelerate development of a heavy-duty public charging infrastructure network.

Assembly Bill 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and was anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the

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USEPA. In 2012, the USEPA issued a Final Rulemaking that set even more stringent fuel economy and GHG emissions standards for model years 2017 through 2025 light-duty vehicles. (See also the previous discussion in federal regulations under “*Update to Corporate Average Fuel Economy Standards [2017 to 2026]*.”)

In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of ZEVs into a single package of standards. Under California’s Advanced Clean Car program, by 2025 new automobiles will emit 34 percent less GHG emissions and 75 percent less smog-forming emissions.

Executive Order S-01-07

On January 18, 2007, the State set a new low carbon fuel standard (LCFS) for transportation fuels sold in the state. EO S-01-07 set a declining standard for GHG emissions measured in CO₂e gram per unit of fuel energy sold in California. The LCFS required a reduction of 2.5 percent in the carbon intensity of California’s transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applied to refiners, blenders, producers, and importers of transportation fuels, and used market-based mechanisms to allow these providers to choose the most economically feasible methods for reducing emissions during the “fuel cycle.”

Executive Order B-16-2012

On March 23, 2012, the State directed CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies to work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to accommodate ZEVs in major metropolitan areas, including infrastructure to support them (e.g., EV charging stations). EO B-16-2012 also directed the number of ZEVs in California’s State vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles are ZE by 2015 and at least 25 percent by 2020. The EO also established a target for the transportation sector of reducing GHG emissions to 80 percent below 1990 levels.

Executive Order N-79-20

On September 23, 2020, Governor Newsom signed EO N-79-20, establishing a goal that 100 percent of in-state sales of new passenger cars and trucks will be ZE by 2035. Additionally, the fleet goals for trucks are that 100 percent of drayage trucks are ZE by 2035, and 100 percent of medium- and heavy-duty vehicles in the state are ZE by 2045, where feasible. The EO’s goal for the State is to transition to 100 percent ZE off-road vehicles and equipment by 2035, where feasible.

Renewables Portfolio: Carbon Neutrality Regulations

Senate Bills 1078, 107, and XI-2 and Executive Order S-14-08

A major component of California’s Renewable Energy Program is the renewables portfolio standard established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. EO S-14-08, signed in November 2008, expanded the State’s renewable energy standard to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011

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(SB X1-2). Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production decreases indirect GHG emissions from development projects because electricity production from renewable sources is generally considered carbon neutral.

Senate Bill 350

SB 350 (de Leon) was signed into law in September 2015 and establishes tiered increases to the RPS—40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy-efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

Senate Bill 100

On September 10, 2018, Governor Brown signed SB 100. Under SB 100, the RPS for public-owned facilities and retail sellers consists of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. SB 100 also established a new RPS requirement of 50 percent by 2026. Furthermore, the bill establishes an overall State policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all State agencies by December 31, 2045. Under the bill, the State cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

Senate Bill 1020

SB 1020 was signed into law on September 16, 2022. SB 1020 provides interim RPS targets (90 percent renewable energy by 2035 and 95 percent renewable energy by 2040) and requires renewable energy and zero-carbon resources to reach 100 percent clean electricity by 2045.

Energy Efficiency Regulations

California Building Code: Building Energy Efficiency Standards

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for the consideration and possible incorporation of new energy efficiency technologies and methods.

CEC adopted the 2022 Building Energy Efficiency Standards on August 11, 2021, and they went into effect on January 1, 2023. The 2022 standards encourage efficient electric heat pumps, establish electric-ready requirements for new homes, expand solar photovoltaic and battery storage standards, strengthen ventilation standards, among other approaches. The 2022 standards require mixed-fuel single-family homes to be electric-ready to accommodate replacement of gas appliances with electric appliances. In addition, the new standards include prescriptive photovoltaic system and battery requirements for high-rise, multi-family buildings (i.e., more than three stories) and noncommercial buildings such as hotels, offices, medical offices, restaurants, retail stores, schools, warehouses, theaters, and convention centers (CEC 2021).

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California Building Code: CALGreen

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.⁴ The mandatory provisions of CALGreen became effective January 1, 2011, and were last updated in 2022. The 2022 CALGreen standards became effective on January 1, 2023.

2006 Appliance Efficiency Regulations

The 2006 Appliance Efficiency Regulations (20 CCR Sections 1601–1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances. Though these regulations are now often viewed as "business as usual," they exceed the standards imposed by all other states, and they reduce GHG emissions by reducing energy demand.

Solid Waste Diversion Regulations

Assembly Bill 939: Integrated Waste Management Act of 1989

California's Integrated Waste Management Act of 1989 (AB 939, Public Resources Code Section 40050 et seq.) set a requirement for cities and counties throughout the state to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling, and composting. In 2008, the requirements were modified to reflect a per capita requirement rather than tonnage. To help achieve this, the Act requires that each city and county prepare and submit a source reduction and recycling element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

Assembly Bill 341

AB 341 (Chapter 476, Statutes of 2011) increased the statewide goal for waste diversion to 75 percent by 2020 and requires recycling of waste from commercial and multi-family residential land uses. Section 5.408 of CALGreen also requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

Assembly Bill 1327

The California Solid Waste Reuse and Recycling Access Act (AB 1327, Public Resources Code Section 42900 et seq.) requires areas to be set aside for collecting and loading recyclable materials in development projects. The Act required the California Integrated Waste Management Board to develop a model ordinance for adoption by any local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

⁴ The green building standards became mandatory in the 2010 edition of the Code.

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Assembly Bill 1826

In October 2014, Governor Brown signed AB 1826, requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses and multi-family residential dwellings with five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed with food waste.

Water Efficiency Regulations

Senate Bill X7-7

The 20x2020 Water Conservation Plan was issued by the California Department of Water Resources (DWR) in 2010 pursuant to SB 7, which was adopted during the 7th Extraordinary Session of 2009–2010 and therefore dubbed “SBX7-7.” SBX7-7 mandated urban water conservation and authorized DWR to prepare a plan implementing urban water conservation requirements, which DWR did through the 20x2020 Water Conservation Plan. In addition, it required agricultural water providers to prepare agricultural water management plans, measure water deliveries to customers, and implement other efficiency measures. SBX7-7 required urban water providers to adopt a water conservation target of a 20 percent reduction in urban per capita water use by 2020 compared to 2005 baseline use.

Assembly Bill 1881: Water Conservation in Landscaping Act

The Water Conservation in Landscaping Act of 2006 (AB 1881) requires local agencies to adopt the updated DWR model ordinance or an equivalent. AB 1881 also requires CEC to consult with DWR to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves, to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

Short-Lived Climate Pollutant Reduction Strategy

On September 19, 2016, the Governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and methane. Black carbon is the light-absorbing component of fine particulate matter produced during the incomplete combustion of fuels. SB 1383 required CARB, no later than January 1, 2018, to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The bill also established targets for reducing organic waste in landfills. On March 14, 2017, CARB adopted the Short-Lived Climate Pollutant Reduction Strategy, which identifies the State’s approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90 percent lower than in the early 1960s, despite the tripling of diesel fuel use (CARB 2017a). In-use on-road rules were expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020.

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Regional

Plan Bay Area: Strategy for a Sustainable Region

MTC and the Association of Bay Area Governments (ABAG) adopted Plan Bay Area 2050 on October 21, 2021 (ABAG/MTC 2021). Plan Bay Area 2050 provides transportation and environmental strategies to continue to meet the regional transportation-related GHG reduction goals of SB 375. Under the Plan Bay Area 2050 strategies, just under half of all Bay Area households would live within one half-mile of frequent transit by 2050, with this share increasing to over 70 percent for households with low incomes. Transportation and environmental strategies that support active and shared modes, combined with a transit-supportive land use pattern, are forecasted to lower the share of Bay Area residents that drive to work alone from over 50 percent in 2015 to 36 percent in 2050. GHG emissions from transportation would decrease significantly as a result of these transportation and land use changes, and the Bay Area would meet the State mandate of a 19-percent reduction in per-capita emissions by 2035 — but only if all strategies are implemented (ABAG/MTC 2021).

To achieve this sustainable vision for the Bay Area, the Plan Bay Area land use concept plan for the region concentrates the majority of new population and employment growth in the region in Priority Development Areas (PDAs). PDAs are transit-oriented, infill development opportunity areas within existing communities. An overarching goal of the regional plan is to concentrate development in areas where there are existing services and infrastructure rather than allocate new growth to outlying areas where substantial transportation investments would be necessary to achieve the per capita passenger vehicle, VMT, and associated GHG emissions reductions. Parts of the EIR Study Area lie within identified PDAs (MTC 2023).

Bay Area Clean Air Plan

BAAQMD adopted the 2017 *Clean Air Plan, Spare the Air, Cool the Climate* (Clean Air Plan) on April 19, 2017. The 2017 Clean Air Plan also lays the groundwork for reducing GHG emissions in the Bay Area to meet the State's 2030 GHG reduction target and 2050 GHG reduction goal. It also includes a vision for the Bay Area in a post-carbon year 2050 that encompasses the following:

- Construct buildings that are energy efficient and powered by renewable energy.
- Walk, bicycle, and use public transit for the majority of trips and use electric-powered autonomous public transit fleets.
- Incubate and produce clean energy technologies.
- Live a low-carbon lifestyle by purchasing low-carbon foods and goods in addition to recycling and putting organic waste to productive use.

A comprehensive multipollutant control strategy has been developed to be implemented in the next three to five years to address public health and climate change and to set a pathway to achieve the 2050 vision. The control strategy includes 85 control measures to reduce emissions of ozone, particulate matter, toxic air contaminants, and GHG from a full range of emission sources. These control measures cover the following sectors: (1) stationary (industrial) sources; (2) transportation; (3) energy; (4) agriculture; (5) natural and working lands; (6) waste management; (7) water; and (8) super-GHG pollutants. Overall, the proposed control strategy is based on the following key priorities:

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- Reduce emissions of criteria air pollutants and toxic air contaminants from all key sources.
- Reduce emissions of “super-GHGs,” such as methane, black carbon, and fluorinated gases.
- Decrease demand for fossil fuels (i.e., gasoline, diesel, and natural gas).
 - Increase efficiency of the energy and transportation systems.
 - Reduce demand for vehicle travel and high-carbon goods and services.
- Decarbonize the energy system.
 - Make the electricity supply carbon-free.
 - Electrify the transportation and building sectors.

Bay Area Commuter Benefits Program

Under Air District Regulation 14, Model Source Emissions Reduction Measures, Rule 1, Bay Area Commuter Benefits Program, employers with 50 or more full-time employees within the BAAQMD are required to register and offer commuter benefits to employees. In partnership with BAAQMD and MTC, the Rule’s purpose is to improve air quality, reduce GHG emissions, and decrease the Bay Area’s traffic congestion by encouraging employees to use alternative commute modes, such as transit, vanpool, carpool, bicycling, and walking. The benefits program allows employees to choose from one of four commuter benefit options, including a pre-tax benefit, employer-provided subsidy, employer-provided transit, and alternative commute benefit.

Local

Contra Costa County Congestion Management Program

The Contra Costa Transportation Authority (CCTA) is Contra Costa County’s designated Congestion Management Agency (CMA). It is responsible for implementing programs to ensure traffic levels remain manageable. As the CMA, CCTA is in charge of coordinating land use, air quality, and transportation planning among local jurisdictions.

The Congestion Management Program (CMP) outlines transportation demand management efforts and a land use evaluation program – both of which are built on CCTA’s Growth Management Program established by Measure J. The CMP strives to enhance sensitivity to the environment, improve air quality, reduce GHG emissions, and promote sustainable communities (CCTA 2021).

Contra Costa County Climate Emergency Resolution

In September 2020 the Board of Supervisors adopted Resolution No. 2020/256 declaring a climate emergency that threatens the long-term economic and social well-being, health, safety, and security of the county. The resolution demands accelerated actions on the climate crisis and calls on local and regional partners to join together to address climate change.

Contra Costa County Ordinance Code

Ordinance No. 2022-02, All-Electric Ordinance (New Construction), amends the 2019 California Energy Code to require the following building types to be all-electric:

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- Residential (including single-family and multi-family buildings)
- Detached Accessory Dwelling Units
- Hotel
- Office
- Retail

Contra Costa County Commuter Benefit Program

The County provides full-time or part-time (over 20 hours per week) employees commuter benefits to cover work related, public transportation expenses such as ferry, train and bus fees, and parking expenses.

5.8.1.4 EXISTING CONDITIONS

California's GHG Sources and Relative Contribution

In 2022, the statewide GHG emissions inventory was updated for 2000 to 2020 emissions using the GWPs in IPCC's AR4, and reported that California produced 369.2 MMTCO_{2e} GHG emissions in 2020 (CARB 2022a), which was 35.3 MMTCO_{2e} lower than 2019 levels and 61.8 MMTCO_{2e} below the 2020 GHG Limit of 431 MMTCO_{2e}. The 2019 to 2020 decrease in emissions is likely due in large part to the impacts of the COVID-19 pandemic. However, since the peak level in 2004, California's GHG emissions have generally followed a decreasing trend. In 2014, statewide GHG emissions dropped below the 2020 GHG Limit and have remained below the Limit since that time. Per capita GHG emissions in California have dropped from a 2001 peak of 13.8 metric tons per person to 9.3 metric tons per person in 2020, a 33-percent decrease (CARB 2022a).

California's transportation sector remains the largest generator of GHG emissions, producing 37 percent of the state's total emissions in 2020. Industrial sector emissions made up 20 percent and electric power generation made up 16 percent of the state's emissions inventory. Other major sectors of GHG emissions include commercial and residential (4 percent), agriculture and forestry (8.6 percent), high-GWP gases (5.8 percent), and recycling and waste (2 percent) (CARB 2022a).

Transportation emissions continued to decline for the past three consecutive years with the rise of fuel efficiency for the passenger vehicle fleet and an increase in battery electric vehicles. The deployment of renewable and less carbon-intensive resources and higher energy efficiency standards have facilitated the continuing decline in fossil fuel electricity generation. The industrial sector trend has been relatively flat in recent years but saw a decrease of 7.1 MMTCO_{2e} in 2020. Commercial and residential emissions saw a decrease of 1.7 MMTCO_{2e}. Emissions from high-GWP gases have continued to increase as they replace ozone depleting substance (ODS) that are being phased out under the 1987 Montreal Protocol. Emissions from other sectors have remained relatively constant in recent years. Overall trends in the inventory also continue to demonstrate that the carbon intensity of California's economy (i.e., the amount of carbon pollution per million dollars of gross domestic product [GDP]) is declining. From 2000 to 2020, the carbon intensity of California's economy decreased by 49 percent while the GDP increased by 56 percent (CARB 2022a).

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Existing Community-wide GHG Emissions

The existing land uses in the EIR Study Area consist of single- and multi-family residences and retail, office, commercial, industrial, and institutional uses. Operation of these land uses generates GHG emissions from natural gas used for energy, heating, and cooking; electricity usage; vehicle trips for employees and residents; area sources such as landscaping equipment and consumer cleaning products; water demand; waste generation; and solid waste generation.⁵ Table 5.8-4, *Unincorporated Contra Costa County 2005 and Existing GHG Emissions Inventory*, shows the emissions associated with existing land uses in the EIR Study Area.

Table 5.8-4 Unincorporated Contra Costa County 2005 and Existing GHG Emissions Inventory

| Sector | 2005 (MTCO ₂ e/year) | Existing (MTCO ₂ e/year) | Percentage of Total |
|----------------------------|------------------------------------|-------------------------------------|---------------------|
| On-Road Transportation | 628,200 | 464,040 | 44% 47% |
| Residential Energy | 294,930 | 191,780 | 18% 19% |
| Nonresidential Energy | 118,740 | 159,520 85,390 | 15% 9% |
| Solid Waste/Landfills | 243,940 | 220,760 | 21% 22% |
| Agriculture | 33,350 | 36,130 | 3% 4% |
| Off-road Equipment | 34,160 | 54,010 | 5% |
| Water and Wastewater | 8,080 | 4,870 | <1% |
| BART | 1,040 | 190 | <1% |
| Land Use and Sequestration | -70,860 | -70,860 | -7% |
| Total Community Emissions | 1,291,580 | 1,060,440 986,310 | 100% |

Source: Proposed CAAP (see Appendix 5.8-1 to this Draft EIR).

5.8.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

- GHG-1 Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- GHG-2 Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

BAAQMD's *CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans* contains instructions on how to evaluate, measure, and mitigate GHG impacts generated from land use development projects and plans. For purposes of this analysis, Contra Costa County is using BAAQMD's current GHG plan-level significance thresholds to evaluate the proposed project's potential impacts related to GHG emissions.

⁵ Emissions from water demand and wastewater are emissions associated with electricity used to supply, treat, and distribute water.

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5.8.2.1 GREENHOUSE GAS EMISSION IMPACTS

BAAQMD, in its Justification Report: *CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans* (GHG Justification Report 2022), recommends the use of one of two plan-level criteria to determine the GHG emission impact resulting from a proposed plan. If a proposed plan cannot demonstrate consistency with the BAAQMD-recommended Criterion A or Criterion B, that plan would result in a potentially significant impact related to GHG emissions.

- A. The plan must be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b); or
- B. The plan must meet the State's goals to reduce emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045.

5.8.2.2 CONTRA COSTA COUNTY CLIMATE ACTION PLAN

CEQA Guidelines Section 15183.5(b), *Tiering and Streamlining the Analysis of Greenhouse Gas Emissions*, allows for lead agencies to analyze and mitigate the significant effects of GHG emissions at a programmatic level. Pursuant to CEQA Guidelines Section 15183.5(b), later project-specific environmental documents may tier from and/or incorporate by reference the GHG reduction plan so long as it includes the following plan elements:

- Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area;
- 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;
- Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;
- 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;
- 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;
- Be adopted in a public process following environmental review.

The proposed CAAP is an update to the County's 2015 CAP. The proposed CAAP provides an updated baseline emissions inventory and forecast for the unincorporated areas, which aligns the County's GHG reduction efforts with State-recommended targets of AB 1279. The proposed CAAP demonstrates consistency with BAAQMD's significance criteria of meeting the State's goals to reduce emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045; demonstrates consistency with Appendix C "*Guidance for Greenhouse Gas Reduction Strategies*" of BAAQMD's CEQA Guidelines; and meets all of the criteria listed above from CEQA Guidelines Section 15183.5(b). The proposed CAAP is a component of the proposed project and is utilized for establishing the significance criteria for the unincorporated county. Additionally, once adopted, the

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proposed CAAP may be used for streamlined GHG analyses for future individual development projects, consistent with the proposed project and with the provisions contained in CEQA Guidelines Section 15183.5.

5.8.2.3 CONSISTENCY WITH STATEWIDE GHG REDUCTION TARGETS

The proposed General Plan and CAAP forecast growth in the EIR Study Area through year 2045; therefore, this EIR analyzes the potential for the proposed project to conflict with statewide GHG reduction goals identified in the CARB 2022 Scoping Plan that are applicable to local governments. This includes AB 1279, which requires an 85 percent reduction in GHG emissions by 2045 to stabilize CO₂e emissions and avoid the most catastrophic impacts of climate change, as well as to make substantial progress toward carbon neutrality.⁶

The proposed CAAP outlines strategies and GHG reduction measures to achieve the SB 32 target for year 2030 and the long-range target of AB 1279 for year 2045. The proposed CAAP covers GHG emissions reductions through the proposed General Plan's 2045 horizon year. The targets of the proposed CAAP are consistent with the statewide GHG emissions reduction goals of AB 1279. Based on the proposed CAAP, a trajectory consistent with the State's GHG emissions targets for the proposed project in year 2030 and year 2045 would be:⁷

- Year 2030 (40 percent below the 1990 levels): 658,700 MTCO₂e.
- Year 2045 (85 percent below the 1990 levels): 164,680 MTCO₂e.

The proposed CAAP is intended to meet the CEQA Guidelines Section 15183.5 plan requirements for CEQA streamlining for development projects consistent with the proposed CAAP and General Plan in unincorporated Contra Costa County.

5.8.2.4 MASS EMISSIONS AND HEALTH EFFECTS

On December 24, 2018, in *Sierra Club et al. v. County of Fresno et al.* (Friant Ranch), the California Supreme Court determined that the EIR for the proposed Friant Ranch project failed to adequately analyze the project's air quality impacts on human health. The EIR prepared for the project, which involved a master planned retirement community in Fresno County, showed that project-related mass emissions would exceed the San Joaquin Valley Air Pollution Control District's regional significance thresholds. In its findings, the California Supreme Court affirmed the holding of the Court of Appeal that EIRs for projects must not only identify impacts to human health, but also provide an "analysis of the correlation between the project's emissions and human health impacts" related to each criterion air pollutant that exceeds the regional significance thresholds or explain why

⁶ The 2022 Scoping Plan includes statewide measures to achieve the State's carbon neutrality goals under EO B-55-18, such as carbon dioxide removal (CDR), that are not applicable to local governments. Carbon neutrality goals are a "no impact" level and not a "less than significant" impact level for climate change effects. There are presently no reliable means of forecasting how future technological developments related to CDR may affect future emissions in a planning jurisdiction. Therefore, carbon neutrality targets are not directly applicable to local governments and CEQA projects to mitigate GHG emissions impacts of a proposed project. Moreover, AB 1279 GHG reduction targets for 2045 are in line with the scientifically established levels needed in the U.S. to limit global warming below 1.5 to 2.0 degrees Celsius, the warming threshold at which scientists say there will likely be major climate disruptions such as super droughts and rising sea levels. For these reasons, the targets of AB 1279 are applicable to the EIR. However, the proposed CAAP includes measures that align with the State's carbon neutrality goals under AB 1279, EO B-55-18, and SB 32.

⁷ Unincorporated Contra Costa County GHG emissions in 2005 were 1,291,580 MTCO₂e, translating to a 1990 GHG emissions level of 1,097,840 MTCO₂e (see Appendix 5.8-1 to this Draft EIR). The 2030 target for SB 32 is a 40 percent reduction from 1990 levels, which equates to 658,700 MTCO₂e.

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it could not make such a connection. In general, the ruling focuses on the correlation of emissions of toxic air contaminants and criteria air pollutants and their impact to human health.

In 2009, the USEPA issued an endangerment finding for six GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) in order to regulate GHG emissions from passenger vehicles. The endangerment finding is based on evidence that shows an increase in mortality and morbidity associated with increases in average temperatures, which increase the likelihood of heatwaves and ozone levels. The effects of climate change are summarized in Table 5.8-2. Though identified effects such as sea-level rise and increased extreme weather can indirectly impact human health, neither the USEPA nor CARB has established ambient air quality standards for GHG emissions. The State's GHG reduction strategy outlines a path to avoid the most catastrophic effects of climate change. Yet the State's GHG reduction goals and strategies are based on the State's path toward reducing statewide cumulative GHGs as outlined in AB 32, SB 32, and AB 1279.

As mentioned above, the two significance thresholds that the County uses to analyze GHG impacts are based on achieving the statewide GHG reduction goals (GHG-1) and relying on consistency with policies or plans adopted to reduce GHG emissions (GHG-2). Further, because no single project is large enough to result in a measurable increase in global concentration of GHG emissions, climate change impacts of a project are considered on a cumulative basis. Without federal ambient air quality standards for GHG emissions, and given the cumulative nature of GHG emissions and the County's significance thresholds, which are tied to reducing the State's cumulative GHG emissions, it is not feasible at this time to connect the project's specific GHG emissions to the potential health impacts of climate change.

5.8.3 Programs, Plans, and Policies

5.8.3.1 PROPOSED GENERAL PLAN GOALS, POLICIES, AND ACTIONS

The following goals, policies, and actions from the proposed General Plan are applicable to GHG emissions. *Italicized goals, policies, and actions reduce environmental impacts associated with the proposed project.*

Land Use Element

- **Policy LU-P3.3:** Encourage extremely high-density, mixed-use development that combines employment, housing, and services near major transit facilities. Such development should be planned and designed to encourage walking, micromobility, and transit use; shorter commutes; and reduced dependency on single-occupant vehicles.
- **Policy LU-P3.7:** Welcome development that supports the countywide goal of reducing VMT, thus reducing greenhouse gas emissions, to meet climate change targets. Require projects that do not support the County's VMT-reduction goals to incorporate necessary changes (e.g., design, land use mix) to ensure they support those goals.
- **Action LU-A4.1:** Amend the County Ordinance Code to include requirements for Low Impact Development, the use of low-carbon concrete, water and energy conservation, reclaimed water, renewable energy use, green building, and other measures that reduce the environmental impacts of development, based on the best available science.

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Transportation Element

- **Policy TR-P1.3:** Ensure emerging transportation technologies and travel options, such as autonomous and ZEVs and transportation network companies, support the County's goals for reducing emissions, adapting to climate change, improving public safety, and increasing equitable mobility.
- **Policy TR-P1.4:** *Reduce single-occupant vehicle usage and VMT by significantly enhancing the availability and safety of other travel modes through infrastructure investment, policy support (Vision Zero, at a minimum using strategies defined in the TDM Ordinance, and other best practices), and support for public transit.*
- **Policy TR-P1.11:** Support transitioning all on-road vehicles, including personal vehicles and business, government, and public transit fleets, to electric power from renewable sources or other ~~zero-emission-free~~ fuels.
- **Policy TR-P1.12:** Continue to improve ZEV ~~(including electric bicycle)~~ charging/fueling infrastructure within new development and public rights-of-way, incorporating new technologies whenever possible.
- **Policy TR-P1.13:** *Require designs for new parking facilities to incorporate ZEV charging/fueling infrastructure and maximize opportunities for adaptive reuse.*
- **Action TR-A1.4:** Implement programs to encourage transit use, bicycling, walking, telecommuting, and use of alternative vehicle fuels by County employees.
- **Action TR-A1.11:** Coordinate with CCTA and other local and regional agencies to implement the Contra Costa Electric Vehicle Readiness Blueprint and related policies and apply best practices in ZEV charging/fueling infrastructure requirements.
- **Action TR-A1.12:** Update the County Ordinance Code as necessary to support advances in ZEV charging/fueling infrastructure, ~~including for medium- and heavy-duty vehicles.~~
- **Policy TR-P6.5:** Work with railroads to preserve non-operational contiguous railroad rights-of-way, and highly encourage construction of grade-separated railroad crossings along active lines to support current and future rail operations and ensure the long-term viability of these rail corridors. When no longer in operation, maintain options for future use of the corridors for trails or other public purposes.
- **Policy TR-P7.7:** Embrace emerging aviation-related technologies, such as drones, electric-powered aviation, and vertical takeoff and landing aircraft, to promote economic development and support the County's goals for reducing emissions, adapting to climate change, improving public safety, and increasing equitable mobility.

Conservation, Open Space, and Working Lands Element

- **Policy COS-P14.1:** Implement Climate Action and Adaptation Plan strategies to improve energy efficiency and conservation, promote carbon-free energy sources, and reduce energy-related GHG emissions.

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Health and Safety Element

- **Policy HS-P3.1:** Prioritize implementation of the Contra Costa County Climate Action and Adaptation Plan to reduce GHG emissions from community-wide sources and adapt to changing climate conditions.
- **Policy HS-P3.3:** *Require new development projects using the Contra Costa County Climate Action and Adaptation Plan to streamline their environmental review of GHG emissions, as permitted by CEQA Guidelines Section 15183.5, to demonstrate consistency with the Climate Action and Adaptation Plan and incorporate applicable GHG -reduction and climate change adaptation measures.*

5.8.3.2 PROPOSED CLIMATE ACTION AND ADAPTATION PLAN STRATEGIES AND ACTIONS

The following proposed CAAP strategies and actions pertain to GHG emissions:

Clean and Efficient Built Environment (BE)

Strategy BE-1: Require and incentivize new buildings and additions built in unincorporated Contra Costa County to be low-carbon or carbon neutral.

Strategy BE-1 Actions:

- Continue adopting new or modified reach codes and consider future updates that exceed the California Building Standards Code as the State updates the Building Code every three years, to require the use of low-carbon intensive energy sources, to achieve higher levels of energy performance, and to achieve lower levels of GHG emissions.
- ~~Maintain, update, publicize, and enforce the~~ Publicize County Ordinance Code Title 7 – Building Regulations amendment ordinances and programs requiring new residential buildings, hotels, offices, and retail to be ~~all-electric~~ more energy efficient, with low levels of GHG emissions. Evaluate the feasibility of including other building types as appropriate.
- Study the feasibility of establishing a low-carbon concrete requirement for all new construction and retrofit activities and consider additional strategies to reduce embedded carbon in construction materials. The intent is to determine what the County can and should do to support or exceed State requirements for net-zero emissions for cement use by 2045. ~~(HS-A3.2)~~
- Consider requiring additional sustainable features as a condition of approval, including reuse of materials to minimize embedded carbon.

Strategy BE-2: Retrofit existing buildings and facilities in the unincorporated County, and County infrastructure, to reduce energy use and convert to low-carbon or carbon-~~neutral~~ free fuels.

Strategy BE-2 Actions:

- Create a County policy or program to facilitate making existing residential and nonresidential buildings more energy-efficient and powered by carbon-free energy. ~~(COS-A14.6)~~

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- ~~Require replacement and new water heaters and space heating and cooling systems to be electric if the building electric panel has sufficient capacity in accordance with BAAQMD Regulation 9, Rule 4, and Regulation 9, Rule 6. (COS-P14.10)~~
- Implement requirements for cool roofs and light-colored, nonreflective permeable paving materials as part of retrofit, repair, and replacement activities, using recycled materials or other materials with low embedded carbon as feasible and as established by the Building Standards Code.

Strategy BE-3: Increase the amount of electricity used and generated from renewable sources in the county.

Strategy BE-3 Actions:

- Require new commercial parking lots with 50 or more spaces to mitigate heat gain through installation of shade trees, solar arrays, or other emerging cooling technologies. Prioritize the use of solar arrays where feasible and appropriate. ~~(HS-P8.3)~~
- Work with MCE to increase enrollment, especially in the Deep Green tier.
- Continue to enroll all eligible, non-solar-equipped County facility electricity accounts in MCE territory in the Deep Green tier.

No Waste Contra Costa (NW)

Strategy NW-1: Increase composting of organic waste.

Strategy NW-1 Actions:

- Ensure, through franchise agreements and other relationships with waste haulers, a source-separated organics collection service for all residential and commercial customers in County-controlled collection franchise areas.
- Require that new and expanded landfill operations significantly reduce GHG emissions to meet or exceed State targets to the extent feasible, and work toward carbon-neutral landfills.
- Work with wastewater providers to explore the use of organic waste as feedstock for anaerobic digesters to produce biogas that can generate electricity or fuel.
- Require local restaurants, grocery stores, and other edible food generators that handle large quantities of food to partner with food rescue organizations to divert edible food that would be otherwise disposed in landfills for distribution to those in need, in accordance with SB 1383.
- Procure compost or other products made from recovered organic waste in accordance with the County's Recovered Organic Waste Product and Recycled Paper Procurement Policy.

Strategy NW-2: Reduce waste from County operations.

Strategy NW-2 Actions:

- ~~Establish a~~ Continue source-separated organics collection service at all County-owned facilities that includes recovering food waste (scraps) and food-soiled paper.

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- Conduct waste audits of County facilities, including assessing the volume and composition of all waste streams, to identify challenges with waste activities and develop educational or operational changes to address issues and reduce waste generation.
- Obtain material for capital projects from local and low-carbon sources to the greatest extent feasible, including allocating additional funds to allow for such materials, and integrate appropriate standards into the County's Environmentally Preferable Purchasing (EPP) policy.

Strategy NW-3: Increase community-wide recycling and waste minimization programs.

Strategy NW-3 Actions:

- Create a source-reduction program in partnership with regional agencies to promote rethinking, refusing, reducing, reusing, and regenerating of materials.

Strategy NW-4: Reduce emissions from landfill gas.

Strategy NW-4 Actions:

- Encourage efforts at Acme, Keller Canyon, and West Contra Costa landfills to install or enhance existing methane capture technology and associated monitoring systems with a goal of increasing the methane capture rate to the greatest extent feasible.

Reduce Water Use and Increase Drought Resilience (DR)

Strategy DR-1: Reduce indoor and outdoor water use.

Strategy DR-1 Actions:

- Require new development to reduce ~~potable~~ water consumption through use of water-efficient devices and technology, drought-tolerant landscaping strategies, and treated recycled water, where available.
- Require homes and businesses to install water-efficient fixtures at time of retrofit activities, in accordance with the California Building Standards Code.
- Continue to enforce the Model Water Efficient Landscaping Ordinance and encourage the use of native and drought-tolerant landscaping for exempt residential and commercial landscapes through partnership with local and regional water agencies and other organizations.
- Partner with water and wastewater service providers, Groundwater Sustainability Agencies, irrigation districts, and private well owners to increase participation in water conservation programs countywide. ~~(COS-P7.2)~~
- Encourage the installation of graywater and rainwater catchment systems, particularly for new construction, as feasible for wastewater infrastructure. Reduce regulatory barriers for these systems and explore creating incentives for installing these systems in new and existing buildings.
- ~~Identify~~ Evaluate opportunities for graywater use in public spaces and implement them as feasible.
- Promote the installation of composting toilets at appropriate County facilities in locations without wastewater service.

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Strategy DR-2: Ensure sustainable and diverse water supplies.

Strategy DR-2 Actions:

- Work with water suppliers to expand recycled water systems as feasible, including considering additional treatment to allow for additional recycled water uses.

Clean Transportation Network (TR)

Strategy TR-1: Improve the viability of walking, biking, zero-carbon commuting, and using public transit for travel within, to, and from the county.

Strategy TR-1 Actions:

- Prioritize expansion of bicycle, micromobility, and pedestrian infrastructure (e.g., Class IV separated bikeways) to address the significant latent demand for these active transportation modes.
- Develop and promote mobility alternatives to single-occupancy vehicles, including but not limited to public transit, micromobility, carbon-free rideshare strategies, and nonmotorized modes.
- Implement programs to encourage transit use, bicycling, walking, telecommuting, and use of alternative vehicle fuels by County employees.
- Reduce single-occupant vehicle usage and VMT, by significantly enhancing the availability and safety of other travel modes through infrastructure investment, policy support (Vision Zero, and other best practices), and support for public transit.
- Plan, design, construct, and maintain facilities for walking, bicycling, and rolling to serve people of all ages, abilities, and income levels, including children, seniors, families, and people with limited mobility.
- Partner with CCTA and neighboring jurisdictions to build out the countywide bicycle and pedestrian network, prioritizing completion of the Low-Stress Countywide Bicycle Network and pedestrian safety improvement projects in the County's Pedestrian Priority Areas, as described in the Countywide Bicycle and Pedestrian Plan.
- Require transportation infrastructure serving new development to be designed using best practices, contemplating existing and planned land uses, roadways, bicycle and pedestrian facilities, transit facilities, and connections to adjoining areas.
- Create connections between unincorporated communities and neighborhoods in unincorporated areas and adjacent jurisdictions to improve multimodal access to local destinations, such as schools, parks, shopping, health services, and workplaces.
- Track over time projects that add pedestrian and bicycle facilities to document the County's implementation of the County Road Improvement and Preservation Program (CRIPP); Complete Streets checklist; Vision Zero Report and Action Plan; Active Transportation Plan; and equity-focused plans, programs, and policies.
- Improve the safety and comfort of bicycle, pedestrian, and public transit facilities using best practices to encourage more people to use such facilities.

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- ~~Work with CCTA to fill gaps in the countywide Low-Stress Bike Network, as outlined in the 2018 Countywide Bicycle and Pedestrian Plan. Prioritize providing access for Impacted Communities and constructing protected bicycle facilities.~~
- In collaboration with key partners, support efforts to establish or join a shared mobility program that provides access to conventional bicycle, e-bikes, and other micromobility modes, prioritizing access for low-income residents who do not have bicycles. Support efforts to establish and/or maintain bike repair programs.
- Support efforts to expand the service area and frequency of regional transit agencies, and reduced fares for students, seniors, and low-income residents on systems, including AC Transit, BART, Capitol Corridor, County Connection, Tri Delta Transit, the San Francisco Bay Ferry, and WestCAT. Encourage programs that support "last mile" transportation connection and options.
- Maximize development of jobs and affordable housing near high-quality transit service to support a jobs-housing balance.
- Maintain in place and enforce a Transportation Demand Management (TDM) Ordinance that reflects best practices, and, at a minimum, conforms to Contra Costa Transportation Authority's adopted model TDM ordinance or resolution.
- Support CCTA to develop and implement methods for tracking EV and e-bike charging and availability across jurisdictions.
- Support CCTA and regional transit agencies in providing "last mile" transportation connections and options.
- Encourage and support increased regional integration of transit systems to promote more equitable fare structures, fare integration, easier transfers, including coordinated transfers between different transit systems and reduced wait times, improved information sharing, and generally a more seamless and modern system.
- Ensure emerging transportation technologies and travel options, such as autonomous and ZEVs and transportation network companies, support the County's goals for reducing emissions, adapting to climate change, improving public safety, and increasing equitable mobility.

Strategy TR-2: Increase the use of zero-emissions vehicles. Transition to a zero-emission County fleet by 2035 and a community fleet that is at least 50 percent zero-emission by 2030.

Strategy TR-2 Actions:

- Require new County vehicles to be zero emission to the extent a viable vehicle is available on the market, that charging or zero-emission fueling equipment is conveniently located where the vehicle will be stored, and as required by the Advanced Clean Fleet regulations, with the goal that all County vehicles will be zero-emission by 2035.
- Continue adopting new or modified reach codes and consider future updates that exceed the California Building Standards Code as the State updates the Building Code, including the Green Building Code, to require zero-emission charging infrastructure in new multifamily and nonresidential buildings. Explore expanding it to include new single-family homes.

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- Install electric vehicle charging equipment and other infrastructure needed to support the transition to a zero-emission County fleet at County facilities. Consider the appropriate locations, number, and capacity of infrastructure to facilitate the transition of the County fleet to zero-emission vehicles.
- Provide incentives for zero-emission vehicles in partnership with MCE, BAAQMD, and other agencies.
- Work with property owners and other potential partners to pursue installation of zero-emission vehicle charging stations in and near multifamily dwelling units.
- Update off-street parking ordinance to include a requirement for zero-emission vehicle charging infrastructure. Consider including incentives for developers to exceed minimum requirements (i.e., density bonus).
- Increase installation of electric vehicle charging stations for all vehicle types, including bicycles and scooters, at public facilities, emphasizing increased installation in Impacted Communities.
- In partnership with regional agencies, explore providing subsidies for households making less than the area median income to purchase or lease zero-emission vehicles and associated infrastructure.
- Pursue fees and regulatory efforts to convert transportation network company (TNC), taxi, and similar car-hire services to zero-emission vehicles.
- Explore opportunities for implementing electric vehicle sharing programs.
- Work with BAAQMD and other regional agencies to convert off-road equipment to zero-emission clean fuels.
- Work with contractors, fleet operations, logistics companies, and other operators of heavy-duty vehicles to accelerate the transition to zero-emission heavy-duty vehicles.
- In cases where battery-electric, hybrid-electric, and sustainably sourced hydrogen fuel-cell sources are not available, work ~~Work~~ with Public Works to pursue the use of renewable natural gas (sourced from recovered organic waste) for transportation fuel, electricity, or heating applications ~~in cases where battery-electric, hybrid-electric, and sustainably sourced hydrogen fuel-cell sources are not available.~~
- Encourage efforts to maximize EV charging during solar peak hours.
- Support implementation of the Contra Costa County Electric Vehicle Readiness Blueprint.
- Coordinate with CCTA and other local and regional agencies to implement the Contra Costa County Electric Vehicle Readiness Blueprint and related policies and apply best practices in ZEV charging/fueling infrastructure requirements.

Resilient Communities and Natural Infrastructure (NI)

Strategy NI-4: Sequester carbon on natural and working lands in Contra Costa County

Strategy NI-4 Actions:

- Pursue implementation of recommendations from carbon sequestration feasibility study, Healthy Lands, Healthy People.
- Continue to support and work with key partners to maintain existing and establish new pilot programs for carbon sequestration on agricultural land.

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- Coordinate with farming groups, ranchers, the Contra Costa Resource Conservation District, and the University of California Cooperative Extension to identify and promote varieties of feedstock, livestock, and crops that are resilient to rising temperatures and changing precipitation patterns and that increase carbon sequestration.
- Explore ways to increase carbon sequestration on County-owned ~~facilities~~ properties.
- Partner with regional landowners and agencies to establish carbon sequestration programs and incentives.
- Consider the development of carbon offset protocols and guidance ~~for use by carbon sequestration program~~ to provide technical support to applicants and County permitting staff to promote appropriate natural sequestration on natural and developed lands.
- Explore the potential for the public to support tree planting and maintenance of existing trees.
- Establish a mechanism to support expanded tree planting and maintenance activities, particularly in areas with few trees.
- Support protection, restoration, and enhancement of creeks, wetlands, marshes, sloughs, and tidelands, and emphasize the role of these features in climate change resilience, air and water quality, and wildlife habitat.
- Inventory wetlands, floodplains, marshlands, natural watercourses, riparian corridors, and adjacent lands that could potentially support climate adaptation (e.g., through flood management, filtration, or other beneficial ecosystem services) and mitigation (e.g., carbon sequestration).
- Encourage and support conservation of natural lands outside the urban limit line in the unincorporated county.
- Require that any mitigation of air quality impacts occur on-site to the extent feasible to provide the greatest benefit to ~~local~~ residents in unincorporated communities. For mitigation that relies on offsets, require that the offsets be obtained from sources as near to the project site as possible or from sources that would improve air quality in an Impacted Community. If the project site is within or adjacent to an Impacted Community, require offsets or mitigation within that community unless determined infeasible by the County.

5.8.4 Environmental Impacts

5.8.4.1 METHODOLOGY

This GHG evaluation was prepared in accordance with the requirements of CEQA to determine if significant GHG impacts are likely to occur in conjunction with future development in the EIR Study Area. The GHG emissions inventory and forecast is based on data compiled for the proposed CAAP and is included as Appendix 5.8-1 to the Draft EIR. The GHG emissions inventory was compiled using the following protocols:

- **Local Government Operations Protocol.** The County operations GHG inventory relies on the *Local Government Operations Protocol* (LGOP), which was first developed in 2008 and updated in 2010. The LGOP is a tool for accounting and reporting GHG emissions of local government (municipal) operations and is

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used throughout California and the United States. The LGOP includes guidance from several existing programs as well as the State's mandatory GHG reporting regulations.

- **U.S. Community Protocol.** The community-wide GHG inventory uses the *United States Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions* (U.S. Community Protocol), which was first developed in 2012 and last updated in 2019. The California Governor's Office of Planning and Research encourages cities and counties in California to follow the U.S. Community Protocol for community-wide GHG emissions.
- **Global Protocol.** The *Global Protocol for Community-Scale Greenhouse Gas Inventories* (Global Protocol) was first developed in 2014 and is intended for preparing international community-scale GHG inventories. It is largely consistent with the U.S. Community Protocol, although it contains additional guidance and resources to support a wider range of activities in other countries. This protocol is used to assess GHG emissions from sources that are not covered in the U.S. Community Protocol.

Sectors

- **On-Road Transportation** includes GHG emissions created by driving on-road vehicles in the unincorporated county, including passenger and freight vehicles, based on data from CARB.
- **Residential Energy** includes GHG emissions attributed to the use of electricity and natural gas and other home heating fuels in residential buildings, based on data from Pacific Gas & Electric Company (PG&E) and Marin Clean Energy (MCE).
- **Solid Waste** includes the GHG emissions released from trash collected in the EIR Study Area based on data from CalRecycle, as well as collective annual emissions from waste already in place at the Acme, Keller Canyon, and West Contra Costa Landfills.
- **Off-Road Equipment** includes GHG emissions from equipment that does not provide on-road transportation (excluding agricultural equipment), such as tractors for construction or equipment used for landscape maintenance.
- **Agriculture** includes GHG emissions from various agricultural activities, including agricultural equipment, crop cultivation and harvesting, and livestock operations.
- **Bay Area Rapid Transit (BART)** includes GHG emissions associated with the operation of BART for unincorporated county residents.
- **Water and Wastewater** accounts for the electricity used to transport every gallon of water or wastewater to and from unincorporated county residents and businesses as well as direct emissions resulting from processing of wastewater material.
- **Land Use and Sequestration** includes GHG emissions absorbed and stored in trees and soils on locally controlled lands as part of healthy ecosystems and released into the atmosphere from development of previously undeveloped land.

Industrial sources of emissions that require a permit from BAAQMD are not included in the community inventory. However, due to the 15/15 Rule, natural gas and electricity use data for industrial land uses may also be aggregated with the nonresidential land uses in the data provided by PG&E. Life-cycle emissions are not included in this analysis because not enough information is available, and therefore they would be speculative.

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Black carbon emissions are not included in the GHG analysis because CARB does not include this short-lived climate pollutant in the State's GHG emissions inventory, treating it separately.

GHG Emissions Factors

Table 5.8-5, *Existing GHG Emission Factors*, shows the emissions factors for the baseline year. Some sectors, including agriculture and off-road emissions, are calculated using formulae or models and do not have specific emission factors.

Table 5.8-5 Existing GHG Emission Factors

| Sector | MTCO ₂ e / Unit | Baseline Year Rate | Source |
|---------------------------------------|----------------------------|------------------------------|------------------------------|
| PG&E electricity | kWh | 0.000108 | PG&E |
| Direct access electricity | kWh | 0.000187 | California Energy Commission |
| MCE | kWh | 0.000045 | MCE |
| Natural gas | therm | 0.005311 0.005310 | US Community Protocol |
| Propane | gallons | 0.005844 0.005845 | US Community Protocol |
| Kerosene | gallon | 0.010569 0.010417 | US Community Protocol |
| Wood | MMBTU | 0.095624 0.095664 | US Community Protocol |
| On-road vehicles | VMT | 0.000408 | CARB EMFAC2021 |
| BART | passenger mile | 0.000013 | BART |
| Solid waste (municipal solid waste) | ton | 0.261659 | CalRecycle |
| Solid waste (alternative daily cover) | ton | 0.245693 0.245383 | CalRecycle |

Source: Draft EIR Appendix 5.8-1, proposed CAAP.

GHG Emissions Forecast

The forecast assumes that each person in the EIR Study Area will continue to contribute the same amount of GHG emissions to the community total as they did in the baseline year, so the amount of GHG emissions changes proportionally to the projected change in community demographics.

Impact 5.8-1: Implementation of the proposed project is not projected to result in emissions that would exceed the unincorporated **county's** GHG reduction target established under SB 32 and **progress toward the State's carbon neutrality goal**. [Threshold GHG-1]

Proposed General Plan

Future potential development under the proposed General Plan would contribute to global climate change through direct and indirect emissions of GHGs from land uses within the unincorporated county. However, a general plan is a long-range policy document that does not directly result in development without additional approvals. Before any development can occur in the unincorporated county, it must be analyzed for consistency with the General Plan, zoning requirements, and other applicable local and State requirements; comply with the requirements of CEQA; and obtain all necessary clearances and permits from regulatory agencies.

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Horizon Year 2045 Emissions Compared to Existing Conditions

The projected development under the proposed General Plan is not linked to a specific development time frame but is assumed over a 20-year project horizon through 2045. Implementation of the proposed General Plan by the horizon year of 2045 would result in a net increase in service population of 74,969 in the EIR Study Area. Table 5.8-6, *Contra Costa County GHG Emissions Business-as-Usual Forecast*, provides a comparison of the change in GHG emissions in the EIR Study Area between the CEQA baseline (2019) and the proposed General Plan horizon year (2045) conditions.

As shown in Table 5.8-6, the increase in residential units and population associated with the proposed General Plan results in an increase in on-road transportation, residential and nonresidential building energy use, solid waste, off-road equipment, water and wastewater, and BART.

Table 5.8-6 Contra Costa County GHG Emissions Business-as-Usual Forecast

| Category | Contra Costa County GHG Emissions (MTCO ₂ e/Year) | | |
|--|--|--------------------------------|--------------------------------|
| | Existing | Year 2030 | Year 2045 |
| On-road transportation | 464,040 | 542,020 | 605,080 |
| Residential energy | 191,780 | 217,710 | 259,380 |
| Nonresidential energy | 159,520 85,390 | 167,720 93,590 | 180,200 106,070 |
| Solid waste | 220,760 | 229,450 | 260,490 |
| Agriculture | 36,130 | 34,770 | 33,410 |
| Off-road equipment | 54,010 | 69,520 | 76,100 |
| Water and wastewater | 4,870 | 5,530 | 6,590 |
| BART | 190 | 220 | 260 |
| Land use and sequestration | -70,860 | -67,580 | -58,890 |
| Total Community Emissions (BAU) | 1,060,440 986,310 | 1,199,360 1,125,230 | 1,362,620 1,288,490 |
| Reductions from State Actions | NA | -185,520 -163,370 | -483,340 -411,480 |
| Total Community Emissions with State Actions | NA | 1,013,840 961,860 | 879,280 877,010 |
| SB 32 (2030) and AB 1279 (2045) Targets | NA | 658,700 | 164,680 |
| Achieves Target? | NA | No | No |

Source: Draft EIR Appendix 5.8-1, 2024 CAAP Update.

Notes: The 2045 forecast includes State actions to reduce GHG emissions. Emissions may not total to 100 percent due to rounding. Based on GWPs in the IPCC Fifth Sixth Assessment Report (AR5~~6~~). BAU = business as usual.

Table 5.8-6 accounts for reductions from State measures that have been adopted to reduce GHG emissions, including:

- The RPS requires increases in renewable electricity supplies.
- The Clean Car Standards require increased fuel efficiency of on-road vehicles and decreased carbon intensity of vehicle fuels.
- The updated Title 24 Building Energy Efficiency Standards require new buildings to achieve increased energy efficiency targets.
- The LCFS mandates reduced carbon intensity of fuels used in off-road equipment.

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- The short-lived climate pollutants law (SB 1383) proposes a comprehensive strategy to reduce methane and other emissions of short-lived GHGs through regulations on dairy operations and urban landfills, including higher diversion rates of food waste from landfills.

As shown in Table 5.8-6, after accounting for reductions from State actions, projected development in 2045 that would be accommodated under the proposed General Plan would result in a net decrease of ~~181,160~~ 109,209 MTCO₂e GHG emissions from existing conditions. The primary reason for the decrease in overall community-wide GHG emissions, despite an increase in service population, is a result of regulations adopted to reduce GHG emissions and turnover of California's on-road vehicle fleets. Consequently, implementation of the proposed General Plan would not result in a substantial increase in GHG emissions because there would be a decrease in emissions from existing conditions (CEQA baseline). However, without additional local GHG reduction strategies, Contra Costa County would not achieve consistency with the GHG reduction goals of AB 1279 (i.e., 85 percent reduction below 1990 levels by 2045).

Local GHG Reduction Measures

The proposed General Plan directs implementation of the proposed CAAP. The proposed CAAP draws on strategies from the 2015 CAP, with new strategies to address current State regulations and local issues of concern. Contra Costa County has implemented the following GHG reduction measures identified in the 2015 CAP to reduce GHG emissions in the EIR Study Area:

- To increase the number of carbon neutral buildings, the Board of Supervisors adopted the All-Electric Ordinance (Ordinance No. 2022-02) to require new construction of residential, detached accessory dwelling units (ADU), hotel, office, and retail building types to be all-electric. As of June 2022, 67 single-family or duplex projects and 40 ADU projects received permits in alignment with the all-electric ordinance. Current new construction and major renovations of County facilities include LED lighting and heat pump technology, and the County enrolled in MCE's Strategic Energy Management Program to increase energy efficiency in County facilities. Additionally, 42 projects within the unincorporated area utilized the Bay Area Regional Energy Network program, which provides rebates to single-family homeowners for energy efficiency improvements.
- To replace fossil fuel electricity with renewable electricity, the majority of residential accounts in the unincorporated area are enrolled in MCE for an estimated 43,690 metric tons of CO₂e reduced. Around 70 percent of the County's electricity usage is associated with MCE's Deep Green account, which provides electricity from 100 percent renewable energy.
- The County has developed a carbon sequestration feasibility study through a grant from the California Department of Conservation. The study, *Healthy Lands, Healthy People*, will identify strategies to store carbon in various land uses across the county, such as agriculture, parks and open space, conservation lands, and towns and cities (Contra Costa 2022a).
- The County has also enhanced the accessibility and connectivity of active transportation options with the adoption of the Active Transportation Plan and 2022 Capital Road Improvement & Preservation Program (CRIPP) (Contra Costa 2022b). The CRIPP lays out funded transportation projects in the county that provide safe, efficient, and reliable transportation. Currently, there are 33 actively funded projects.

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- The County is working to implement projects at over 25 sites to facilitate the transition to an all-electric County fleet. MCE has also established numerous EV charging ports over the years, including 33 EV charging port installations in year 2022.

The proposed CAAP identifies GHG emissions reductions targets for the EIR Study Area that would ensure consistency with the State GHG reduction goals of AB 1279 and substantial progress toward the State's carbon neutrality goals. In addition, the proposed CAAP includes additional GHG reduction measures to achieve the State's carbon neutrality goals identified in the 2022 Scoping Plan. Table 5.8-7, *Proposed CAAP Local GHG Reduction Strategies*, shows the local GHG reduction measures and reductions associated with the local measures in the proposed CAAP in 2045 that would help achieve those reductions.

Table 5.8-7 Proposed CAAP Local GHG Reduction Strategies

| Local GHG Reduction Strategies | 2045 GHG Reductions (MTCO ₂ e) |
|---|---|
| BE-1 Construct new low-carbon or carbon neutral buildings. | 40,710 10,970 |
| BE-2 Convert existing buildings to carbon-neutral and low-carbon buildings. | 177,930 156,150 |
| NW-1 Compost Organic Waste. | 4,000 |
| NW-2 Reduce County operations waste. | 1,620 |
| NW-3 Recycling and waste minimization. | 2,530 |
| NW-4 Reduce landfill gas emissions. | 61,410 |
| DR-1 Reduce indoor and outdoor water use. | 1,440 |
| TR-1 Improve the viability of walking, biking, zero-carbon commuting, and public transit. | 40,370 |
| TR-2 Increase use of ZEVs. | 332,850 343,890 |
| NI-4 Sequester carbon. | 88,910 |
| Total GHG Reductions from Proposed CAAP Strategies | 721,670 711,290 |

Source: Draft EIR Appendix 5.8-1, proposed CAAP.

Notes: Emissions may not total to 100 percent due to rounding. Based on GWPs in the IPCC's AR5.

Table 5.8-8, *Contra Costa County 2045 GHG Emissions Reduction Target Analysis with the Proposed CAAP*, shows that with the additional local measures identified in the proposed CAAP, the unincorporated county would achieve the AB 1279 GHG reduction targets for year 2045. With implementation of the proposed CAAP, Contra Costa County would achieve an 85-percent decrease in GHG emissions in the unincorporated areas of the county by 2045 from 1990 levels, and would make substantial progress toward the State's carbon neutrality goals. Therefore, the proposed General Plan, which includes implementation of the proposed CAAP, would not result in a substantial increase in the magnitude of GHG emissions and would be consistent with the GHG reduction goals identified under AB 1279.

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Table 5.8-8 Contra Costa County 2045 GHG Emissions Reduction Target Analysis with the Proposed CAAP

| Scenario | 2045 GHG Emissions (MTCO ₂ e/Year) |
|--|--|
| Total Community Emissions (BAU) | 1,362,620 1,288,490 |
| GHG Reductions from State Actions | -483,340 -411,480 |
| <u>GHG Reductions from Existing Local Actions</u> | <u>-2,590</u> |
| GHG Reductions from Proposed CAAP GHG Reduction Strategies | -721,670 -711,290 |
| Total Community Emissions with State & <u>Local</u> Actions & Local CAAP GHG Reduction Strategies | 157,610 163,130 |
| AB 1279 Target | 164,680 |
| Achieves Target | Yes |

Source: Draft EIR Appendix 5.8-1, proposed CAAP.

Notes: Emissions may not total to 100 percent due to rounding. Based on GWPs in the IPCC's AR5.

Additionally, implementation of the following proposed General Plan policies and actions would also minimize energy and mobile-source emissions in the unincorporated areas.

- **Policy LU-P3.3:** Encourage extremely high-density, mixed-use development that combines employment, housing, and services near major transit facilities. Such development should be planned and designed to encourage walking, micromobility, and transit use; shorter commutes; and reduced dependency on single-occupant vehicles.
- **Policy LU-P3.7:** Welcome development that supports the countywide goal of reducing VMT, thus reducing greenhouse gas emissions, to meet climate change targets. Require projects that do not support the County's VMT-reduction goals to incorporate necessary changes (e.g., design, land use mix) to ensure they support those goals.
- **Policy TR-P1.3:** Ensure emerging transportation technologies and travel options, such as autonomous and ZEVs and transportation network companies, support the County's goals for reducing emissions, adapting to climate change, improving public safety, and increasing equitable mobility.
- **Policy TR-P1.4:** Reduce single-occupant vehicle usage and VMT by significantly enhancing the availability and safety of other travel modes through infrastructure investment, policy support (Vision Zero, at a minimum using strategies defined in the TDM Ordinance, and other best practices), and support for public transit.
- **Policy TR-P1.11:** Support transitioning all on-road vehicles, including personal vehicles and business, government, and public transit fleets, to electric power from renewable sources or other zero-emission-free fuels.
- **Policy TR-P1.12:** Continue to improve ZEV (including electric bicycle) charging/fueling infrastructure within new development and public rights-of-way, incorporating new technologies whenever possible.
- **Policy TR-P1.13:** Require designs for new parking facilities to incorporate ZEV charging/fueling infrastructure and maximize opportunities for adaptive reuse.
- **Action TR-A1.4:** Implement programs to encourage transit use, bicycling, walking, telecommuting, and use of alternative vehicle fuels by County employees.

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- **Action TR-A1.11:** Coordinate with CCTA and other local and regional agencies to implement the Contra Costa Electric Vehicle Readiness Blueprint and related policies and apply best practices in ZEV charging/fueling infrastructure requirements.
- **Action TR-A1.12:** Update the County Ordinance Code as necessary to support advances in ZEV charging/fueling infrastructure, ~~including for medium- and heavy-duty vehicles.~~
- **Policy COS-P14.1:** Implement Climate Action and Adaptation Plan strategies to improve energy efficiency and conservation, promote carbon-free energy sources, and reduce energy-related GHG emissions.

Individual development projects facilitated by the proposed General Plan would experience emission reductions from implementation of State measures and strategies to reduce statewide GHG emissions, such as the LCFS mandate or RPS requirements. The above proposed General Plan policies and actions would serve to further support potential GHG reductions for individual development projects facilitated by the proposed General Plan. Furthermore, individual projects would be required to demonstrate consistency with the proposed CAAP by preparing a CAAP Consistency Checklist, identify specific GHG emissions reduction strategies from the proposed CAAP that are applicable to the project, and demonstrate how the project will implement these strategies to ensure that the project's emissions are consistent with the community-wide emissions forecast contained herein.

In summary, implementation of the proposed General Plan would result in a net decrease in emissions from existing conditions. Additionally, with implementation of the proposed CAAP, emissions from existing and planned development in the EIR Study Area would achieve the GHG reduction goals identified under AB 1279 for year 2045, which is consistent with the thresholds identified by BAAQMD in their CEQA Guidelines. Therefore, growth within the county associated with the proposed General Plan would not have a cumulatively considerable impact on GHG emissions and this impact would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions; it does not involve any land use changes that would result in indirect growth or change in building density or intensity. Because there is no specific land use component associated with the proposed CAAP, its implementation would not directly result in the generation of GHG emissions.

In addition, the proposed General Plan directs implementation of the proposed CAAP, recognizing that the County's climate action planning efforts must be updated more regularly to be responsive to the changing regulations, guidance, technology, best practices, and science. For instance, the proposed CAAP transportation strategies that reduce VMT (e.g., Strategy TR-1) would result in a reduction in GHG emissions from the transportation sector. Likewise, the proposed CAAP also promotes building energy-efficiency improvements (e.g., Strategies BE-1 and BE-2), increasing water efficiency (e.g., Strategy DR-1 and DR-2) and reducing energy demand through renewable energy sources (e.g., Strategy BE-3) to minimize energy sector emissions. Furthermore, the proposed CAAP supports the East Bay Energy Watch, which is a partnership between PG&E and local governments in the East Bay region to conduct energy efficiency outreach to residents and businesses, retrofit existing government facilities to improve energy efficiency, and provide training to agency staff. Thus,

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implementation of the proposed CAAP would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment and impacts would be less than significant.

Level of Significance Before Mitigation: Impact 5.8-1 would be less than significant.

Mitigation Measures

With implementation of the proposed CAAP, no mitigation measures would be required.

Level of Significance After Mitigation: Impact 5.8-1 would be less than significant.

Impact 5.8-2: Implementation of the proposed project would not conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions. [Threshold GHG-2])

Applicable plans adopted for the purpose of reducing GHG emissions include CARB's Scoping Plan and ABAG's/MTC's *Plan Bay Area 2050*. A consistency analysis with these plans is presented below.

Proposed General Plan

CARB Scoping Plan

The CARB Scoping Plan is applicable to State agencies but is not directly applicable to cities, counties, and individual projects (i.e., the Scoping Plan does not require local jurisdictions to adopt its policies, programs, or regulations to reduce GHG emissions). However, new regulations adopted by the State agencies from the Scoping Plan result in GHG emissions reductions at the local level. So local jurisdictions benefit from reductions in transportation emissions rates, increases in water efficiency in the building and landscape codes, and other statewide actions that affect a local jurisdiction's emissions inventory from the top down. Statewide strategies to reduce GHG emissions include the LCFS and changes in the CAFE standards. Additionally, local jurisdictions are encouraged to prepare local GHG reduction plans to align local GHG reductions with the State GHG reduction targets identified in the Scoping Plan.

Development projects under the proposed General Plan would be required to adhere to the programs and regulations identified by the Scoping Plan and implemented by State, regional, and local agencies to achieve the statewide GHG reduction goals of AB 32, SB 32, and AB 1279. Future development projects would be required to comply with these State GHG emissions reduction measures because they are statewide strategies. For example, new buildings under the proposed General Plan would be required to meet the CALGreen and Building Energy Efficiency Standards in effect at the time when applying for building permits. Furthermore, the proposed General Plan includes policies that minimize GHG emissions and therefore help achieve GHG reduction goals.

Moreover, the proposed General Plan directs implementation of the proposed CAAP. As described under Impact 5.8-2, the proposed CAAP aligns the GHG reduction goals for the unincorporated areas for existing and new development with AB 1279 and the carbon neutrality goals identified in the 2022 Scoping Plan. Therefore, the proposed General Plan would result in a net benefit because implementation of the proposed

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CAAP would align future development in the county with the policies and objectives identified by CARB. Implementation of the proposed General Plan would not obstruct implementation of the CARB Scoping Plan, and impacts would be less than significant.

ABAG/MTC's Plan Bay Area

Plan Bay Area 2050 is the Bay Area's regional transportation plan to achieve the passenger vehicle emissions reductions identified under SB 375. Plan Bay Area 2050 is the current SCS for the Bay Area, adopted October 21, 2021 (ABAG/MTC 2021). In addition to significant transit and roadway performance investments to encourage focused growth, Plan Bay Area 2050 directs funding to neighborhood active transportation and complete streets projects, climate initiatives, lifeline transportation and access initiatives, safety programs, and PDA planning (ABAG/MTC 2021). In Contra Costa County, a number of PDAs and Transit Priority Areas have been designated in the EIR Study Area, as shown on Figure 5.16-1, *Priority Development Areas and Transit Priority Areas*, in Section 5.16 of this Draft EIR (MTC 2023a, MTC 2023b).

While Plan Bay Area 2050 does not override local land use control, it provides guidance to the local jurisdictions such as Contra Costa County on how future development can be consistent with the State's GHG and VMT reduction goals. This includes constructing more infill development in downtowns and centers in close proximity to jobs and services.

As further discussed in Section 5.14, *Population and Housing*, the proposed General Plan would exceed current regional projections for housing and population. However, it is important to note that regional projections used were from Plan Bay Area 2040, which does not differentiate between Contra Costa County as a whole and the unincorporated portion of the county. In addition, the proposed General Plan includes policies and actions that would limit development in certain areas and control the growth within the EIR Study Area. All potential future development would be required to comply with any required site-specific infrastructure improvements and to pay any project-specific impact fees.

The proposed Land Use Element includes policies to encourage high-density, mixed-use development to create shorter commutes and reduced dependency on single-occupant vehicles (see Land Use and Planning Impact 5.11-2). The proposed Growth Management Element also establishes goals, policies, and actions intended to manage and mitigate impacts of future growth within the unincorporated county. Furthermore, future development projects that could result in significant VMT impacts are required to include Transportation Demand Management (TDM) strategies and physical measures to reduce VMT (see Section 5.16, *Transportation*).

Overall, the proposed General Plan would be consistent with the goals of Plan Bay Area 2050 in concentrating new development in locations where there is existing infrastructure and transit. Therefore, the proposed General Plan would not conflict with the land use concept plan in Plan Bay Area 2050 and impacts would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions; it does not involve any land use changes that would result in indirect growth or change in building density or intensity. Furthermore, as discussed under Impact Discussion 5.8-1,

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GREENHOUSE GAS EMISSIONS

implementation of the proposed CAAP would result in beneficial GHG emissions impacts by contributing to reducing VMT, increasing energy and water use efficiency, and increasing renewable energy use. Therefore, the proposed CAAP would be complementary to statewide and regional plans to reduce GHG and would not interfere with or obstruct the implementation of the CARB Scoping Plan or Plan Bay Area 2050. Implementation of the proposed CAAP would not conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions and impacts would be less than significant.

Level of Significance Before Mitigation: Impact 5.8-2 would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation: Impact 5.8-2 would be less than significant.

5.8.5 Cumulative Impacts

Project-related GHG emissions are not confined to a particular air basin but are dispersed worldwide. Therefore, impacts identified under Impact 5.8-1 and Impact 5.8-2 are not project-specific impacts to global warming, but the proposed project's contribution to this cumulative impact. As discussed above, the EIR Study Area would experience a reduction in GHG emissions from existing conditions despite the anticipated population and employment growth. Additionally, with implementation of the proposed CAAP, Contra Costa County would achieve the local GHG reduction targets that align with SB 32 and AB 1279 and substantial progress with the State's carbon neutrality targets. Consequently, the proposed project's cumulative contribution to global climate change impacts are less than cumulatively considerable.

5.8.6 Level of Significance Before Mitigation

After implementation of regulatory requirements and standard conditions of approval, all impacts would be less than significant.

5.8.7 Mitigation Measures

No mitigation measures are required.

5.8.8 Level of Significance After Mitigation

Impacts would be less than significant.

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APPENDIX F:
REVISED APPENDIX
5.8-1, *CLIMATE ACTION*
AND ADAPTATION
PLAN OF THE DEIR

GHG Inventory

The following sections present the results of the community-wide and County operations GHG inventories for the years 2005, 2013, 2017, and 2019.

Total community-wide emissions declined ~~24~~⁴⁸ percent from 2005 to 2019.

COMMUNITY INVENTORY

The community-wide GHG inventory assessed GHG emissions from the following 11 categories of activities, known as sectors.

- **Transportation** is GHG emissions created by driving on-road vehicles in the unincorporated county, including passenger and freight vehicles.
- **Residential energy** is GHG emissions attributed to the use of electricity, natural gas, and other home heating fuels in residential buildings.
- **Nonresidential energy** is GHG emissions attributed to the use of electricity and natural gas in nonresidential buildings.
- **Solid waste** is the GHG emissions released from trash collected in the unincorporated areas of Contra Costa County, as well as collective annual emissions from waste already in place at the Acme, Keller Canyon, and West Contra Costa Landfills.
- **Agriculture** is GHG emissions from various agricultural activities in the unincorporated county, including agricultural equipment, crop cultivation and harvesting, fertilizer application, and livestock operations.
- **Off-road equipment** is GHG emissions from equipment that does not provide on-road transportation (excluding agricultural equipment), such as tractors for construction, ~~or~~ equipment used for landscape

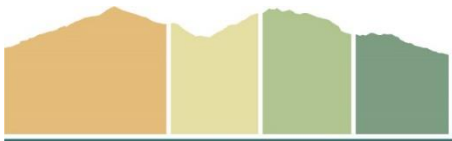


maintenance, commercial and industrial equipment, and outdoor recreational equipment.

- **Water and wastewater** accounts for the electricity used to transport and process water and wastewater used or generated by unincorporated county residents and businesses, as well as direct emissions resulting from wastewater treatment activities.
- **Bay Area Rapid Transit (BART)** is GHG emissions associated with the operation of BART for unincorporated county residents.
- **Land use and sequestration** is GHG emissions absorbed and stored in trees and soils on locally controlled lands as part of healthy ecosystems and released into the atmosphere from development of previously undeveloped land.
- **Stationary sources** are emissions from fuel use at major industrial facilities, permitted by State and regional air quality authorities. These emissions are informational and are not counted as part of the community total.
- **Wildfire** includes emissions released as a result of wildfires. These emissions are informational and are not counted as part of the community total.
- **Direct access electricity** is electricity purchased directly from an Electric Service Provider (ESP) rather than an investor-owned utility company or Community Choice Energy provider such as MCE, generally to power large industrial, commercial, and institutional facilities.



~~The community-wide emissions inventory also records emissions released via wildfire and stationary sources such as oil refineries. Emissions from stationary sources, wildfire, and direct access electricity. These emissions~~ are reported for informational purposes but are not formally counted as part of the unincorporated county's GHG emissions.



3. Climate Changes and GHGs

Contra Costa County is home to large industrial facilities whose operations have generated significant GHG emissions and/or products that create GHGs, such as gasoline for internal combustion engines. Most of those facilities were constructed before land use permits from the County were required. If these facilities apply for new land use permits, the County can impose new operational requirements in some circumstances. An example of this is applications the County received in 2020 from two refineries to process renewable fuels.

There are several factors outside of the County's control that influence the operations and related emissions and energy use at these facilities. The County has therefore elected to exclude the direct emissions and energy use at these facilities from consideration of the County's GHG reduction goals for the following reasons:

- These facilities are regulated primarily through the Federal Energy Regulatory Commission and the California Energy Commission (CEC) and are subject to air quality and emissions standards set forth by the USEPA, CARB, and BAAQMD.
- The energy used at some of these facilities fluctuates from year to year, depending on the demand for resources and the availability of other electricity-generating sources, such as hydropower or renewable resources. This makes it difficult to accurately forecast the energy use at these facilities.
- The County has limited jurisdictional authority to reduce GHG emissions from these sources because they are subject to cap-and-trade regulations set forth by CARB.
- The approach to excluding energy from sources that are outside of the County's jurisdictional control is consistent with the *U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions*.
- The resultant jurisdictional inventory more accurately reflects the energy use from nonresidential customers in unincorporated Contra Costa County and allows the County to focus on actions that are within its control.

Large industrial customers frequently purchase direct access electricity. Direct access customers can purchase electricity from any Electric Service Provider (ESP) operating in the state. Different EPSs will rely on different power sources with different proportions of fossil and renewable energy to produce electricity. The California Public Utilities Commission (CPUC) regulates the sale of direct access electricity in California, and the identities of direct access customers and the specific ESPs from which they purchase electricity are not made

available to the public. Given the County's limited ability to monitor and regulate the sale and use of direct access electricity, as well as historical inconsistencies in how direct access electricity use is reported, direct access emissions are reported for informational purposes only.

Table 3 and **Figure 7** show the community-wide GHG emissions for the unincorporated county during the four inventory years. Total community-wide emissions declined 18 percent from 2005 to 2019. **Table 4** shows the proportion of GHG emissions from each sector for the unincorporated county for the four inventory years.

TABLE 3. ABSOLUTE ANNUAL GHG EMISSIONS, 2005 TO 2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005–2019 |
|---------------------------------------|----------------------|----------------------|----------------------|-----------------------|------------------------------|
| Transportation (excluding BART) | 628,200 | 651,130 | 571,650 | 464,040 | -26% |
| Energy - Residential | 294,930 | 280,870 | 212,420 | 191,780 | -35% |
| Energy - Nonresidential | 118,740 | 125,350 | 98,850 ¹ | <u>85,390</u> | <u>-28%</u> |
| Solid waste | 243,940 | 224,570 | 223,100 | 220,760 | -10% |
| Agriculture | 33,350 | 39,300 | 44,880 | 36,130 | 8% |
| Off-road equipment | 34,160 | 36,290 | 42,840 | 54,010 | 58% |
| Water and wastewater | 8,080 | 7,400 | 4,400 | 4,870 | -40% |
| BART | 1,040 | 1,320 | 1,440 | 190 | -82% |
| Land use and sequestration | -70,860 | -70,860 | -70,860 | -70,860 | 0% |
| Total Annual MTCO₂e | 1,291,580 | 1,295,370 | 1,128,720 | <u>986,310</u> | <u>-24%</u> |
| <i>Informational Items</i> | | | | | |
| Stationary sources | 13,983,030 | 11,956,000 | 11,232,290 | 10,867,670 | -22% |
| Wildfire | 14,270 | 66,080 | 0 ² | 10,100 | N/A ³ |
| <u>Direct access electricity</u> | <u>0⁴</u> | <u>0⁴</u> | <u>0⁴</u> | <u>74,130</u> | <u>N/A</u> |

Note: All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows.

¹ Estimates of nonresidential electricity use in 2013 are used in 2017 to account for a lack of available data in 2017.

² No wildfires were recorded in the unincorporated county in 2017.

³ Overall change between 2005 and 2019 for wildfire is not calculated because of the high degree of year-to-year variability.

⁴ PG&E did not provide direct access electricity use data in these years.

The transportation sector has consistently been the largest source of GHG emissions in the unincorporated county, accounting for between 47~~6~~ and 51~~3~~ percent of total community-wide GHG emissions (excluding informational items). Residential and nonresidential energy combined are the second-largest source of emissions, comprising 28 to 32 percent of community-wide emissions. Of the energy-related emissions, approximately 70 percent come from residential buildings and 30 from nonresidential buildings. In both building types, most emissions are associated with natural gas use. Solid waste is the third-largest source of emissions, accounting for between 17 and 22 percent of the community-wide total. Residential energy and solid waste are the second- and third-largest sources of GHG emissions, followed by nonresidential energy. Agriculture GHG emissions account for between 3 and 4 percent, and off-road equipment accounts for between 3 and 5 percent. GHG emissions from the water and wastewater and BART sectors are each 1 percent or less.

The sectors that experienced the largest decrease in annual GHG emissions between 2005 and 2019 were BART (82 percent), water and wastewater (40 percent), residential energy (35 percent), nonresidential energy (28 percent), and transportation (26 percent). Collectively, emissions from energy use declined 33 percent over this time period. Emissions reductions also occurred in the solid waste sector (10 percent), and the nonresidential energy sector (8 percent).

These changes are primarily due to an increase in renewable and carbon-free electricity, the County joining MCE in 2017 (which provides more electricity from renewable and carbon-free sources than PG&E), and better resource-efficiency practices by community members. Emissions reductions also occurred in the solid waste sector (10 percent). Three~~we~~ sectors nonresidential energy, off-road equipment, and agriculture saw increases in their emissions from 2005 to 2019.

Between 2005 and 2019, offroad emissions increased by 58 percent. Increases in offroad emissions are due to increased emissions from agricultural and other types of commercial and industrial equipment. Agricultural emissions increased due to changes in crop activity and livestock population. Detailed summaries of changes in GHG emissions by sector appear in **Appendix B.**

The transportation sector has consistently been the largest source of GHG emissions in unincorporated Contra Costa County. The sectors that experienced the largest decrease in annual GHG emissions between 2005 and 2019 were BART, water and wastewater, residential energy, and transportation.

Per-person GHG emissions

Along with the “absolute” GHG emission levels discussed previously, the project team assessed the per-person GHG emissions from the unincorporated county. The team calculates per-person GHG emissions by taking the absolute GHG emissions in **Table 3** and dividing them by the number of residents in the unincorporated county for that inventory year. **Table 5** and **Figure 8** show the per-person emissions for the inventory years for the unincorporated county.

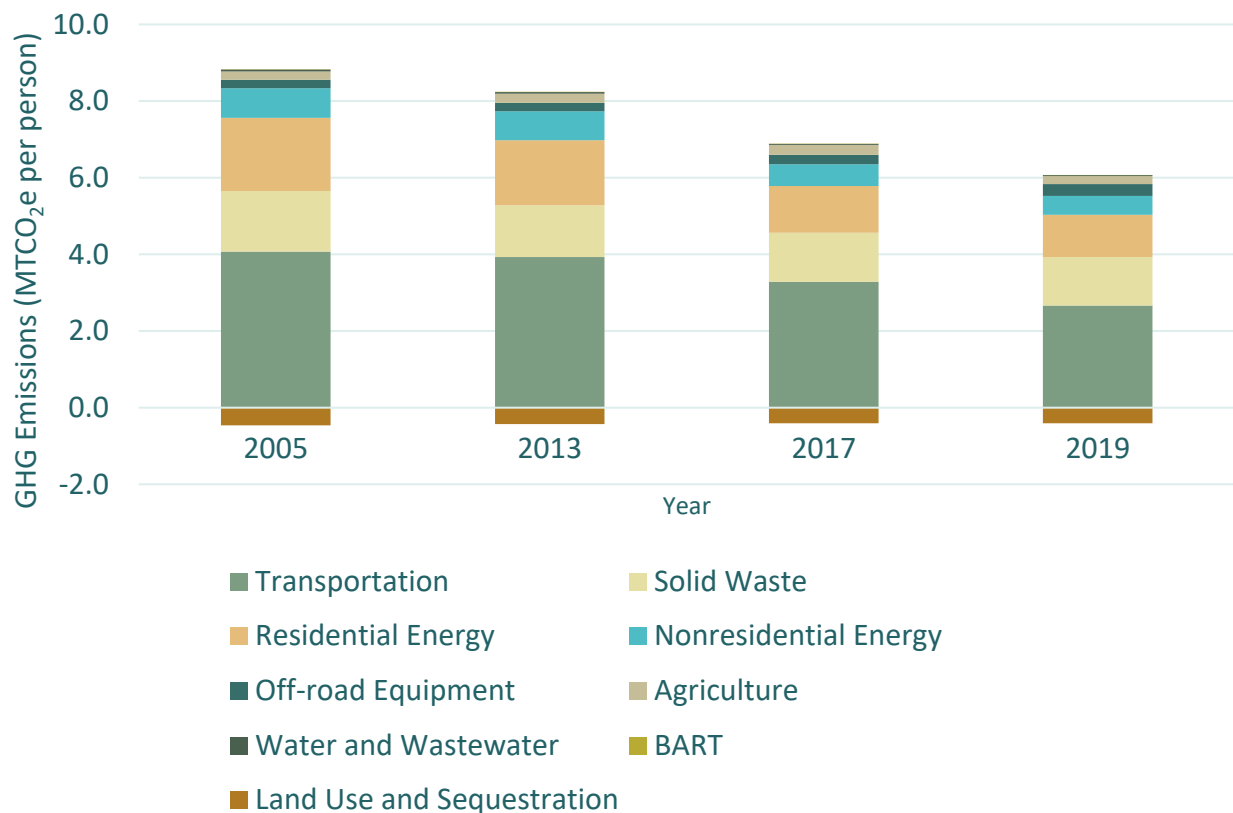
Overall, per-person emissions declined 3227 percent from 2005 to 2019. Because the population of the unincorporated county grew during this time, most sectors saw their per-person emissions decline. Even for sectors that had increases in their absolute emissions, such as Agriculture, population growth resulted in a decline in per-person emissions. Only per-capita off-road equipment emissions increased between 2005 and 2019. The two sectors that saw an increase in per-person emissions were Off-road equipment, and Nonresidential energy, although the per-person emissions grew by 53 percent from 2005 to 2019 compared to a 73 percent increase in absolute emissions.

TABLE 5. PER-PERSON GHG EMISSIONS, 2005 TO 2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005–2019 |
|---|---------|---------|---------|----------------|------------------------------------|
| Population | | | | | |
| Residents | 154,270 | 165,700 | 174,110 | 174,150 | 13% |
| Emissions (MTCO₂e per-person) | | | | | |
| Transportation | 4.07 | 3.93 | 3.28 | 2.66 | -35% |
| Energy - Residential | 1.91 | 1.70 | 1.22 | 1.10 | -42% |
| Energy - Nonresidential | 0.77 | 0.76 | 0.57 | 0.49 | -36% |
| Solid waste | 1.58 | 1.36 | 1.28 | 1.27 | -20% |
| Agriculture | 0.22 | 0.24 | 0.26 | 0.21 | -4% |
| Off-road equipment | 0.22 | 0.22 | 0.25 | 0.31 | 53% |
| Water and wastewater | 0.05 | 0.04 | 0.03 | 0.03 | -47% |
| BART | 0.01 | 0.01 | 0.01 | Less than 0.01 | -84% |
| Land use and sequestration | -0.46 | -0.43 | -0.41 | -0.41 | -11% |

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005–2019 |
|--|-------------|-------------|-------------|-------------|------------------------------|
| Total Annual (MTCO ₂ e per-person) | 8.37 | 7.82 | 6.48 | <u>5.66</u> | <u>-32%</u> |
| <i>Informational Items</i> | | | | | |
| Stationary Sources | 90.64 | 72.15 | 64.51 | 62.40 | -31% |
| Wildfire | 0.09 | 0.40 | 0.00 | 0.06 | N/A ^{1*} |
| <u>Direct access electricity</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.44</u> | <u>N/A^{2**}</u> |
| <p>Note: All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows.</p> <p>¹ Overall change between 2005 and 2019 is not calculated because of the high degree of year-to-year variability.</p> <p>² <u>Overall change between 2005 and 2019 is not calculated because of limited availability of direct access electricity use data between 2005 and 2017.</u></p> | | | | | |

FIGURE 8. PER-PERSON ANNUAL GHG EMISSIONS BY SECTOR, 2005 TO 2019



GHG Forecast

The following sections present the results of the community-wide and County operations GHG emissions forecasts for the years 2030 and 2045. For a detailed description of GHG forecast methods and assumptions, see **Appendix B**.

ABSOLUTE BUSINESS-AS-USUAL GHG EMISSIONS FORECAST

Table 7 and **Figure 11** show an estimate of unincorporated Contra Costa County's projected future GHG emissions if no further action is taken at the state, regional, or local level to reduce emissions, relative to the 2019 inventory. These projections are obtained by applying projected changes in community population to resource use and transportation behavior recorded in 2019. As such, these projections do not account for any potential changes in transportation or resource use directly resulting from the COVID-19 pandemic, the long-term effects of which are not currently known.

Most sectors show an increase in GHG emissions due to the growing population. Agricultural emissions decrease because the amount of land used for agricultural purposes is projected to decline. Although the land use and sequestration sector is expected to remain a net carbon sink (negative emissions), the amount of emissions sequestered (removed from the atmosphere) by the activities in this sector are projected to decline. This is due to anticipated development of currently undeveloped land, removing the potential for this land to sequester, or store, carbon. Sequestration in forested and urbanized areas is projected to increase slightly.

TABLE 7. ABSOLUTE BUSINESS-AS-USUAL GHG EMISSIONS FORECAST, 2019 TO 2045

| SECTOR | 2019 | 2030 | 2045 | PERCENTAGE CHANGE, 2019–2045 |
|---------------------------------------|-----------------------|-------------------------|-------------------------|------------------------------|
| Transportation | 464,040 | 542,020 | 605,080 | 30% |
| Energy - Residential | 191,780 | 217,710 | 259,380 | 35% |
| Energy - Nonresidential | <u>85,590</u> | <u>93,590</u> | <u>106,070</u> | <u>24%</u> |
| Solid waste | 220,760 | 229,450 | 260,490 | 18% |
| Agriculture | 36,130 | 34,770 | 33,410 | -8% |
| Off-road equipment | 54,010 | 69,520 | 76,100 | 41% |
| Water and wastewater | 4,870 | 5,530 | 6,590 | 35% |
| BART | 190 | 220 | 260 | 37% |
| Land use and sequestration | -70,860 | -67,580 | -58,890 | -17% |
| Total Annual MTCO₂e | <u>986,310</u> | <u>1,125,230</u> | <u>1,288,490</u> | <u>31%</u> |

4. GREENHOUSE GAS EMISSION REDUCTION STRATEGY



Briones Valley. Photo credit: Stephen Joseph.

GHG Emissions Reduction Goals

A key part of any CAAP is one or more goals for future GHG emissions levels. These goals may be “firm” levels of GHG emission reductions supported by State regulations and local commitments (also called regulatory goals) or aspirations that go beyond adopted minimums and represent a higher level of GHG emission reductions that communities can strive toward. The [2024 CAAP](#) includes GHG emission reduction goals for 2030 and 2045.

As discussed in [Chapter 2](#), California has two statewide regulatory goals for reduction of GHGs:

- Reduce GHG emissions to 40 percent below 1990 levels by 2030. This goal was codified into law by SB 32.
- Reduce emissions to 85 percent below 1990 levels and achieve net carbon neutrality by 2045. This is the goal codified by AB 1279.

The 2022 Scoping Plan recommends that local governments support statewide efforts to achieve net carbon neutrality by achieving an 85 percent reduction in GHG emissions compared to 1990 by 2045. The 2022 Scoping Plan also removes specific goals for per-person emissions reductions that appeared in previous versions. The BAAQMD 2020 CEQA Guidelines,¹³ *CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans*, require that local climate action plans such as the [2024 CAAP](#) be consistent with these State-level goals.

CONTRA COSTA COUNTY'S GHG EMISSION REDUCTION GOALS

Local GHG emissions reduction efforts, such as this [2024 CAAP](#), may select any GHG emissions reduction goals that are appropriate for unincorporated Contra Costa County. However, to comply with State and regional guidelines for CEQA, the GHG emission reduction goals in the [2024 CAAP](#) should be broadly consistent with the State-level goals. Additionally, the 2045 General Plan informs the County's land use decisions and related policies out to 2045; therefore, consistency with the State's 2045 goal also aligns with the General Plan's horizon year. Given these considerations, the GHG emissions reduction goals for Contra Costa County are:

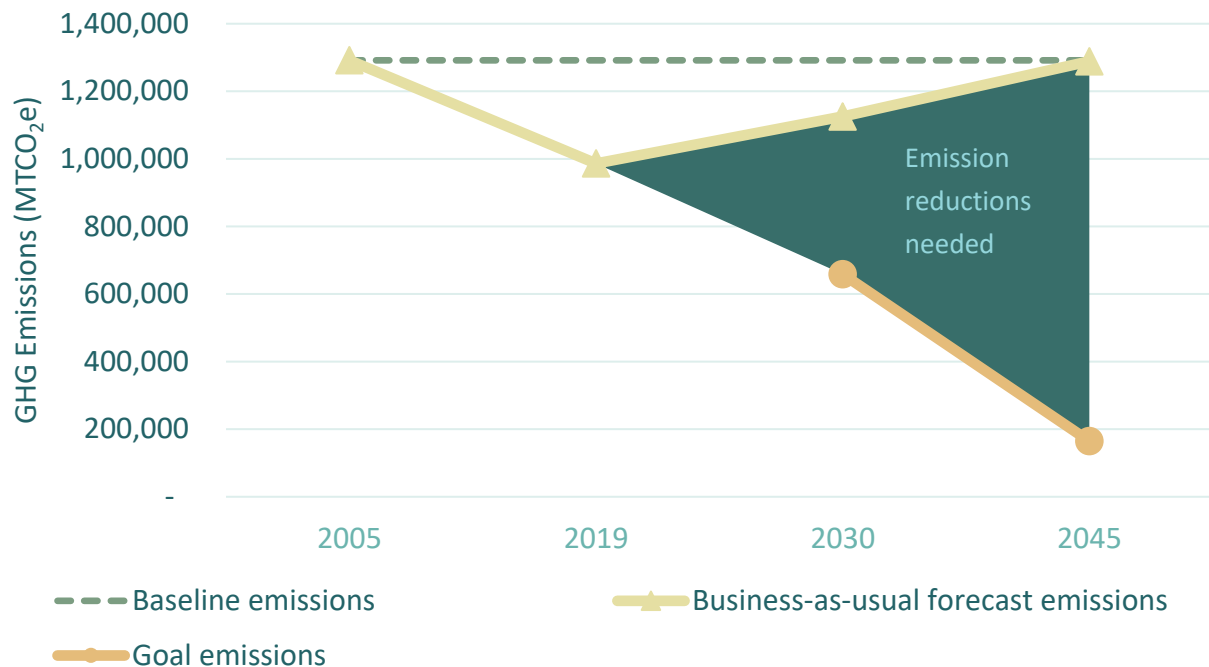
- Reduce GHG emissions to 658,700 MTCO_{2e} by 2030.
- Reduce GHG emissions to 164,680 MTCO_{2e} by 2045.

Table 8 and **Figure 12** show these emission goals and how they compare to the County's projected [business-as-usual](#) GHG emissions in [Chapter 3](#).

TABLE 8. CONTRA COSTA COUNTY [BUSINESS-AS-USUAL](#) GHG EMISSIONS [FORECAST](#) AND EMISSION GOALS, 2019 TO 2045

| | 2019 | 2030 | 2045 |
|--|--|---|---|
| Business-as-usual forecast GHG emissions | 986,310 MTCO _{2e} | 1,1 25,230 MTCO _{2e} | 1, 288,490 MTCO _{2e} |
| Goal | N/A | 658,700 MTCO _{2e} | 164,680 MTCO _{2e} |
| GHG emissions to be reduced | N/A | 466,530 MTCO _{2e} | 1,1 23,810 MTCO _{2e} |

FIGURE 12. BUSINESS-AS-USUAL FORECAST GHG EMISSIONS AND REDUCTION GOALS



Existing and Planned GHG Emissions Reduction Efforts

The County must substantially reduce its GHG emissions to achieve its goals. Fortunately, ~~the State of California and regional and local agencies there are~~ already have several efforts in place or planned ~~at the State and regional level~~ that are expected to reduce GHG emissions in the unincorporated areas of Contra Costa County without the County taking additional action. The County can receive “credit” for the level of GHG emissions reduced locally by these existing and planned efforts.

STATE REDUCTION EFFORTS

California has adopted and committed to implementing policies to decrease GHG emission levels statewide, including from several of the major GHG emission sources in the unincorporated areas of Contra Costa County. Many of these policies are identified in the 2008 Scoping Plan and have been revised and expanded by successive updates.

The [CARB](#) Scoping Plan and related documents lay out several State-led policies to reduce GHG emissions, but six policies have a direct and apparent GHG emission reduction benefit to unincorporated Contra Costa County: [The Renewables Portfolio Standard \(RPS\)](#), [Clean Car Standards](#), [Title 24 building energy efficiency standards](#), [the Low Carbon Fuel Standard \(LCFS\)](#), [the Short-Lived Climate Pollutant Reduction Strategy](#), and [Renewable Natural Gas](#). An in-depth description of these initiatives and their projected GHG emission savings are provided in **Appendix B**. [Because these are State-led programs, Contra Costa County will not be involved in their implementation or regulation.](#)

1. **The Renewables Portfolio Standard** requires increases in renewable and carbon-free electricity supplies.
2. **The Clean Car Standards** require increased fuel efficiency of on-road vehicles and decreased carbon intensity of vehicle fuels.
3. The updated **Title 24 building energy efficiency standards** require new buildings to achieve increased energy-efficiency goals, and in some cases to install rooftop solar panels. The latest version of these standards went into effect January 1, 2023.
4. **The Low Carbon Fuel Standard** mandates reduced carbon intensity of fuels used in off-road equipment.
5. **The Short-Lived Climate Pollutant Reduction Strategy**, also known as SB 1383, requires that jurisdictions provide organic waste collection services, recover edible food, and keep most organic waste out of landfills.
6. **Renewable Natural Gas** assumes that biomethane and renewable hydrogen fuels will be blended into the fossil gas pipeline and that, in the 2030s, dedicated hydrogen pipelines will be constructed to serve certain industrial clusters.

The project team estimated GHG savings from the Clean Car Standards using State modeling tools released in 2021. These models do not consider newer State regulations to accelerate the transition to zero-emission vehicles, and so they do not reflect all the expected GHG reductions from zero-emission vehicles in Contra Costa County. The remaining savings are covered in Strategy TR-2, which is discussed later in this chapter.



4. Greenhouse Gas Emission Reduction Strategy

REGIONAL AND LOCAL REDUCTION EFFORTS

In addition to State actions, the County's default electricity provider, MCE, has also taken action to reduce the GHG emissions from the electricity it supplies to unincorporated Contra Costa County community members, beyond the minimum required by the RPS. In 2019, MCE electricity was approximately 60 percent renewable and 90 percent carbon-free. In future years, MCE will work to source 95 percent of its electricity from carbon-free sources. When quantifying the emissions impacts from electricity procurement policies, GHG emissions reductions from RPS are considered first. The County also enacted an all-electric reach code (suspended in February 2024, as discussed in Chapter 1), which required many types of new buildings to not use natural gas. The reductions from MCE clean energy procurement and the all-electric reach code shown in **Table 9** represent savings obtained after the effects of the RPS have been considered. **Table 9** shows the GHG emissions reduction potential from the State-level efforts, ~~and~~ MCE's energy procurement plans and projected levels of adoption of MCE Deep Green, and the all-electric reach code. as well as This table also shows how unincorporated Contra Costa County's GHG emission levels with these reductions compares to the goals discussed previously.

TABLE 9. GHG EMISSION REDUCTIONS FROM EXISTING AND PLANNED STATE, REGIONAL, AND LOCAL ACTIONS, 2019 TO 2045

| | 2019 MTCO ₂ E | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|---|-----------------------------|-----------------------------|-----------------------------|
| Forecast emissions without existing and planned actions | <u>986,310</u> | <u>1,125,230</u> | <u>1,288,490</u> |
| Reductions from RPS | - | <u>-3,640</u> | <u>-41,270</u> |
| Reductions from Clean Car standards | - | -110,250 | -214,120 |
| Reductions from Title 24 | - | <u>-9,880</u> | <u>-31,600</u> |
| Reductions from LCFS (off-road only) * | - | 740 | 7,430 |
| Reductions from SB 1383 | | -21,880 | -53,870 |
| Reductions from renewable natural gas | - | <u>-18,460</u> | <u>-78,050</u> |
| Reductions from MCE clean energy procurement | - | -1,240 | - |
| <u>Reductions from all-electric reach code (suspended February 2024)</u> | <u>-</u> | <u>-3,150</u> | <u>-2,590</u> |
| Reductions from all <u>existing and planned state, regional, and local</u> actions | | <u>-188,740</u> | <u>-488,200</u> |
| Remaining emissions with existing and planned <u>state, regional, and local</u> actions | <u>986,310</u> | <u>957,470</u> | <u>874,420</u> |
| *Due to how the off-road equipment emissions from LCFS are calculated, the results show a minor increase in emissions from this sector. | | | |

Achieving Our Goals

With the reductions currently projected from the 2024 CAAP strategies, GHG emissions for the unincorporated areas of Contra Costa County are expected to fall to 1.47 MTCO₂e per person. This is 55 percent below GHG emissions without the 2024 CAP.

County staff developed a set of 11 GHG emission reduction strategies and assessed the GHG emission reduction potential of these strategies, given the project team's reasonable understanding of available resources and what seemed appropriate for the unincorporated area. **Appendix B** provides detailed information about the

GHG emission reduction potential of these strategies.

These GHG emission reduction potentials are intended to be a starting point. They are based on the best available information, the experience and expertise of County staff, and known resources and capabilities. It is possible to achieve greater reductions if there is more confidence in higher levels of participation or development of additional programs.

Table 10 shows the expected GHG emission levels with these strategies enacted,

TABLE 10. GHG EMISSIONS WITH 2024 CAAP DRAFT REDUCTION STRATEGIES, 2019 TO 2045

| SECTOR | 2019 | 2030 | 2045 | PERCENTAGE CHANGE, 2019–2045 |
|---------------------------------------|-----------------------|-----------------------|-----------------------|------------------------------|
| Transportation | 464,040 | 277,450 | <u>60,970</u> | -87% |
| Energy - Residential | 191,780 | <u>141,720</u> | <u>24,180</u> | -87% |
| Energy - Nonresidential | <u>85,390</u> | <u>71,500</u> | <u>24,540</u> | -71% |
| Solid Waste | 220,760 | 146,270 | 137,070 | -38% |
| Agriculture | 36,130 | 34,770 | 33,410 | -8% |
| Off-road Equipment | 54,010 | 54,150 | <u>29,270</u> | -46% |
| Water and Wastewater | 4,870 | 3,610 | 1,470 | -70% |
| BART | 190 | 150 | 50 | -74% |
| Land Use and Sequestration | -70,860 | -90,210 | -147,800 | -109% |
| Total Annual MTCO₂e | <u>986,310</u> | <u>639,460</u> | <u>163,130</u> | -83%* |

Note: Due to rounding, totals may not equal the sum of the individual values

* Reductions of 83 percent below 2019 levels are comparable to reductions of 85 percent below 1990 levels.



4. Greenhouse Gas Emission Reduction Strategy

All the strategies discussed in this chapter help Contra Costa County reduce its GHG emissions and allow the County to achieve its GHG reduction goals. Different strategies, along with existing and planned efforts, contribute to the GHG reductions in each of the different sectors as projected in 2045:

- Transportation: The largest share of GHG reductions from transportation-related emissions comes from a significant increase in adoption of electric vehicle and other zero-emission vehicle (ZEV) technologies, as discussed in Strategy TR-2. The State's Clean Car Standards, establishing stricter vehicle fuel efficiency standards and ZEV adoption requirements, accounts for approximately 39 percent of these reductions. Strategy TR-1, which reduces VMT through increases in transit use, active transportation, and micromobility, accounts for the remaining 7 percent of GHG reductions in transportation energy use.
- Residential energy: More than half of GHG reductions in residential energy use comes from energy efficiency and electrification of existing homes, as discussed in Strategy BE-2, and another 24 percent comes from the State's program to partially meet natural gas needs from renewable sources. The State's increase in the Title 24 energy efficiency standards for new buildings and RPS program to convert all electricity to renewable or carbon-free sources each contribute about 10 percent of the GHG reductions in this sector. Smaller but still significant GHG reductions to residential energy use come from the high energy performance standards discussed in Strategy BE-1 and the effects of the County's earlier all-electric reach code.
- Nonresidential energy: Similar to the residential energy sector, the largest share of GHG reductions in nonresidential energy use (44 percent) comes from energy efficiency and electrification of existing building in Strategy BE-2, followed by the State's plan for increased natural gas from renewable sources (28 percent). The State's RPS and Title 24 programs create the next-largest sources of reductions. The County's energy performance standards in BE-1 and the County's earlier all-electric reach code also play a role in reducing emissions from this sector.
- Solid waste: The largest contributor to solid waste GHG emission reductions in the CAAP is the increased capture rate of methane from landfills in Strategy NW-4, which is responsible for about 50 percent of these reductions. The State's organics recycling requirements, SB 1383, is responsible for another 44 percent of GHG emission reductions from solid waste. Local efforts to increase recycling and minimize waste generation, as discussed in Strategies NW-1, NW-2, and NW-3, collectively achieve the remaining GHG emission reductions.

- Agriculture: The State and CAAP strategies do not directly reduce agricultural emissions in a measurable manner, although Strategy TR-2 reduces emissions from agricultural equipment (part of the off-road equipment sector) and Strategy NI-4 may affect agricultural emissions by supporting increased carbon farming and sequestration on the County's natural and working lands.
- Off-road equipment: The CAAP achieves reductions in off-road equipment GHG emissions by promoting replacing gasoline and diesel-fueled equipment with electric models, as discussed in Strategy TR-2.
- Water and wastewater: The primary contributor to GHG emission reductions from water and wastewater is the State's RPS program. Water-efficiency standards in Strategy DR-1 account for the remaining GHG emission reductions.
- BART: The State's RPS program reduces GHG emissions from BART operations.
- ◆ Land use and sequestration: Strategy NI-4 in the CAAP, which increases carbon farming and sequestration on the County's natural and working lands, drives the GHG reductions in the land use and sequestration sector.

With the reductions currently projected from the 2024 GHG emissions reduction strategies, GHG emissions for the unincorporated county are expected to be reduced to 85~~6~~ percent below 1990 levels, equal to 87~~8~~ percent below baseline 2005 levels ~~and/or 85-83~~ percent below 2019 levels. These reductions are predicted to occur across most GHG emission sectors, though emissions within the Solid Waste sector will continue to be affected by previously deposited waste continuing to decompose in landfills. As noted previously, there is the potential for these strategies to yield additional GHG emission reductions as County staff and decision makers develop and institute implementation actions and monitor the results.

With these reductions as currently assessed, unincorporated Contra Costa County achieves the GHG emissions reduction goals for 2030 and 2045, as shown in **Table 11**. The County may reduce emissions faster than expected as it implements the CAAP, and it will report on this progress as part of the CAAP monitoring activities.



4. Greenhouse Gas Emission Reduction Strategy

TABLE 11. 2024 GHG EMISSION REDUCTIONS AND REGULATORY GOALS

| | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|---|-----------------------------|-----------------------------|
| GHG emissions goals | 658,700 | 164,680 |
| GHG emissions with CAAP strategies | <u>639,460</u> | <u>163,130</u> |
| Gap to GHG emission reduction goal* | <u>-19,240</u> | <u>-1,550</u> |
| Note: Due to rounding, totals may not equal the sum of the individual values. * Negative values mean that the strategies reduce GHG emissions to below the goal. | | |

THE 2024 CAAP AND NET CARBON NEUTRALITY

Achieving net carbon neutrality in Contra Costa County will require implementation of GHG reduction efforts that meet the County's regulatory goals, in combination with carbon sequestration and potentially other methods to "zero out" the remaining emissions. The 2024 CAAP achieves significant reductions in GHG emissions, consistent with the County's emission reduction goals, and places Contra Costa County on a path to support statewide net carbon neutrality by 2045. Currently, there is insufficient guidance and certainty around local carbon sequestration, storage, and potential carbon offset strategies to mathematically demonstrate with certainty that the 2024 CAAP will achieve carbon neutrality by 2045. However, the County believes that such guidance and certainty will emerge in future years as the County, regional agencies, and the State further explore the opportunities, develop guidance and methods, and validate new technology. When available, guidance on quantifying how to achieve carbon neutrality will be integrated into future updates of this 2024 CAAP.

For the foreseeable future, achieving net the County's GHG emissions reductions goals, including carbon neutrality, will likely not be feasible without the use of local carbon sequestration, notably on natural and working lands. Although GHG emissions can be eliminated from many of the County's GHG emissions sources, this is not practical for every source given technical, economic, or political considerations. Assuming implementation of the strategies in this 2024 CAAP, **Figure 15** shows the major sources of Contra Costa County's remaining GHG emissions in 2045.

APPENDIX B: TECHNICAL GHG APPENDIX

This appendix provides details for Contra Costa County's greenhouse gas (GHG) emissions inventory and forecast in Chapter 3 of the 2024 Climate Action and Adaptation Plan (CAAP) and the GHG emission reduction pathway presented in Chapter 4 of the 2024 CAAP. It summarizes the technical details and findings from these analyses as well as the data sources, assumptions, and performance metrics used to assess the potential for GHG savings from State and local existing and planned efforts and the reduction strategies associated with the CAAP.

Inventory and Forecast

As part of the preparation of the 2015 CAP, Contra Costa County and its regional partners and technical consultants prepared community-wide and County operations GHG inventories for the calendar years 2005 and 2013. The 2015 CAP identified the year 2005 as the baseline year for emission reductions, as this was considered a year with good data availability at the time, consistent with State guidance, and without any unusual factors that might affect GHG emissions.

As part of the 2024 CAAP update process, the project teams prepared inventories of community-wide emissions for the years 2017 and 2019. County staff made some updates to the 2005 and 2013 community-wide inventories in the 2015 CAP to ensure a consistent method and approach across all inventory years.

County staff have also prepared a County operations GHG emissions inventory for the year 2017.

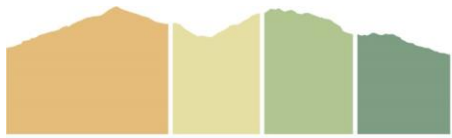
This document presents the full results of the Contra Costa County community-wide GHG inventory and the County operations inventory and is the most up-to-date summary of Contra Costa County's GHG emissions.

PROTOCOLS

A series of guidance documents, called protocols, provide recommendations on how to adequately assess GHG emissions. The project team prepared the new GHG inventories and updates to past GHG inventories consistent with the guidance in widely adopted, standard protocol documents. These protocols provide guidance on what activities should be evaluated in the GHG inventories and how emissions from those activities should be assessed. Using standard methods also allows for an easy comparison of GHG emission levels across multiple years and communities.

- The County operations GHG inventory relies on the Local Government Operations Protocol (LGOP), which was first developed in 2008 and was updated in 2010. The LGOP is a tool for accounting and reporting GHG emissions of local government (municipal) operations and is used throughout California and the United States. The LGOP includes guidance from several existing programs as well as the state's mandatory GHG reporting regulations.
- The community-wide GHG inventory uses the United States Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (U.S. Community Protocol), which was first developed in 2012 and updated most recently in 2019. The California Governor's Office of Planning and Research encourages cities and counties in California to follow the U.S. Community Protocol for community-wide GHG emissions.
- A third protocol, the Global Protocol for Community-Scale Greenhouse Gas Inventories (Global Protocol) was first developed in 2014 and is intended for use in preparing international community-scale GHG inventories. It is largely consistent with the U.S. Community Protocol, although it contains additional guidance and resources to support a wider range of activities that may be found in other countries. The project team has used the Global Protocol to assess GHG emissions from sources that are not covered in the U.S. Community Protocol.

GHG inventories are estimates of GHG emissions based on these standard methods and verified datasets. While they are not direct measurements of GHG emissions, the use of the standard methods identified in the protocols, in combination with accurate data from appropriate sources, allows GHG inventories to provide reliable estimates of local emission levels. Due to potential data limitations, some inconsistencies in methods may remain. Any concerns about inconsistent methods are noted in the appropriate sector discussion.



UNITS OF MEASUREMENT

GHG inventories and forecasts assess emissions in a unit called carbon dioxide equivalent (CO₂e), which is a combined unit of all GHGs analyzed in the inventory. As different GHGs have different effects on the processes that drive climate change, CO₂e is a weighted unit that reflects the relative potency of the different GHGs. These inventories report amounts of GHGs in metric tons of CO₂e (MTCO₂e), equal to 1,000 kilograms or approximately 2,205 pounds.

EMISSION FACTORS

An emission factor describes how many MTCO₂e are released per unit of an activity. For instance, an emission factor for electricity describes the MTCO₂e produced per kilowatt hours (kWh) of electricity used. Since different sources of electricity can have different emission factors, the emission factors in **Table B-1** represent a weighted average of emission factors across electricity sources and portfolios (e.g. MCE's Light Green and Deep Green products). The emission factor for on-road transportation describes the MTCO₂e produced per mile of driving. The project team calculated most of the GHG emissions using data on GHG-generating activities in combination with emission factors. Some sources of GHG emissions (known as sectors), including agriculture and off-road emissions, are calculated using formulae or models and do not have specific emission factors. **Table B-1** shows the emission factors for the inventory years for the unincorporated area.

TABLE B-1: GHG INVENTORY EMISSION FACTORS, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE | SOURCE |
|---|----------|----------|----------|----------|-------------------|--------------------------------|
| PG&E electricity (MTCO _{2e} /kWh) | 0.000226 | 0.000195 | 0.000096 | 0.000108 | -52% | PG&E |
| Direct access electricity (MTCO _{2e} /kWh) | 0.000388 | 0.000309 | 0.000208 | 0.000187 | -52% | California Energy Commission |
| MCE electricity (MTCO _{2e} /kWh) | N/A | N/A | 0.000059 | 0.000045 | -24% * | MCE |
| Natural gas (MTCO _{2e} /therm) | 0.005311 | 0.005311 | 0.005311 | 0.005311 | 0% | US Community Protocol |
| Propane (MTCO _{2e} /gallon) | 0.005844 | 0.005844 | 0.005844 | 0.005844 | 0% | US Community Protocol |
| Kerosene (MTCO _{2e} /gallon) | 0.010569 | 0.010569 | 0.010569 | 0.010569 | 0% | US Community Protocol |
| Wood (MTCO _{2e} /MMBTU) | 0.095624 | 0.095624 | 0.095624 | 0.095624 | 0% | US Community Protocol |
| On-road vehicles (MTCO _{2e} /VMT) | 0.000486 | 0.000483 | 0.000421 | 0.000408 | -16% | California Air Resources Board |
| BART (MTCO _{2e} /passenger mile) | 0.000093 | 0.000093 | 0.000093 | 0.000013 | -86% | BART |
| Municipal solid waste (MTCO _{2e} /ton) | 0.293179 | 0.293184 | 0.286047 | 0.261659 | -11% | CalRecycle |
| Alternative daily cover (MTCO _{2e} /ton) | 0.191850 | 0.245890 | 0.245694 | 0.245693 | 28% | CalRecycle |

* MCE's percentage change is from 2017 to 2019.

COMMUNITY-WIDE EMISSIONS

Sectors

The community-wide GHG inventory assessed GHG emissions from the following 11 categories of activities, known as sectors.

- **Transportation** includes GHG emissions created by driving on-road vehicles in the unincorporated county, including passenger and freight vehicles.
- **Residential energy** includes GHG emissions attributed to the use of electricity, natural gas, and other home heating fuels in residential buildings.
- **Solid waste** includes the GHG emissions released from trash collected in the unincorporated areas of Contra Costa County, as well as collective annual emissions from waste already in place at the Acme, Keller Canyon, and West Contra Costa Landfills.
- **Nonresidential energy** includes GHG emissions attributed to the use of electricity and natural gas in nonresidential buildings.
- **Agriculture** includes GHG emissions from various agricultural activities in the unincorporated county, including agricultural equipment, crop cultivation and harvesting, fertilizer application, and livestock operations.
- **Off-road equipment** includes GHG emissions from equipment that does not provide on-road transportation (excluding agricultural equipment), such as tractors for construction, or equipment used for landscape maintenance, commercial and industrial equipment, and outdoor recreational equipment.
- **Water and wastewater** accounts for the electricity used to transport and process water and wastewater used or generated by unincorporated county residents and businesses, as well as direct emissions resulting from wastewater treatment activities.
- **Bay Area Rapid Transit (BART)** includes GHG emissions associated with the operation of BART for unincorporated county residents.





- **Land use and sequestration** includes GHG emissions absorbed and stored in trees and soils on locally controlled lands as part of healthy ecosystems and released into the atmosphere from development of previously undeveloped land.
- **Stationary sources** are emissions from fuel use at major industrial facilities, permitted by state and regional air quality authorities. These emissions are informational and are not counted as part of the community total.
- **Wildfire** includes emissions released as a result of wildfires. These emissions are informational and are not counted as part of the community total.
- **Direct access electricity** is electricity purchased directly from an Electric Service Provider (ESP) rather than a conventional utility company or Community Choice Energy provider such as MCE, generally to power large industrial, commercial, and institutional facilities.



Community-Wide Inventory Results

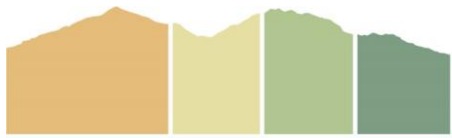
Table B-2 show the community-wide GHG emissions for the unincorporated area associated for the four inventory years. Total community-wide emissions declined 22 percent from 2005 to 2019. The most significant decreases in emissions came from BART, water and wastewater, residential energy use, and transportation, which all saw their associated emissions decrease by more than 25 percent. Only off-road equipment saw a significant (58 percent) increase in associated GHG emissions.


TABLE B-2: ABSOLUTE ANNUAL GHG EMISSIONS, 2005–2019 (MTCO₂E)

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005 - 2019 |
|--|----------------------|----------------------|----------------------|----------------|--------------------------------------|
| Transportation | 628,200 | 651,130 | 571,650 | 464,040 | -26% |
| Residential energy | 294,930 | 280,870 | 212,420 | 191,780 | -35% |
| Nonresidential energy | 118,740 | 125,350 | 98,850 ¹ | 85,390 | -28% |
| Solid waste | 243,940 | 224,570 | 223,100 | 220,760 | -10% |
| Agriculture | 33,350 | 39,300 | 44,880 | 36,130 | 8% |
| Off-road equipment | 34,160 | 36,290 | 42,840 | 54,010 | 58% |
| Water and wastewater | 8,080 | 7,400 | 4,400 | 4,870 | -40% |
| BART | 1,040 | 1,320 | 1,440 | 190 | -82% |
| Land use and sequestration | -70,860 | -70,860 | -70,860 | -70,860 | 0% |
| Total Annual MTCO₂e | 1,291,580 | 1,295,370 | 1,128,720 | 986,310 | -24% |
| <i>Informational Items</i> | | | | | |
| Stationary sources | 13,983,030 | 11,956,000 | 11,232,290 | 10,867,670 | -22% |
| Wildfire | 14,270 | 66,080 | 0 ^{2*} | 10,100 | N/A ³ |
| <u>Direct access electricity</u> | <u>0⁴</u> | <u>0⁴</u> | <u>0⁴</u> | <u>74,130</u> | <u>N/A</u> |
| <p>Note: All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows.</p> <p>¹ Estimates of nonresidential electricity use in 2013 are used in 2017 to account for a lack of available data in 2017.</p> <p>² No wildfires were recorded in the unincorporated county in 2017.</p> <p>³ Overall change between 2005 and 2019 for wildfire is not calculated because of the high degree of year-to-year variability.</p> <p>⁴ PG&E did not provide direct access electricity use data in these years. All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows.</p> <p>*No wildfires were recorded within the unincorporated County in 2017.</p> | | | | | |

Regarding stationary sources, there are several factors outside of the County's control that influence the operations and related emissions and energy use at these facilities. The County has therefore elected to exclude the direct emissions and energy use at these facilities from consideration of the County's GHG reduction goals for the following reasons:

- These facilities are regulated primarily through the Federal Energy Regulatory Commission and the California Energy Commission (CEC), and are subject to air quality and emissions standards set forth by USEPA, CARB, and BAAQMD.
- The energy used at some of these facilities fluctuates from year to year depending on the demand for resources and the availability of other electricity-generating sources such as hydropower or renewable resources. This makes it difficult to accurately forecast the energy use at these facilities.



- The County has limited jurisdictional authority to reduce GHG emissions from these sources as they are subject to cap-and-trade regulations set forth by CARB.
- The approach to excluding energy from sources that are outside of the County's jurisdictional control is consistent with the *U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions*.

The resultant jurisdictional inventory more accurately reflects the energy use from nonresidential customers in unincorporated Contra Costa County and allows the County to focus on actions that are within its control.

Contra Costa County is developing a Just Transition Economic Revitalization Plan, a long-term strategic plan for transitioning to a net zero-emission economy.

COMMUNITY-WIDE GHG INVENTORY RESULTS BY SECTOR

Transportation

On-road transportation activity accounts for vehicle miles driven between two points in the unincorporated area, or between the unincorporated area or another community. It does not include miles for trips that begin and end in other communities but pass through the unincorporated area (e.g., from Sacramento to Oakland). Unincorporated Contra Costa County community members drove approximately 1.3 billion vehicle miles in 2005, decreasing 12 percent to approximately 1.1 billion vehicle miles in 2019. The VMT in 2005 resulted in GHG emissions of approximately 628,200 MTCO₂e, which dropped to approximately 464,040 in 2019, a 26-percent decrease. GHG emissions decreased due to this reduction in VMT, increasingly fuel-efficient vehicles, and a wider adoption of electric vehicles. The average vehicle on the road in unincorporated Contra Costa County generated 16 percent fewer GHG emissions per mile in 2019 than in 2005, as reported by Caltrans. **Table B-3** provides a breakdown of the activity data and emissions for on-road transportation for the unincorporated area by each individual year included in the updated community inventory.



TABLE B-3: TRANSPORTATION ACTIVITY DATA AND GHG EMISSIONS, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005 - 2019 |
|--|---------------|---------------|---------------|---------------|--------------------------------------|
| Activity Data (VMT) | | | | | |
| On-road transportation | 1,291,819,230 | 1,349,279,980 | 1,357,121,160 | 1,136,911,090 | -12% |
| Emissions (MTCO₂e) | | | | | |
| On-road transportation | 628,200 | 651,130 | 571,650 | 464,040 | -26% |
| All numbers are rounded to the nearest 10. | | | | | |

Residential Energy

Contra Costa County's GHG emissions from residential energy totaled approximately 191,780 MTCO₂e in 2019, compared to 294,930 MTCO₂e in 2005, a decline of 35 percent. Residential electricity GHG emissions decreased due to a decrease in overall use and usage of cleaner sources of electricity. Residential electricity use fell 40 percent from 2005 to 2019, from 488,236,740 kWh to 293,561,300 kWh. Over this period, as seen in **Table B-1**, a unit of electricity supplied by [Pacific Gas and Electricity Company \(PG&E\)](#) emitted 52 percent less GHG in 2019 than in 2005. Electricity from MCE, which supplied electricity to community residents in 2017 and 2019, generated even fewer GHG emissions per unit of electricity than PG&E-supplied electricity, which has also contributed to the decline in this sector. Natural gas use and GHG emissions saw a small decrease from 2005 to 2019 of 3 percent despite a growing population. Propane and wood use and GHG emissions also declined over this period, although GHG emissions from these fuels are only a small proportion of those from the residential energy sector. **Table B-4** provides a breakdown of the activity data and GHG emissions for residential energy for the unincorporated area.



TABLE B-4: RESIDENTIAL ENERGY ACTIVITY DATA AND GHG EMISSIONS BY SUBSECTOR, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005 - 2019 |
|---|----------------|----------------|----------------|----------------|--------------------------------|
| Activity Data | | | | | |
| Residential PG&E electricity (kWh) | 488,236,740 | 478,219,710 | 461,970,670 | 46,158,330 | -91% |
| Residential MCE electricity (kWh) | - | - | 307,820 | 247,402,970 | 80,273%* |
| Residential natural gas (therms) | 30,919,160 | 31,007,110 | 28,634,420 | 30,100,640 | -3% |
| Residential propane (gallons) | 1,525,330 | 1,106,900 | 1,043,270 | 1,021,340 | -33% |
| Residential kerosene (gallons) | 13,160 | 10,960 | 8,030 | 16,320 | 24% |
| Residential wood (MMBTU) | 117,000 | 165,830 | 100,960 | 101,710 | -13% |
| Emissions (MTCO₂e) | | | | | |
| Residential PG&E electricity | 110,120 | 93,380 | 44,510 | 5,000 | -95% |
| Residential MCE electricity | 0 | 0 | 20 | 11,060 | 55,200%* |
| Residential natural gas | 164,570 | 165,040 | 152,060 | 159,850 | -3% |
| Residential propane | 8,910 | 6,470 | 6,100 | 5,970 | -33% |
| Residential kerosene | 140 | 120 | 80 | 170 | 21% |
| Residential wood | 11,190 | 15,860 | 9,650 | 9,730 | -13% |
| Total Annual MTCO₂e | 294,930 | 280,870 | 212,420 | 191,780 | -35% |
| * MCE did not operate in the unincorporated County until 2017, and 2017 operations were very limited. MCE percentage changes are for changes from 2017 to 2019. | | | | | |
| All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |

Solid Waste

Contra Costa County's community-wide GHG emissions associated with solid waste includes four subsectors.

- Municipal solid waste (MSW) is the material that is discarded by community members and reflects the actual waste generated by the community.
- Alternative daily cover (ADC) is organic material applied at landfills by the landfill operator as a means of controlling debris and pests.

- Waste in place is the solid waste and associated GHG emissions deposited in the County's landfills in previous years.
- The flaring subsector accounts for GHG emissions from the combustion of gases generated by the decomposing waste.

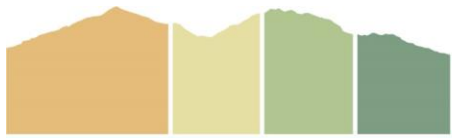
Between 2005 and 2019, total solid waste GHG emissions decreased by 10 percent due to decreases in solid waste generated and ADC applied, likely as a result of increased community awareness about recycling and composting and the availability of curbside recycling programs. Although annual waste generation decreased, waste in place at the landfills increased as waste is added to the landfills each year. **Table B-5** presents solid waste emissions data for each year for the unincorporated area.

TABLE B-5: SOLID WASTE ACTIVITY DATA AND GHG EMISSIONS BY SUBSECTOR, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005 – 2019 |
|---|----------------|----------------|----------------|----------------|--------------------------------|
| Activity Data (Tons) | | | | | |
| Solid waste | 154,820 | 78,790 | 79,520 | 79,340 | -49% |
| ADC | 15,950 | 13,990 | 11,470 | 7,580 | -52% |
| Waste in place | 34,455,010 | 41,785,650 | 45,776,140 | 47,618,290 | 38% |
| Landfill flaring | 5,270 | 5,260 | 5,250 | 5,270 | Less than 1% |
| Emissions (MTCO_{2e}) | | | | | |
| Solid waste | 45,390 | 23,100 | 22,750 | 20,760 | -54% |
| ADC | 3,060 | 3,440 | 2,820 | 1,860 | -39% |
| Waste in place | 193,950 | 196,500 | 196,000 | 196,610 | 1% |
| Landfill flaring | 1,540 | 1,530 | 13,550 | 13,590 | -1% |
| Total Annual MTCO_{2e} | 243,940 | 224,570 | 235,120 | 232,820 | -10% |
| All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |

Nonresidential Energy

Contra Costa County's GHG emissions from nonresidential energy totaled approximately ~~85,390~~~~159,520~~ MTCO_{2e} in 2019, compared to 118,740 MTCO_{2e} in 2005, a ~~decrease~~~~increase~~ of ~~28~~~~34~~ percent. Electricity emissions from retail electricity suppliers (PG&E and MCE) have fallen significantly, driven by a small decrease in electricity use and a large increase in the amount of electricity for renewable and carbon-free sources (see **Table B-1**). Between 2005 and 2019, nonresidential electricity obtained from PG&E



decreased by 90 percent and nonresidential electricity obtained from MCE increased from virtually nothing in 2017 to approximately 200 million kWh in 2019. Natural gas use and associated emissions have reportedly increased, although this may be less of an actual increase and more so the result of data being omitted by PG&E as a way of complying with State privacy regulations. As a consequence of this, the project team has kept nonresidential natural gas use constant at 2013 levels, a conservative estimate that may not account for actual decreases in this subsector. ~~Similarly, direct access electricity (electricity purchased from third parties instead of PG&E or MCE, usually by large customers such as major industrial facilities) was only reported for 2019, although this electricity use likely occurred in previous years but was not reported due to privacy regulations.~~ **Table B-6** provides a breakdown of the activity data and GHG emissions for nonresidential energy for the unincorporated area.



TABLE B-6: NONRESIDENTIAL ENERGY ACTIVITY DATA AND GHG EMISSIONS BY SUBSECTOR, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005–2019 |
|---|----------------|----------------|---------------|------------------------|------------------------------|
| Activity Data | | | | | |
| Nonresidential PG&E Electricity (kWh) ¹ | 284,558,070 | 266,216,660 | 266,216,660 | 29,062,250 | -90% |
| Nonresidential MCE electricity (kWh) ² | 0 | 0 | 28,730 | 200,181,720 | 696,669% |
| Nonresidential Direct Access electricity (kWh) ³ | 0 | 0 | 0 | 396,805,940 | N/A |
| Nonresidential natural gas (therms) ⁴ | 10,251,360 | 13,784,410 | 13,784,410 | 13,784,410 | -58% |
| Emissions (MTCO₂e) | | | | | |
| Nonresidential PG&E electricity ¹ | 64,180 | 51,980 | 25,650 | 3,150 | -95% |
| Nonresidential MCE electricity ² | 0 | 0 | Less than 10 | 9,040 | 451,900% |
| Nonresidential Direct Access electricity ³ | 0 | 0 | 0 | 74,130 | N/A |
| Nonresidential natural gas ³⁴ | 54,560 | 73,370 | 73,200 | 73,200 | 34% |
| Total Annual MTCO₂e | 118,740 | 125,350 | 98,850 | <u>85,390</u> | 34% |
| <p>1: Due to omissions in data reported by PG&E for the calendar year 2017, the project team assumed that electricity use remained constant from 2013 levels.</p> <p>2: MCE did not operate in the unincorporated County until 2017, and 2017 operations were very limited. MCE percentage changes are for changes from 2017 to 2019.</p> <p>3: Direct access electricity was only reported for 2019. As PG&E also reports MCE-supplied electricity as Direct Access, the numbers given in this table are the electricity use after MCE data are removed.</p> <p>34: Due to omissions in data reported by PG&E for the calendar years 2017 and 2019, the project team assumed that natural gas use remained constant from 2013 levels.</p> <p>All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows.</p> | | | | | |

Agricultural Emissions

GHG emissions associated with the agriculture sector for the unincorporated area increased by approximately 8 percent between 2005 and 2019, as shown in **Table B-7**. This increase is due primarily to a minor increase (5 percent) in the amount of cattle in the county. Although crop acreages declined from 2005 to 2019, more fertilizer was applied in

2019 than in 2005 due to a shift in the types of crops being grown that required slightly more fertilizer.

TABLE B-7: AGRICULTURE ACTIVITY DATA AND GHG EMISSIONS BY SUBSECTOR, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005–2019 |
|---|---------------|---------------|---------------|---------------|------------------------------|
| Activity Data | | | | | |
| Crops (acreage) | 200,980 | 204,031 | 197,360 | 183,730 | -9% |
| Nitrogen applied (pounds) | 3,261,620 | 3,560,480 | 3,698,500 | 3,608,340 | 11% |
| Livestock (effective annual population) | 16,500 | 19,110 | 22,060 | 17,340 | 5% |
| Emissions (MTCO₂e) | | | | | |
| Crops | 3,920 | 4,280 | 4,450 | 4,340 | 11% |
| Enteric fermentation | 28,510 | 33,920 | 39,160 | 30,790 | 8% |
| Manure management | 920 | 1,100 | 1,270 | 1,000 | 9% |
| Total Annual MTCO₂e | 33,350 | 39,300 | 44,880 | 36,130 | 8% |
| All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |

Off-Road Equipment Emissions

According to data shown in **Table B-8**, emissions from off-road equipment in unincorporated Contra Costa County increased approximately 73 percent between 2005 and 2019, although the sector overall remains a small proportion of the total community-wide emissions. This increase is primarily the result of a significant rise in diesel tractor and other agricultural equipment use over this period, along with increases in commercial and industrial/warehouse equipment use. Since this is modeling directly reported by State agencies, it is possible that changes in modeling methods may be affecting the results. Note that the State provides these GHG emission levels directly, so there is no activity data to display.



TABLE B-8: OFF-ROAD EQUIPMENT GHG EMISSIONS BY SUBSECTOR, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005 – 2019 |
|---|---------------|---------------|---------------|---------------|--------------------------------------|
| Agricultural equipment | 1,200 | 1,190 | 1,180 | 10,170 | 748% |
| Cargo handling equipment | 900 | 380 | 330 | 310 | -66% |
| Commercial harbor equipment * | 0 | 0 | 0 | 2,600 | N/A |
| Construction and mining equipment | 6,780 | 7,170 | 8,880 | 7,200 | 6% |
| Industrial equipment | 8,320 | 8,840 | 9,470 | 9,780 | 18% |
| Lawn and garden equipment | 3,580 | 3,280 | 3,760 | 3,880 | 8% |
| Light commercial equipment | 2,230 | 2,780 | 3,060 | 3,270 | 47% |
| Locomotives | 3,170 | 3,260 | 3,540 | 3,620 | 14% |
| Oil drilling equipment | 20 | 20 | 20 | 20 | 0% |
| Pleasure craft | 1,890 | 1,810 | 1,800 | 1,830 | -3% |
| Portable equipment | 4,830 | 6,240 | 6,700 | 6,970 | 44% |
| Recreational equipment | 650 | 670 | 610 | 630 | -3% |
| Transport Refrigeration Units | 590 | 650 | 3,490 | 3,730 | 532% |
| Total Annual MTCO₂e | 34,160 | 36,290 | 42,840 | 54,010 | 58% |
| * State modeling only provided emissions for commercial harbor equipment for 2019. All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |

According to records maintained by the California Department of Conservation's Geologic Energy Management Division, there are no active oil or gas extraction wells in the unincorporated area. There are 16 natural gas storage wells in the hills between Clyde and Bay Point, along with an observation well. As these sites are not being used for active extraction, there are no further emissions associated with fossil fuel production at well sites in this inventory.

Water and Wastewater Emissions

Emissions associated with the water and wastewater sector are counted as indirect or direct emissions. Indirect water emissions refer to emissions created by the electricity required to treat and move water to where it is used. Indirect wastewater emissions refer to electricity needed to move wastewater to water treatment facilities, and to process and discharge it. Direct wastewater emissions refer to emissions produced directly by decomposing materials in wastewater.



GHG emissions from Contra Costa County's water and wastewater activity decreased 40 percent between 2005 and 2019. Indirect water GHG emissions declined by 62 percent between 2005 and 2019 while indirect wastewater GHG emissions decreased by 66 percent. Community members used substantially less water (31 percent less) and generated less wastewater (30 percent less) in 2019 than in 2005 despite population growth. This is likely a result of increased water efficiency by community residents and businesses. Additionally, the electricity used in water and wastewater pumping and treatment has been increasingly supplied by renewable and carbon-free sources, decreasing GHG emissions. Direct wastewater emissions did rise by approximately 199 percent from 2005 to 2019, but given that the amount of wastewater generated declined by this period, this is likely due to changes in modeling approaches and available data. The emissions data for the unincorporated area in **Table B-9** shows that overall emissions increased slightly within the water and wastewater sector.

TABLE B-9: WATER AND WASTEWATER ACTIVITY DATA AND GHG EMISSIONS BY SUBSECTOR, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005 – 2019 |
|---|------------|------------|------------|------------|--------------------------------|
| Activity Data | | | | | |
| Water use (million gallons) | 11,530 | 11,650 | 7,380 | 8,010 | -31% |
| Water electricity use (kWh) | 26,443,770 | 28,004,290 | 19,137,620 | 20,783,930 | -21% |
| Wastewater generation (million gallons) | 4,560 | 4,610 | 3,150 | 3,170 | -30% |
| Wastewater electricity use (kWh) | 6,199,120 | 6,198,590 | 4,268,050 | 4,295,780 | -31% |
| Emissions (MTCO₂e) | | | | | |
| Indirect water | 5,960 | 5,470 | 1,840 | 2,250 | -62% |
| Indirect wastewater | 1,400 | 1,210 | 410 | 470 | -66% |
| Direct wastewater | 720 | 720 | 2,150 | 2,150 | 199% |
| Total Annual MTCO ₂ e | 8,080 | 7,400 | 4,400 | 4,870 | -40% |
| All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |



BART Emissions

Emissions associated with BART ridership decreased 82 percent between 2005 and 2019. This decline is attributable to changes in BART's electricity portfolio, which in recent years have shifted to favor more renewable and carbon-free sources of energy. BART ridership from community members in unincorporated Contra Costa County increased 29 percent between 2005 and 2019, as shown in **Table B-10**. Ridership at all stations serving the unincorporated area increased by 10 to 35 percent over this period except for Pittsburg/Bay Point, which saw some of its ridership shift to Pittsburg Center and Antioch with the opening of the BART to Antioch extension in 2018.

TABLE B-10: BART ACTIVITY DATA AND GHG EMISSIONS, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005–2019 |
|---|------------|------------|------------|------------|------------------------------------|
| Activity Data | | | | | |
| BART Ridership (passenger miles) | 11,231,870 | 14,228,420 | 15,528,840 | 14,444,740 | 29% |
| Emissions (MTCO₂e) | | | | | |
| Total Annual MTCO ₂ e | 1,040 | 1,320 | 1,440 | 190 | -82% |
| All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |

Land Use and Sequestration

GHG emissions from land use and sequestration can be either positive (a source of emissions) or negative (removing emissions from the atmosphere, creating what is known as an emissions “sink”). Natural lands and trees in urban areas absorb carbon, storing it in wood, plants, and soil. As a result, when natural land is preserved or when more trees are planted, emissions from this sector are negative because GHGs are being removed from the atmosphere. However, developing natural lands or converting them to a different form (for example, replacing forests with crop land) or removing street trees causes carbon to be released, creating GHG emissions.

This sector includes emission sources and sinks from three types of activities: sequestration of GHG emissions in locally controlled forested lands, sequestration of GHG emissions in street trees in urbanized unincorporated areas, and emissions caused by permanently removing vegetation from natural lands or farmlands as a part of development.



Emissions and sequestered amounts remained constant in both years for all three activities. Locally-controlled forests and urban trees have not had their sequestration capabilities changed by human activities during the inventory period. While there was some development activity that caused a loss of sequestered GHG emissions, records of when the development specifically occurred are not available, and so the GHG emissions have been assigned equally to both inventory years, hence the lack of changes. Forests sequestered 58,110 MTCO₂e annually, while urban trees sequestered 12,750 MTCO₂e, for a total carbon sink of 70,860 MTCO₂e for the unincorporated area, as shown in **Table B-11**.

TABLE B-11: LAND USE AND SEQUESTRATION ACTIVITY DATA AND GHG EMISSIONS, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005 – 2019 |
|---|----------------|----------------|----------------|----------------|--------------------------------------|
| Activity Data | | | | | |
| Acres of forested land | 60,050 | 60,050 | 60,050 | 60,050 | 0% |
| Acres of urban trees | 32,780 | 32,780 | 32,780 | 32,780 | 0% |
| Acres of land use changes | 0 | 0 | 0 | 0 | 0% |
| Emissions (MTCO₂e) | | | | | |
| Forest sequestration | -58,110 | -58,110 | -58,110 | -58,110 | 0% |
| Street tree sequestration | -12,750 | -12,750 | -12,750 | -12,750 | 0% |
| Land use changes | 0 | 0 | 0 | 0 | 0% |
| Total Annual MTCO₂e | -70,860 | -70,860 | -70,860 | -70,860 | 0% |
| All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |

Wildfire

Wildfires create GHG emissions by burning organic materials such as trees and plants, releasing the carbon sequestered in these materials. Larger fires and those that burn through forested areas, as opposed to less densely vegetated ecosystems, release more GHG emissions. The County reported wildfires in the unincorporated area in 2005, 2013, and 2019, but not in 2017. The acreages and emissions of these fires for the unincorporated area are reported in **Table B-12**. Although wildfire emissions and acreages were lower in 2019 than in 2005, wildfire activity varies widely from year to year, and is generally expected to increase in future years due to climate change. Wildfire emissions are not calculated in the totals presented in this appendix and are for informational purposes only.



TABLE B-12: WILDFIRE ACTIVITY DATA AND GHG EMISSIONS, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005–2019 |
|--|--------|--------|------|--------|------------------------------------|
| Activity Data | | | | | |
| Acres burned | 2,070 | 6,320 | 0 | 1,830 | -31% |
| Emissions (MTCO₂e) | | | | | |
| Total Annual MTCO ₂ e | 14,270 | 66,080 | 0 | 10,100 | -29% |
| 2005 wildfires: Bragdon Fire, BNSF Fire, Byron Fire, Vasco Airport Fire, and an unnamed fire south of Antioch. | | | | | |
| 2013 wildfires: Kirker Fire and Morgan Fire. | | | | | |
| 2019 wildfires: Marsh 3 Fire, Marsh 5 Fire, Marsh 6 Fire. | | | | | |
| All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |

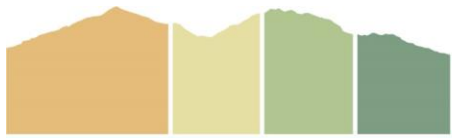
Stationary Source Emissions

Stationary source emissions result from fuel use, such as natural gas or propane, at large industrial facilities. These facilities include refineries, power plants, factories, and similar installations. Natural gas use at these facilities may be included as part of the nonresidential natural gas use reported by PG&E. These facilities are regulated by the State and BAAQMD, and the County does not have direct control over their operations. Emissions from these facilities are therefore not counted toward the County's total GHG emissions.

Table B-13 shows the emissions from stationary sources for the unincorporated area. This information is directly reported by the California Air Resources Board as total emissions. The Board does not report activity data for stationary sources, which would include amounts of fuel burned at these facilities. These emissions are not included in the totals presented in this memorandum and are for informational purposes only.

TABLE B-13: STATIONARY SOURCE GHG EMISSIONS, 2005–2019

| SECTOR | 2005 | 2013 | 2017 | 2019 | PERCENTAGE CHANGE, 2005–2019 |
|---|------------|------------|------------|------------|------------------------------------|
| Emissions (MTCO₂e) | | | | | |
| Total Annual MTCO ₂ e | 13,983,030 | 11,956,000 | 11,232,290 | 10,867,670 | -22% |
| All numbers are rounded to the nearest 10. Totals may not equal the sum of individual rows. | | | | | |



Direct Access Electricity Emissions

PG&E provided direct access electricity data only for 2019. In 2019, Contra Costa County direct access electricity customers used 396, 805, 940 kWh of electricity, producing 74,130 MTCO₂e of emissions. Direct access electricity, supplied by an ESP to large nonresidential customers, is regulated by the California Public Utilities Commission. The identities of direct access customers and the specific ESPs from which they purchase electricity are not made available to the public. Given the County's limited ability to monitor and regulate the sale and use of direct access electricity, as well as historical inconsistencies in how direct access electricity use is reported, direct access emissions are reported for informational purposes only.

COUNTY OPERATIONS EMISSIONS

Sectors

The County operations inventory looks at GHG emissions from the following sectors:

- **Employee commute** includes GHG emissions from County employees commuting to and from work, as well as emissions associated with business travel.
- **Buildings and facilities** includes the electricity and natural gas use at County-owned facilities.
- **Government fleet** includes the fuel-use from County-owned vehicles.
- **Government-generated solid waste** includes the waste materials generated at County facilities.
- **Public lighting** includes the electricity use for publicly owned lights, including streetlights and traffic signals.
- **Water and wastewater** includes emissions associated with water use and wastewater generation at County facilities.
- **Refrigerants** includes the leaks of GHGs from air conditioning systems in County-owned vehicles and buildings.

County Operations Inventory Results

In 2006, Contra Costa County government operations emissions totaled 54,090 MTCO₂e for the sectors reported in this inventory, as shown in **Table B-14**. In 2017, County government operations GHG emissions were 43,380 MTCO₂e, a 20 percent decrease from 2006 levels. This decrease is primarily the result of reductions in energy use, reductions in County fleet emissions, and reductions in employee waste disposal. The 2017 inventory also includes emissions from wastewater treatment and refrigerants, which were not included in the 2006 inventory.

TABLE B-14: 2006 BASELINE AND 2017 COUNTY-OPERATIONS GHG EMISSIONS SUMMARY

| SECTOR | 2006 GHG EMISSIONS (MTCO ₂ E) | 2017 GHG EMISSIONS (MTCO ₂ E) | PERCENT AGE CHANGE |
|----------------------------------|---|---|-------------------------------|
| Employee commute | 23,530 | 25,800 | 10% |
| Buildings and facilities | 19,260 | 12,500 | -35% |
| Government fleet | 8,500 | 3,430 | -60% |
| Government-generated solid waste | 1,980 | 900 | -54% |
| Public lighting | 830 | 440 | -47% |
| Water and wastewater | Not included | 220 | — |
| Refrigerants | Not included | 90 | — |
| Total | 54,090 | 43,380 | -20% |

These inventories assume 8,420 County employees in 2006 and 10,030 employees in 2017, a 19% increase.

Note: All numbers are rounded to the nearest 10. Totals may not add up to the sum of individual rows due to rounding.

COUNTY OPERATIONS GHG INVENTORY RESULTS BY SECTOR

Employee Commute and Travel

Tables B-15 and **B-16** summarize changes in 2006 and 2017 related to employee commute activities.

TABLE B-15: 2006 BASELINE AND 2017 EMPLOYEE COMMUTE AND TRAVEL EMISSIONS

| ACTIVITY/SOURCE | 2006 MTCO ₂ E | 2017 MTCO ₂ E | PERCENT AGE CHANGE |
|------------------|--------------------------|--------------------------|-------------------------------|
| Employee commute | 23,530 | 25,800 | 10% |



TABLE B-16: 2017 EMPLOYEE COMMUTE ACTIVITY DATA AND GHG EMISSIONS

| ACTIVITY/SOURCE | ACTIVITY DATA | UNITS | GHG EMISSIONS (MTCO ₂ E) | PERCENTAGE |
|------------------------------------|-------------------|-----------------|-------------------------------------|--------------|
| Driving alone (gas) | 77,173,500 | Vehicle miles | 24,600 | 95% |
| Driving alone (electric) | 4,494,570 | Vehicle miles | 0 | 0% |
| Carpool | 1,155,500 | Passenger miles | 350 | 1% |
| Transit (BART, bus) | 641,830 | Passenger miles | 100 | Less than 1% |
| Motorcycle | 425,050 | Vehicle miles | 749 | 3% |
| Active transportation (walk, bike) | 66,590 | Miles | 0 | 0% |
| Telecommute | 88,816 | Miles | 0 | 0% |
| Total | 84,045,860 | Miles | 25,800 | 100% |

Note: All numbers are rounded to the nearest 10. Totals may not add up to the sum of individual rows due to rounding.

Although employees' personal commute is not under the direct operational control of the County, there are a variety of tools and resources available to influence employees' commute patterns. For this reason, emissions are included in this inventory. Employee commute accounted for in the emissions inventory includes business travel; travel via personal vehicles; carpool; alternative transportation methods, including biking and walking; air travel; and public transit.

In 2017, County employees' commute to work contributed to 25,795 MTCO₂e. This is a 10 percent increase in GHG emissions from the 23,530 MTCO₂e reported in 2006. Over the years, there was an increase in the number of employees from 8,420 to 10,030 between 2006 and 2017. Commute emissions reflect increased vehicle fuel efficiency, although changes in the number of employees and increases in commute distance balance that out.

Buildings and Facilities

The buildings and facilities sector includes electricity and natural gas use at County-owned and operated buildings and facilities. Emissions from this sector totaled 19,210 MTCO₂e in 2006 and 12,500 MTCO₂e in 2017 (see **Table B-17**), a 35 percent decrease.



TABLE B-17: 2006 BASELINE AND 2017 BUILDINGS AND FACILITIES ENERGY USE EMISSIONS

| SUBSECTOR | 2006 MTCO ₂ E | 2017 MTCO ₂ E | PERCENT AGE CHANGE |
|--|--------------------------|--------------------------|-------------------------------|
| Buildings and facilities – natural gas | 11,360 | 6,300 | -44% |
| Buildings and facilities – electricity | 7,670 | 6,200 | -19% |
| Total | 19,030 | 12,500 | -35% |

Note: All numbers are rounded to the nearest 10. Totals may not add up to the sum of individual rows due to rounding.

Government (County) Fleet

The vehicles and equipment used in the County's daily operations burn gasoline, diesel, propane, and compressed natural gas fuel, resulting in the emission of GHGs.

Contra Costa's 2017 vehicle fleet emissions totaled 3,430 MTCO₂e (see **Table B-18**). This is a 59-percent decrease in GHG emissions from the 8,500 MTCO₂e in the 2006 inventory. This is primarily the result of a decrease in on-road vehicle miles traveled and an increase in fuel efficiency between inventory years.

TABLE B-18: 2006 BASELINE AND 2017 VEHICLE FLEET EMISSIONS

| SECTOR | 2006 MTCO ₂ E | 2017 MTCO ₂ E | PERCENT AGE CHANGE |
|------------------|--------------------------|--------------------------|-------------------------------|
| Government fleet | 8,500 | 3,430 | -59% |

Solid Waste

County operations generates solid waste during normal activity, much of which is eventually landfilled. Emissions from this sector are estimates of methane generation that will result in future years from the waste that was sent to the landfill in the inventory year. Solid waste generated by County employees contributed to a total of 900 MTCO₂e in year 2017 (see **Table B-19**). Solid waste collected from County operations saw a reduction of 54 percent in emissions since the 2006 baseline, where this sector contributed to 1,980 MTCO₂e.

TABLE B-19: 2006 BASELINE AND 2017 GOVERNMENT-GENERATED SOLID WASTE

| SECTOR | 2006 MTCO ₂ E | 2017 MTCO ₂ E | PERCENT AGE CHANGE |
|----------------------------------|--------------------------|--------------------------|-------------------------------|
| Government-generated solid waste | 1,980 | 900 | -54% |

Public Lighting

Emissions from public lighting owned by the County, such as streetlights, totaled 440 MTCO₂e in 2017 (see **Table B-20**). This is a 47-percent decrease from the 830 MTCO₂e reported in 2006.

TABLE B-20: 2006 BASELINE AND 2017 PUBLIC LIGHTING

| SECTOR | 2006 MTCO ₂ E | 2017 MTCO ₂ E | PERCENT AGE CHANGE |
|-----------------|--------------------------|--------------------------|-------------------------------|
| Public lighting | 830 | 440 | -47% |

Water and Wastewater

The water and wastewater treatment sector includes the emissions generated by the electricity needed to move and process the water used and the wastewater generated by County government facilities (indirect water and wastewater), along with direct emissions caused by the processing of County-generated wastewater. Water use and wastewater generation at County facilities generated a total of 220 MTCO₂e in 2017 (see **Table B-21**). The water and wastewater sector was not included in the 2006 baseline inventory.

TABLE B-21: 2006 BASELINE AND 2017 WASTEWATER TREATMENT

| SECTOR | 2006 MTCO ₂ E | 2017 MTCO ₂ E |
|---|--------------------------|--------------------------|
| Indirect Water | Not included | 180 |
| Indirect Wastewater | Not included | 20 |
| Direct Wastewater | Not included | 20 |
| Total | Not included | 240 |
| Note: All numbers are rounded to the nearest 10. Totals may not add up to the sum of individual rows due to rounding. | | |

Refrigerants

Vehicles and buildings with air conditioning use refrigerants that can leak from engines and appliances during normal operation and maintenance. These refrigerants are often GHGs that trap a very large amount of heat per unit of gas, known as gases with a very high global warming potential (GWP). Emissions from refrigerant leaks were accounted for in the 2017 GHG emissions inventory for County government operations. This sector was not included in the 2006 baseline inventory.

Refrigerant emissions contributed to 90 MTCO₂e in 2017 (see **Table B-22**).



TABLE B-22: 2006 BASELINE AND 2017 REFRIGERANTS

| SECTOR | 2006 MTCO ₂ E | 2017 MTCO ₂ E |
|--------------|--------------------------|--------------------------|
| Refrigerants | Not included | 90 |

CONSUMPTION-BASED INVENTORY EMISSIONS

As discussed in Chapter 3, the consumption-based inventory accounts for GHG emissions created by the goods and services used by community members of the unincorporated county, including residents, businesses, and employees. A consumption-based inventory assesses emissions associated with the manufacture, transportation, and disposal of these goods and services, regardless of where they occur.

In 2015, BAAQMD worked with the Cool Climate Network at the University of California, Berkeley, to prepare a consumption-based inventory for all Bay Area jurisdictions. This inventory includes GHG emissions from the following sources:

- **Travel:** GHG emissions from fuel use by on-road vehicles, vehicle manufacturing and repairs, public transportation, and air travel.
- **Housing:** GHG emissions from electricity and natural gas use in homes as well as other fuels associated with home heating (such as kerosene or fuel oil), electricity emissions from water and wastewater activities, and waste emissions. This category also includes emissions from the manufacture, transportation, and construction and demolition of materials used to construct houses.
- **Food:** GHG emissions from the growth, processing/manufacturing, and transportation of food products.
- **Goods:** GHG emissions from the manufacture, transportation, and disposal of consumer products, such as home furnishings, appliances and electronics, clothing, and healthcare and personal items.
- **Services:** GHG emissions from personal and business services, including entertainment and recreation, communication, education, healthcare, and maintenance and repair activities.

Some of these GHG emission sources are also included in the production-based inventory prepared as part of the 2024 CAP, and others are covered by either the production-based or consumption-based inventory but not both. **Table B-23** compares the sources of GHG



emissions in the 2024 CAAP production-based inventory and the BAAQMD/Cool Climate Network consumption-based inventory.

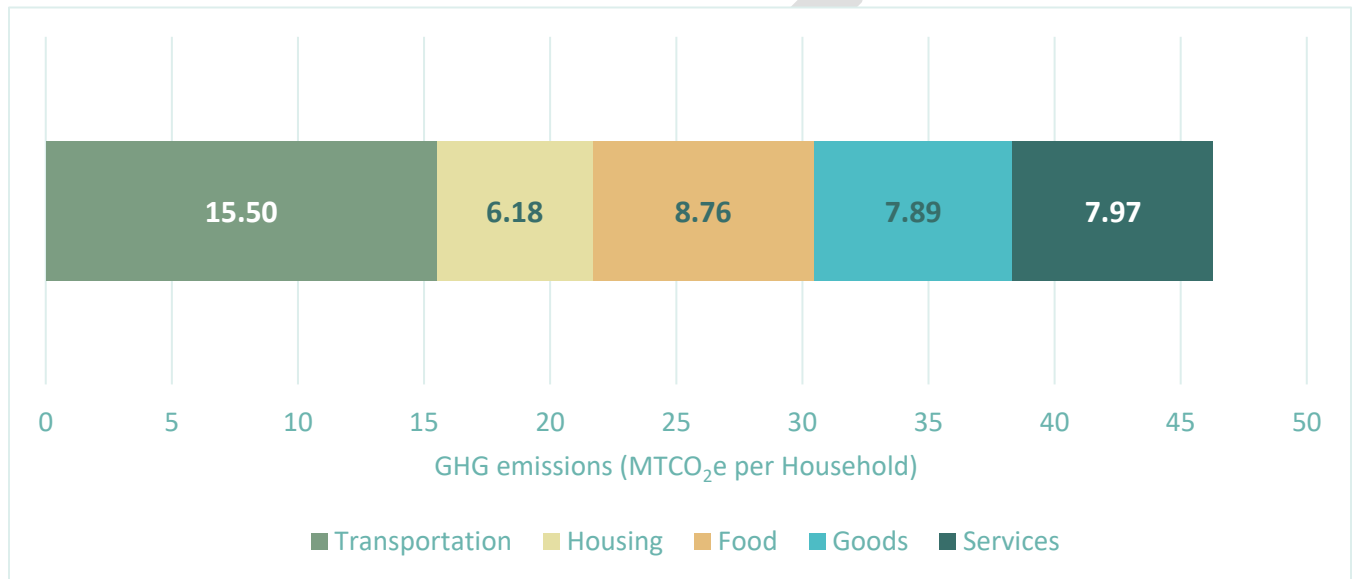
TABLE B-23 COMPARISON OF SOURCES IN PRODUCTION-BASED AND CONSUMPTION-BASED GHG EMISSION INVENTORIES

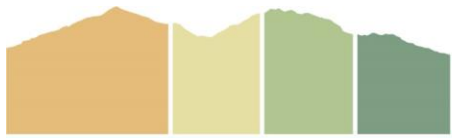
| SOURCE OF EMISSIONS | PRODUCTION-BASED CAAP INVENTORY | BAAQMD/COOL CLIMATE NETWORK CONSUMPTION- BASED INVENTORY |
|--|------------------------------------|--|
| Generation of electricity used | Included | Included |
| Combustion of natural gas used | Included | Included |
| Combustion of other home heating fuels used | Not included | Included |
| Fuel use from on-road vehicles | Included | Included |
| Fuel use from public transportation | Included | Included |
| Electricity use from BART | Included | Included |
| Vehicle manufacturing and repairs | Partially included* | Included |
| Air travel | Not included | Included |
| Fuel use from off-road equipment, including construction and landscaping equipment | Included | Not included |
| Generation of electricity used for water processing and transportation | Included | Included |
| Generation of electricity used for wastewater processing and transportation | Included | Unknown† |
| Direct wastewater process emissions | Included | Not included |
| Landfilling of solid waste | Included | Included |
| Reprocessing of recyclables | Partially included* | Included |
| Compost processing | Partially included* | Included |
| Manufacturing of home-construction materials | Partially included* | Included |
| Food growth, processing, production, and transportation | Partially included* | Included |
| Carbon sequestration in forests and street trees | Included | Not included |
| Other embedded emissions in goods and services | Not included | Included |
| <p>Note: Due to differences in data sources and analysis methods, the same source of emissions in both inventories may produce different results.</p> <p>* Emissions from energy use, water use, and waste generation associated with these activities are included in the 2024 CAAP Update inventory if these activities occur in Contra Costa County. Emissions from these activities outside of Contra Costa County and other emissions associated with these activities in Contra Costa County are not included in the 2024 CAAP inventory.</p> <p>† Emissions from these activities are not explicitly called out in the BAAQMD/Cool Climate Network consumption-based inventory but may be included in the total electricity use category.</p> <p>Due to differences in data sources and analysis methods, the same source of emissions in both inventories may produce different results.</p> | | |



According to the consumption-based inventory, transportation is responsible for 15.5 MTCO₂e per household, or 34 percent of emissions produced by activities conducted and goods consumed ~~within unincorporated~~ Contra Costa County. Food is responsible for 8.79 MTCO₂e per household (19 percent), goods and services for 7.89 MTCO₂e per household and 7.97 MTCO₂e per household, respectively (17 percent each), and housing for 6.18 MTCO₂e per household or 13 percent (see **Figure B-1**).

FIGURE B-1. CONSUMPTION-BASED INVENTORY RESULTS





Community-Wide Forecast

The forecast of community-wide GHG emissions for the unincorporated area is based on the results of the 2019 community GHG emissions inventory. The project team assumed growth in these emissions consistent with the anticipated growth in unincorporated Contra Costa County's future population, jobs, and development patterns, developed as part of the Envision Contra Costa buildout calculations. The project team forecast GHG emissions for the calendar years 2030 and 2045. The forecast is a "worst case" scenario that does not assume any efforts are taken, at any level, to reduce GHG emissions beyond the policies that are already in effect in 2019.

For many sectors, the GHG forecast assumes that each person in the unincorporated area will continue to contribute the same amount of GHG emissions as they did in 2019, so that the amount of GHG emissions increases proportionally to demographic growth. There are some sectors that are not projected this way:

- Transportation, which is projected using a regional traffic demand model based partially on demographics and partially on the location of various land uses.
- Agriculture, which is forecast using future land use projections for the amount of agricultural land in the unincorporated area.
- Land use and sequestration, which is forecast using future land use projections for developed land, forested land, and any agricultural and open space land that is developed.
- Within the off-road equipment sector, emissions from construction and mining equipment are projected using the rate of population and job growth, emissions from industrial equipment are projected using future land use projections for industrial land, and emissions from Transportation Refrigeration Units are projected using the proportion of county-wide road miles in the unincorporated area.

The forecast does not project any change in activity or GHG emissions for alternative home heating fuels (propane, kerosene, and wood), direct access electricity, cargo-handling equipment, or oil drilling equipment. Additionally, emissions for the two informational sectors (stationary sources and wildfires) are not forecasted, owing to their informational and substantial uncertainty in projecting future activities for these sectors. These GHG emissions do not have a demographic indicator that staff can use to reasonably project the volume of these emissions in the future, particularly given that they are informational



items and not included in the total community-wide emissions. **Table B-23** shows the demographic projections and their sources for the unincorporated area.

TABLE B-23: DEMOGRAPHIC PROJECTIONS, 2019 – 2045

| DEMOGRAPHIC | 2019 | 2030 | 2045 | PERCENTAGE CHANGE, 2019-2045 | SOURCE |
|--|---------|---------|---------|------------------------------------|---|
| Population | 174,150 | 199,360 | 239,720 | 38% | ABAG/MTC, Envision Contra Costa |
| Households | 60,320 | 69,210 | 83,500 | 38% | ABAG/MTC, Envision Contra Costa |
| Jobs | 38,760 | 42,480 | 48,150 | 24% | US Census Bureau, Envision Contra Costa |
| Service population* | 212,910 | 241,840 | 287,870 | 35% | ABAG/MTC, US Census Bureau, Envision Contra Costa |
| * Service population is the sum of population and jobs All numbers are rounded to the nearest 10. | | | | | |

Table B-24 shows unincorporated Contra Costa County's projected future GHG emissions relative to the 2019 inventory. Most sectors show an increase in GHG emissions due to the growing population. Agricultural emissions decrease because the amount of land use for agricultural purposes is projected to decline. Although the land use and sequestration sector is expected to remain a net carbon sink (negative emissions), the amount of emissions sequestered (removed from the atmosphere) by the activities in this sector are projected to decline. This is due to anticipated development of currently undeveloped land, removing the potential for this land to sequester carbon. Sequestration in forested and urbanized areas is projected to increase slightly.

TABLE B-24: ABSOLUTE BUSINESS-AS-USUAL GHG EMISSIONS FORECAST, 2019–2045

| SECTOR | 2019 MTCO ₂ E | 2030 MTCO ₂ E | 2045 MTCO ₂ E | PERCENTAGE CHANGE, 2019–2045 |
|---------------------------------------|--------------------------|--------------------------|--------------------------|------------------------------------|
| Transportation | 464,040 | 542,020 | 605,080 | 30% |
| Residential energy | 191,780 | 217,710 | 259,380 | 35% |
| Nonresidential energy | <u>85,590</u> | <u>93,590</u> | <u>106,070</u> | <u>24%</u> |
| Solid waste | 220,760 | 229,450 | 260,490 | 18% |
| Agriculture | 36,130 | 34,770 | 33,410 | -8% |
| Off-road equipment | 54,010 | 69,520 | 76,100 | 41% |
| Water and wastewater | 4,870 | 5,530 | 6,590 | 35% |
| BART | 190 | 220 | 260 | 37% |
| Land use and sequestration | -70,860 | -67,580 | -58,890 | -17% |
| Total Annual MTCO₂e | <u>986,310</u> | <u>1,125,230</u> | <u>1,288,490</u> | <u>31%</u> |

All values rounded to the nearest 10. Due to rounding, totals may not equal the sum of the individual values.

Quantification

STATE AND REGIONAL GHG EMISSION REDUCTIONS FROM EXISTING ACTIONS

California has adopted and is committed to implementing policies that reduce statewide GHG emissions, including those in Contra Costa County. Many of these policies are laid out in the Climate Change Scoping Plan (Scoping Plan), a state document that outlines regulatory and market-based solutions to achieving California’s GHG emission reduction goals. The Scoping Plan was first prepared in 2008, with successive updates in 2014, 2017, and 2022. These updates revised the state-level actions and identified additional opportunities for GHG emission reductions.

The Scoping Plan and related documents lay out several policies to reduce California’s GHG emissions, although not all are directly applicable to Contra Costa County. The project team has assessed Contra Costa County’s GHG emissions and identified five Sstate policies that are directly relevant to the community. This allows the 2024 CAAP to provide “credit” to Contra Costa County for these policies. These Sstate efforts are:

- **The Renewables Portfolio Standard (RPS)**, which requires increases in renewable and carbon-free electricity supplies. RPS was first established in 2002 and has been amended multiple times, most recently by SB 100 in 2018. It requires all electricity

providers in the state to obtain at least 33 percent of their electricity from eligible renewable resources by the end of 2020, 60 percent of their electricity from eligible renewable resources by the end of 2030, and all of their electricity from carbon-free (although not necessarily eligible renewable) resources by the end of 2045. This policy reduces GHG emission from electricity use, including electricity used to transport and process water and wastewater, and electricity used for electric vehicles.

- The Clean Car Standards**, which require increased fuel efficiency of on-road vehicles and decreased carbon intensity of vehicle fuels. In 2002, California adopted AB 1493, the New Passenger Motor Vehicle Greenhouse Gas Emission Standards or Pavley standard. It required a reduction in tailpipe GHG emissions from new vehicles produced from 2009 to 2015. In 2012 CARB adopted an extension of this policy, the Advanced Clean Car Standards, which requires more stringent reductions in tailpipe GHG emissions from vehicles produced from 2016 to 2025. The Clean Car Standards reduce GHG emissions from on-road transportation. In August 2022, CARB adopted another expansion of these standards, known as the Advanced Clean Cars II standards. This regulation requires that all new light-duty vehicles (e.g., passenger cars, small trucks, and SUVs) sold in the state to be zero-emission by 2035, with interim targets for new light-duty vehicle sales beginning in 2026. There are some limited exceptions for plug-in hybrid vehicles. CARB adopted similar rules for heavy-duty vehicles and state and local government fleets in 2020 (Advanced Clean Trucks) and 2023 (Advanced Clean Fleets). Advanced Clean Cars II and Advanced Clean Fleets are not included in the modeling used to assess GHG reductions from the Clean Car Standards. These GHG reductions are counted as part of the reductions associated with Strategy TR-2.
- The updated Title 24 building energy efficiency standards** require new buildings to achieve increased energy-efficiency targets. The latest version of these standards is set to go into effect January 1, 2023. California Code of Regulations, Title 24, Part 6 is California's energy efficiency standards for new and renovated buildings, applied at the local level through the project review and building permit process. The standards are strengthened every three years, with the ultimate goal of making new buildings net-zero energy, meaning that they would generate as much energy as they use. The most recent set of Title 24 standards went into effect on January 1, 2020. On August 11, 2021, the California Energy Commission (CEC) adopted the 2022 Title 24 standards. In December, it was approved by the California Building Standards Commission for inclusion into the California Building Standards Code. The 2022 Title 24 standards encourage efficient electric heat pumps, establish electric-ready requirements for new homes, expand solar photovoltaic and battery storage standards, and strengthen

ventilation standards. Buildings whose permit applications are applied for on or after January 1, 2023, must comply with the 2022 Title 24 standards.

- **The Low Carbon Fuel Standard (LCFS)** mandates reduced carbon intensity of fuels used in off-road equipment. The Low Carbon Fuel Standard was adopted in 2009 and required a 10 percent reduction in the carbon intensity of all transportation and equipment fuels by 2020. This policy reduces GHG emissions from on-road transportation and from off-road equipment. The LCFS has since been revised several times, most recently in 2020. The 2020 LCFS requires further reductions in carbon intensity of around 1.25 percent every year until 2030.
- **The Short-Lived Climate Pollutant Reduction Strategy**, also known as Senate Bill (SB) 1383, requires that communities divert 75 percent of organic waste (food scraps, grass, and plant trimmings, etc.) away from landfills and toward alternatives such as composting or energy generation. As a part of this requirement, all jurisdictions must offer curbside composting to single-family and small multifamily properties (less than five units). Larger multifamily properties and businesses must either participate in curbside composting or subscribe to self-haul organic waste to a composting program or collection site. SB 1383 also includes requirements related to diverting surplus food to people in need, increasing the use of products made from recycled organics, and providing more detailed reporting statistics.
- **Renewable Natural Gas** assumes that biomethane and renewable hydrogen fuels will be blended into the fossil gas pipeline and that, in the 2030s, dedicated hydrogen pipelines will be constructed to serve certain industrial clusters.

In addition to these five state-level policies, the County's default electricity provider, MCE, has also taken action to reduce the GHG emissions from the electricity it supplies to Contra Costa community members, beyond the minimum required by RPS. In 2019, MCE electricity was approximately 60 percent renewable and 90 percent carbon-free. In 2023, MCE sourced over 95 percent of its electricity from carbon-free sources. Since MCE supplies more electricity from carbon-free sources than RPS requires it to, the County can receive "credit" for the GHG reductions that result from going beyond the State minimum. The County also enacted an all-electric reach code (suspended in February 2024), which required many types of new buildings to be built using only electricity, not use natural gas, thereby reducing GHG emissions associated with residential and nonresidential energy. The County is developing a new ordinance that will support high levels of energy efficiency and low levels of GHG emissions for new construction. This ordinance is expected to take



effect on January 1, 2025, and will be updated during future revisions to the Building Standards Code.

Overall, these existing policies are expected to reduce Contra Costa County's future GHG emissions. Without these policies in place, community-wide GHG emissions in the unincorporated area are expected to be approximately 1,300,320 MTCO₂e by 2045, or 289 percent above 2019 levels. With these policies enacted, community-wide GHG absolute emissions in the unincorporated area are projected to be approximately 874,420~~36,100~~ MTCO₂e by 2045, or 187 percent below 2019 levels. **Table B-25** shows the absolute reductions achieved by these policies.

TABLE B-25: GHG EMISSION REDUCTIONS FROM EXISTING AND PLANNED STATE, REGIONAL, AND LOCAL ACTIONS (2019–2045)

| | 2019 | 2030 | 2045 | PERCENTAGE CHANGE, 2019–2045 |
|--|----------------|------------------|------------------|------------------------------------|
| Forecast emissions without state and regional actions | <u>986,310</u> | <u>1,125,230</u> | <u>1,288,490</u> | <u>31%</u> |
| Reductions from RPS | - | -24,620 | -115,400 | - |
| Reductions from Clean Car standards | - | -110,250 | -214,120 | - |
| Reductions from Title 24 | - | <u>-9,880</u> | <u>31,600</u> | - |
| Reductions from LCFS (off-road only)* | - | -740 | 7,430 | - |
| Reductions from SB 1383 | - | -21,880 | -53,870 | - |
| Reductions from renewable natural gas | | <u>-18,460</u> | <u>-78,050</u> | |
| Reductions from MCE clean energy procurement | - | -1,240 | - | - |
| <u>Reductions from all-electric reach code (suspended February 2024)</u> | - | <u>-3,150</u> | <u>-2,590</u> | - |
| Reductions from all <u>existing and planned state and regional</u> actions | - | <u>-188,740</u> | <u>-488,200</u> | - |
| Emissions with <u>all existing and planned state and regional</u> actions | <u>986,310</u> | <u>957,470</u> | <u>874,420</u> | <u>-11%</u> |
| Note: All numbers are rounded to the nearest 10. Due to rounding, totals may not equal the sum of the individual values. | | | | |
| * Due to the methods used in the forecast and assessment of state GHG reduction potential, future projections for off-road equipment GHG emissions are higher than forecast above. | | | | |

TECHNICAL DATA FOR GHG REDUCTION STRATEGIES

This section discusses the data sources, methods, and assumptions for the quantification of the GHG-reduction strategies included in the Contra Costa County 2024 CAAP. In addition to the sources presented here, these calculations also rely on the GHG inventory and forecast. These calculations rely on emission factors that reflect the reductions already achieved by the existing actions discussed in the previous section. **Table B-26** shows these emission factors.

TABLE B-26: EMISSION FACTORS WITH EXISTING ACTIONS (2019–2045)

| ACTIVITY TYPE | UNITS | 2019 | 2030 | 2045 |
|-----------------------------|-------------------------------------|----------|----------|----------|
| Electricity (PG&E) | MTCO ₂ e/kWh | 0.000108 | 0.000077 | 0.000000 |
| Electricity (MCE) | MTCO ₂ e/kWh | 0.000045 | 0.000044 | 0.000000 |
| Electricity (direct access) | MTCO ₂ e/kWh | 0.000187 | 0.000134 | 0.000000 |
| Electricity (PG&E and MCE) | MTCO ₂ e/kWh | 0.000054 | 0.000047 | 0.000000 |
| Natural gas | MTCO ₂ e/Therms | 0.005310 | 0.005311 | 0.005310 |
| Propane | MTCO ₂ e/Gallons | 0.005845 | 0.005845 | 0.005845 |
| Kerosene | MTCO ₂ e/Gallons | 0.010417 | 0.010417 | 0.010417 |
| Wood | MTCO ₂ e/MMBTU | 0.095664 | 0.095664 | 0.095664 |
| On-road transportation | MTCO ₂ e/VMT | 0.000408 | 0.000325 | 0.000408 |
| Solid waste (MSW) | MTCO ₂ e/Tons | 0.261659 | 0.261678 | 0.261676 |
| Solid waste (ADC) | MTCO ₂ e/Tons | 0.245383 | 0.245132 | 0.245854 |
| Solid waste (combined) | MTCO ₂ e/Tons | 0.004628 | 0.003958 | 0.260191 |
| BART | MTCO ₂ e/Passenger miles | 0.000013 | 0.000008 | 0.000013 |

For each strategy, this appendix discusses the following items:

- The savings in activity data (e.g., kWh of electricity or tons of solid waste) in 2030 and 2045 resulting from implementing the strategy as described. A negative value indicates an increase in activity data.
- The decreases in GHG emissions in 2030 and 2045 resulting from implementing the strategy as described.
- The assumptions made about the strategy's performance, such as the level of community participation required to achieve the specified reductions by 2030 and 2045.
- The performance targets, which are quantifiable metrics about the projected level of success the strategy must meet to achieve the specified reductions by 2030 and 2045.

- Sources: Key studies, analyses, and other sources of data used to inform the quantification. This does not include the GHG inventory, forecast, or other technical analyses prepared as part of the 2024 CAAP or the 2045 Contra Costa General Plan.

CLEAN AND EFFICIENT BUILT ENVIRONMENT

Strategy BE-1: Require and incentivize new buildings and additions built in unincorporated Contra Costa County to be low-carbon or carbon neutral.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|------------------------------|-------------------|-------------------|
| Natural gas savings (therms) | <u>889,870</u> | <u>2,754,380</u> |
| Electricity savings (kWh) | <u>-1,198,930</u> | <u>-6,086,080</u> |

GHG SAVINGS

| | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | <u>4,340</u> | <u>10,970</u> |

KEY ASSUMPTIONS

| | 2030 | 2045 |
|---|-------------|-------------|
| Cumulative percentage of residential new construction <u>influenced by EDR code (once implemented)</u> built to be all-electric | 95% | 95% |
| Cumulative percentage of new <u>eligible nonresidential office</u> construction <u>influenced by EDR code (once implemented)</u> built to be all-electric | <u>95%</u> | 95% |
| Cumulative percentage of new <u>nonresidential buildings eligible for EDR code</u> non-office commercial construction built to be all-electric | <u>50%</u> | <u>50%</u> |
| <u>Year EDR reach code is first implemented</u> Cumulative % new non-residential buildings that are office space: | <u>2025</u> | <u>2025</u> |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|--|------------|------------|
| Number of new <u>EDR-compliant all-electric</u> residential units | 8,450 | 22,020 |
| Number of new <u>EDR-compliant all-electric</u> commercial buildings | <u>140</u> | <u>360</u> |



SOURCES

American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE). 2015. "ASHRAE Technical FAQ".

California Energy Commission. 2006. 2006 California Commercial End-Use Survey (CEUS). <https://www.energy.ca.gov/data-reports/surveys/california-commercial-end-use-survey/2006-california-commercial-end-use-survey>.

Frontier Energy, Inc, Misti Bruceri & Associates, LLC. 2023. "2022 Cost-Effectiveness Study: Single Family New Construction."

Frontier Energy, Inc, Misti Bruceri & Associates, LLC. 2023. "2022 Cost-Effectiveness Study: Multifamily New Construction."

Goyal, A., Farahmand, F., TRC Companies, Inc. 2023. "Nonresidential New Construction Reach Code Cost-effectiveness Study."

Greenblatt, J.B. 2015. "Modeling California policy impacts on greenhouse gas emissions." <https://eta-publications.lbl.gov/sites/default/files/lbnl-7008e.pdf>.

Strategy BE-2: Retrofit existing buildings and facilities in the unincorporated County, and County infrastructure, to reduce energy use and convert to low-carbon or carbon-neutral-free fuels.

In March 2023, BAAQMD adopted amendments to Regulation 9, Rules 4 and 6. These revisions require that, when existing natural-gas-powered space heaters and water heaters reach the end of their operational life, they be replaced with electric-powered models. These requirements are scheduled to take effect in 2027 to 2031 for water heaters (depending on the capacity of the unit) and in 2029 for space heaters.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|---|--------------------|--------------------|
| Electricity savings (kWh) – With BAAQMD rule | <u>100,583,970</u> | <u>190,187,380</u> |
| Natural gas savings (therms) – With BAAQMD rule | <u>6,596,190</u> | <u>16,882,720</u> |
| Propane savings (gallons) – With BAAQMD rule | <u>130,620</u> | <u>344,450</u> |
| Gallons kerosene | 2,090 | 5,500 |
| MMBTU wood | 13,010 | 34,300 |

GHG SAVINGS

| WITH BAAQMD RULE | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | <u>55,990</u> | <u>156,150</u> |

KEY ASSUMPTIONS

| | 2030 | 2045 |
|--|----------------------|------------|
| Percentage of existing homes conducting standard retrofits | 20% | 40% |
| Percentage of existing homes upgrading to Title 24 Standards | 20% | 40% |
| Percentage of existing mobile homes conducting standard retrofits | 30% | 60% |
| Percentage of businesses conducting standard retrofits (not including fuel switching) | 15% | 25% |
| Percentage of businesses retrofitting to current Title 24 standards (not including fuel switching) | 15% | 25% |
| <u>Cumulative percentage of homes electrifying water heaters (BAAQMD compliance)</u> | <u>15%</u> | <u>85%</u> |
| <u>Cumulative percentage of homes electrifying space heaters (BAAQMD compliance)</u> | <u>10%</u> | <u>90%</u> |
| <u>Cumulative percentage of businesses electrifying water heaters (BAAQMD compliance)</u> | <u>Less than 10%</u> | <u>70%</u> |
| <u>Cumulative percentage of businesses electrifying space heaters (BAAQMD compliance)</u> | <u>5%</u> | <u>90%</u> |
| <u>Percentage of commercial buildings covered by BAAQMD rules</u> | <u>50%</u> | <u>50%</u> |
| <u>Cumulative percentage of homes electrifying cooking appliances</u> | <u>5%</u> | <u>65%</u> |
| <u>Cumulative percentage of homes electrifying clothes drying appliances</u> | <u>10%</u> | <u>80%</u> |
| <u>Cumulative percentage of businesses electrifying cooking appliances</u> | <u>5%</u> | <u>60%</u> |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|---|--------|--------|
| Number of housing units undergoing energy efficiency retrofits | 14,160 | 28,310 |
| Number of housing units <u>renovated brought up</u> to current Title 24 energy efficiency standards | 13,210 | 26,430 |
| Number of commercial buildings undergoing energy efficiency retrofits | 490 | 820 |
| Number of commercial buildings- brought up <u>renovated</u> to current Title 24 energy efficiency standards | 490 | 820 |

SOURCES

~~American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE). 2015. "ASHRAE Technical FAQ".~~



California Energy Commission. 2006. *2006 California Commercial End-Use Survey (CEUS)*. <https://www.energy.ca.gov/datab-reports/surveys/californiB-commercial-end-use-survey/2006-californiB-commercial-end-use-survey>.

California Energy Commission. 2014. *Impact Evaluation of the California Comprehensive Residential Retrofit Programs*.

California Energy Commission. 2021. *2019 California Residential Appliance Saturation Study (RASS)*. <https://www.energy.ca.gov/datab-reports/surveys/2019-residential-appliance-saturation-study>.

California Public Utilities Commission. 2017. *Final Report: 2015 Home Upgrade Program Impact Evaluation*.

https://www.calmac.org/publications/RES_5.1_HUP_FINAL_REPORT_ATR_06-30-17.pdf.

Martin, E. Sutherland, K., Parker, D. 2016. "Measured Performance of Heat Pump Clothes Dryers." https://www.aceee.org/files/proceedings/2016/data/papers/1_160.pdf.

Pacific Northwest National Laboratory. 2011. "Advanced Energy Retrofit Guides: Office Buildings." https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-20761.pdf.

Pacific Northwest National Laboratory. 2011. "Advanced Energy Retrofit Guides: Retail Buildings." https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-20814.pdf.

US Department of Energy. n.d. "Energy-Efficient Manufactured Homes." <https://www.energy.gov/energysaver/energy-efficient-manufactured-homes>.

Strategy BE-3: Increase the amount of electricity used and generated from renewable sources in the county.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|---------------------------|-------------|-------------|
| Electricity savings (kWh) | 114,969,980 | 271,666,080 |

GHG SAVINGS

| | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | 10,8320 | 0 |



KEY ASSUMPTIONS

| | 2030 | 2045 |
|---|------|------|
| Percentage of existing homes installing solar energy systems | 15% | 35% |
| Percentage of existing homes with solar energy systems and installing battery storage systems | 20% | 50% |
| Percentage of new homes installing battery storage systems | 40% | 60% |
| Percentage of existing businesses installing solar energy systems | 3% | 11% |
| Percentage of existing businesses with solar energy systems and battery storage systems | 15% | 45% |
| Percentage of residents enrolling in MCE | 90% | 90% |
| Percentage of businesses enrolling in MCE | 90% | 90% |
| Percentage of residents enrolling in 100% renewable tiers | 10% | 30% |
| Percentage of businesses enrolling in 100% renewable tiers | 5% | 20% |
| Percentage of direct access customers switching to MCE | 5% | 10% |

PERFORMANCE TARGETS

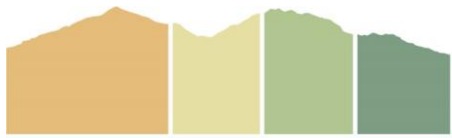
| | 2030 | 2045 |
|--|-------------|-------------|
| Residential solar systems installed | 9,190 | 23,030 |
| Residential battery systems installed | 5,330 | 0 |
| Nonresidential solar systems installed | 30 | 290 |
| Nonresidential battery systems installed | 10 | 0 |
| Residential electricity supplied by MCE (kWh) | 272,202,760 | 292,636,220 |
| Residential electricity provided at Deep Green tier (kWh) | 25,842,700 | 83,347,910 |
| Nonresidential electricity provided by MCE (kWh) | 219,413,250 | 220,477,040 |
| Nonresidential electricity provided at Deep Green tier (kWh) | 10,533,730 | 42,339,190 |

SOURCES

California Distributed Generation Statistics. 2021. Interconnected Project Sites, 2021-09-30 [data set]. https://www.californiadgstats.ca.gov/archives/interconnection_rule21_projects/.

MCE. 2020. *Operational Integrated Resource Plan, 2021- 2030*. https://www.mcecleanenergy.org/wp-content/uploads/2020/10/MCE-Operational-Integrated-Resource-Plan_2021.pdf.

National Renewable Energy Laboratory. n.d. "PVWatts". <https://pvwatts.nrel.gov/>.



NO WASTE CONTRA COSTA

Strategy NW-1: Increase composting of organic waste.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|----------------------|-------|-------|
| Waste savings (tons) | 5,580 | 9,190 |

GHG SAVINGS

| | 2030 MTCO ₂ e | 2045 MTCO ₂ e |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | 2,240 | 4,000 |

KEY ASSUMPTIONS

| | 2030 | 2045 |
|--------------------------------|------|------|
| Current compost diversion rate | 77% | 77% |
| Target compost diversion rate | 90% | 95% |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|--|--------|--------|
| Number of households with composting service | 62,290 | 79,330 |
| Number of businesses with composting service | 2,930 | 3,510 |

SOURCES

California Air Resources Board. 2011. Landfill Methane Emissions Tool [data table].

<https://ww2.arb.ca.gov/resources/documents/landfill-methane-emissions-tool>.

California Department of Resources Recycling and Recovery. 2019. "Residential Waste Stream by Material Type".

<https://www2.calrecycle.ca.gov/WasteCharacterization/ResidentialStreams?lg=7&cy=7>.

California Department of Resources Recycling and Recovery. 2019. "Waste Characterization Tool for California Jurisdictions". <https://www2.calrecycle.ca.gov/WasteCharacterization/>.

Contra Costa County. 2020. *Climate Action Plan Progress Report for 2020*.

<https://www.contracosta.ca.gov/AgendaCenter/ViewFile/Agenda/12142020-3083>.



Strategy NW-2: Reduce waste from County operations.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|----------------------|-------|-------|
| Waste savings (tons) | 2,630 | 3,510 |

GHG SAVINGS

| | 2030 MTCO ₂ e | 2045 MTCO ₂ e |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | 1,090 | 1,620 |

KEY ASSUMPTIONS

| | 2030 | 2045 |
|--|------|------|
| Target composting diversion rate for County activities | 85% | 95% |
| Target recycling diversion rate for County activities | 85% | 95% |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|--|-------|-------|
| Weekly average cubic yards of composted organics (uncompacted) | 1,050 | 1,140 |
| Weekly average cubic yards of recycled materials (uncompacted) | 270 | 300 |

SOURCES

California Air Resources Board. 2011. Landfill Methane Emissions Tool [data table].
<https://ww2.arb.ca.gov/resources/documents/landfill-methane-emissions-tool>.

California Department of Resources Recycling and Recovery. 2019. "Residential Waste Stream by Material Type."
<https://www2.calrecycle.ca.gov/WasteCharacterization/ResidentialStreams?lg=7&cy=7>.

California Department of Resources Recycling and Recovery. 2019. "Waste Characterization Tool for California Jurisdictions". <https://www2.calrecycle.ca.gov/WasteCharacterization/>.

Intergovernmental Panel on Climate Change. 2006. "2006 IPCC Guidelines for National Greenhouse Gas Inventories." <https://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>.



Strategy NW-3: Increase community-wide recycling and waste programs.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|----------------------|-------|--------|
| Waste savings (tons) | 5,560 | 16,770 |

GHG SAVINGS

| | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | 520 | 2,530 |

KEY ASSUMPTIONS

| | 2030 | 2045 |
|--|------|------|
| Target community diversion rate | 77% | 85% |
| Decrease in non-organic and non-recyclable waste tonnage | 20% | 50% |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|---|-------|--------|
| Reduction in landfilled recyclables (tons) | 0 | 1,280 |
| Decrease in non-compostable/recyclable tonnage (tons) | 5,560 | 15,490 |
| Pounds of waste per person per day | 2.08 | 1.85 |

SOURCES

California Air Resources Board. 2011. Landfill Methane Emissions Tool [data table].

<https://ww2.arb.ca.gov/resources/documents/landfill-methane-emissions-tool>.

California Department of Resources Recycling and Recovery. 2019. "Residential Waste Stream by Material Type".

<https://www2.calrecycle.ca.gov/WasteCharacterization/ResidentialStreams?lg=7&cy=7>.

California Department of Resources Recycling and Recovery. 2019. "Waste Characterization Tool for California Jurisdictions". <https://www2.calrecycle.ca.gov/WasteCharacterization/>.

United States Environmental Protection Agency. 2016. *Volume-to-Weight Conversion Factors*.

https://www.epa.gov/sites/default/files/2016-04/documents/volume_to_weight_conversion_factors_memorandum_04192016_508fnl.pdf.

Strategy NW-4: Reduce emissions from landfill gas.GHG SAVINGS

| | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|---|--------------------------|--------------------------|
| <u>GHG reduction (Absolute MTCO₂e)</u> | <u>57,460</u> | <u>61,410</u> |

KEY ASSUMPTIONS

| | 2030 | 2045 |
|---|------------|------------|
| <u>Current methane capture rate</u> | <u>75%</u> | <u>75%</u> |
| <u>Future methane capture rate (Keller and Acme only)</u> | <u>85%</u> | <u>85%</u> |
| <u>Decrease in flared landfill gas</u> | <u>15%</u> | <u>30%</u> |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|--|--------------|--------------|
| <u>Methane capture rate at Keller and Acme landfills</u> | <u>15%</u> | <u>30%</u> |
| <u>Tons of flared landfill gas</u> | <u>5,460</u> | <u>4,330</u> |

SOURCES

Contra Costa County Department of Conservation and Development. 2020. "Attachment 8: November 2020 Draft MND SCH #2020100267."

http://64.166.146.245/docs/2021/BOS/20210713_1776/46178_8%20November%202020%20Draft%20MND%20SCH%20%232020100267.pdf

REDUCE WATER USE AND INCREASE DROUGHT RESILIENCE

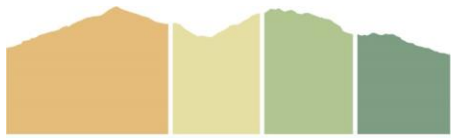
Strategy DR-1: Reduce indoor and outdoor water use.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|---------------------------|-----------|-----------|
| Electricity savings (kWh) | 1,436,210 | 2,560,780 |
| Water (MG) | 360 | 650 |

GHG SAVINGS

| | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | 970 | 1,440 |



KEY ASSUMPTIONS

| | 2030 | 2045 |
|---|------|------|
| Percentage of existing homes with graywater systems | 5% | 20% |
| Percentage of existing businesses with graywater systems | 2% | 10% |
| Percentage of existing homes retrofitting water fixtures | 60% | 90% |
| Percentage of existing businesses retrofitting water fixtures | 60% | 90% |
| Percentage of new homes with graywater systems | 10% | 35% |
| Percentage of new businesses with graywater systems | 5% | 20% |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|--|--------|--------|
| Number of residential graywater system installations | 3,910 | 20,180 |
| Number of commercial graywater systems installations | 70 | 440 |
| Number of nonresidential buildings receiving water efficiency upgrades | 1,790 | 2,680 |
| Number of residential buildings receiving water efficiency upgrades | 36,190 | 54,290 |

SOURCES

Environmental Protection Agency. 2009. "Water Efficiency in the Commercial and Institutional Sector: Considerations for a WaterSense Program."

<https://www.epa.gov/sites/default/files/2017-03/documents/ws-commercial-ci-whitepaper.pdf>

State of California, Natural Resources Agency, Department of Water Resources. 2014. "California Water Plan Update 2013."

State of California, Natural Resources Agency, Department of Water Resources. 2019. "California Water Plan Update 2018." <https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/CaliforniaB-Water-Plan/Docs/Update2018/Final/CaliforniaB-Water-Plan-Update-2018.pdf>

Water Research Foundation. 2016. "Residential End Uses of Water Study, Version 2: Executive Report."

Strategy DR-2: Ensure sustainable and diverse water supplies.

This is a supportive measure that does not result in direct measureable GHG emissions. There are no activity or GHG savings, assumptions, performance indicators, or sources associated with this measure.



CLEAN TRANSPORTATION NETWORK

Strategy TR-1: Improve the viability of walking, biking, zero-emission commuting, and using public transit for travel within, to, and from the county.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|------------------------------|------------|-------------|
| Vehicle Miles Traveled (VMT) | 52,447,950 | 153,067,310 |

GHG SAVINGS

| | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | 17,050 | 40,370 |

KEY ASSUMPTIONS

| | 2030 | 2045 |
|--|------|------|
| Miles of bicycle lanes | 45 | 132 |
| Average round trip length for bicycle trips (miles) | 2.1 | 2.1 |
| Is bike parking provided in most nonresidential locations? | Yes | Yes |
| Percentage increase in combined housing units/acre due to TOD | 15% | 63% |
| Percentage increase in jobs/acre due to TOD | 10% | 45% |
| Percentage increase in transit frequency | 5% | 15% |
| Level of implementation (increase in transit frequency) | 10% | 25% |
| Percentage increase in transit service miles | 5% | 15% |
| Percentage of employers participating in TDM | 5% | 20% |
| Average trip reduction from voluntary TDM participation | 15% | 45% |
| Percentage of county with expanded sidewalks | 5% | 15% |
| Change in percentage of households that have access to electric bike sharing | 5% | 9% |
| Percentage of multifamily units permanently designated as affordable | 5% | 15% |
| Percentage of transit routes that receive supportive treatments | 1% | 2% |



PERFORMANCE TARGETS

| | 2030 | 2045 |
|--|------------|------------|
| Miles of bicycle lanes | 50 | 130 |
| Bicycle mode share | 1% | 1% |
| Bus ridership (commute share) | 5% | 15% |
| BART ridership (passenger miles) | 17,227,850 | 22,459,900 |
| VMT reduction from TDM programs | 1,705,370 | 25,757,280 |
| New affordable multifamily units | 70 | 540 |
| Percentage of transit routes that receive supportive treatments | 1% | 2% |
| Change in percentage of households that have access to electric bike sharing | 5% | 9% |

SOURCES

California Air Pollution Control Officers Association. 2010. "Quantifying Greenhouse Gas Mitigation Measures." <http://www.aqmd.gov/docs/default-source/ceqa/handbook/capcoB-quantifying-greenhouse-gas-mitigation-measures.pdf>.

Contra Costa Transportation Authority. 2018. "Contra Costa Countywide Bicycle Pedestrian Plan." <https://ccta.net/wp-content/uploads/2018/10/5b8ec26192756.pdf>.

US Census. "Contra Costa County 2019 ACS 5-Year Estimates, Table B08006."

Strategy TR-2: Increase the use of zero-emissions vehicles. Transition to a zero-emission County fleet by 2035 and a community fleet that is at least 50 percent zero-emission by 2030.

ACTIVITY DATA SAVINGS

| ACTIVITY DATA TYPE | 2030 | 2045 |
|------------------------|--------------|--------------|
| Electricity used (kWh) | -111,003,180 | -260,019,140 |
| Natural gas (gallons) | 2,760 | 5,450 |
| Diesel (gallons) | 530,690 | 1,353,420 |
| VMT | 14,260 | 14,260 |

GHG SAVINGS

| | 2030 MTCO ₂ E | 2045 MTCO ₂ E |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | 148,000 | 343,890 |



KEY ASSUMPTIONS

| | 2030 | 2045 |
|---|------|------|
| Percentage of eCounty vehicles that are zero-emission | 80% | 95% |
| Percentage of community fleet that is zero-emission (light-duty) | 35% | 85% |
| Target percentage of total community TNC VMT from electric vehicles | 75% | 90% |
| Percentage of community fleet that is zero-emission (heavy-duty) | 10% | 70% |
| Target percentage total commercial Natural Gas VMT replaced by biomethane | 2% | 5% |
| Target percentage total commercial Diesel VMT replaced by biomethane | 5% | 15% |
| Percentage of lawn and garden fuel use converted to electric | 30% | 80% |
| Percentage construction equipment fuel use converted to electric | 30% | 60% |
| Percentage other commercial fuel use converted to electric | 20% | 55% |
| Number of EVs in EV car sharing | 50 | 100 |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|---|-------------|--------------------|
| New VMT from electric vehicles, community-wide, <u>including municipal operations</u> | 325,676,160 | <u>968,702,100</u> |
| Reduction in municipal vehicle gasoline use (gallons) | 230,120 | 250,030 |
| New VMT from electric vehicles, TNC | 82,961,910 | 101,629,820 |
| Reduction in offroad gasoline use (gallons) | 2,113,740 | 0 |
| Reduction in offroad diesel use (gallons) | 3,625,240 | 0 |
| Increase in biomethane VMT | 3,003,670 | 8,050,840 |
| Number of EVs in car sharing | 50 | 100 |

SOURCES

California Air Pollution Control Officers Association. 2010. "Quantifying Greenhouse Gas Mitigation Measures." <http://www.aqmd.gov/docs/default-source/ceqa/handbook/capcoB-quantifying-greenhouse-gas-mitigation-measures.pdf>.

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DRAFT



RESILIENT COMMUNITIES AND NATURAL INFRASTRUCTURE

Strategy NI-4: Sequester carbon on natural and working lands in Contra Costa County.

ACTIVITY DATA SAVINGS

There are no activity data savings associated with this strategy.

GHG SAVINGS

| | 2030 MTCO ₂ e | 2045 MTCO ₂ e |
|--|--------------------------|--------------------------|
| GHG reduction (Absolute MTCO ₂ e) | 22,630 | 88,910 |

KEY ASSUMPTIONS

| | 2030 | 2045 |
|--|------|------|
| Percentage of irrigated crops with seasonal cover crops | 15% | 35% |
| Percentage of irrigated crops practicing mulching | 5% | 35% |
| Percentage of irrigated crops with compost application | 15% | 80% |
| Percentage of irrigated crops with field borders | 2% | 8% |
| Percentage of irrigated crops practicing alley cropping | 10% | 30% |
| Percentage of irrigated crops with conservation crop rotation | 25% | 50% |
| Percentage of irrigated crops practicing reduced tillage | 15% | 35% |
| Percentage of irrigated crops practicing no tillage | 5% | 10% |
| Percentage of orchards/vineyards with seasonal cover crops | 5% | 25% |
| Percentage of orchards/vineyards practicing mulching | 5% | 25% |
| Percentage of orchards/vineyards with compost application | 15% | 80% |
| Percentage of orchards/vineyards with windbreaks | 0% | 2% |
| Percentage of orchards with reduced tilling | 10% | 35% |
| Percentage of vineyards with reduced tilling | 10% | 35% |
| Percentage of pastures and rangeland with compost application | 5% | 15% |
| Percentage of pastures and rangeland with prescribed grazing | 15% | 40% |
| Percentage of pastures and rangeland practicing oak restoration | 1% | 5% |
| Percentage of pastures and rangeland practicing riparian restoration | 0% | 1.2% |
| Percentage of rangeland with range planting | 2% | 10% |
| Percentage of grasslands with native grass restoration | 2% | 10% |
| Percentage of forested areas undergoing annual fuel reduction | 5% | 25% |

PERFORMANCE TARGETS

| | 2030 | 2045 |
|---|--------|--------|
| Acres of irrigated crops with seasonal cover crops | 3,770 | 8,130 |
| Acres of irrigated crops practicing mulching | 1,260 | 8,130 |
| Acres of irrigated crops with compost application | 3,770 | 18,590 |
| Acres of irrigated crops with field borders | 500 | 1,860 |
| Acres of irrigated crops converted due to alley cropping | 510 | 1,480 |
| Acres of irrigated crops with conservation crop rotation | 6,280 | 11,620 |
| Acres of irrigated crops practicing reduced tillage | 3,770 | 8,130 |
| Acres of irrigated crops practicing no tillage | 1,260 | 2,320 |
| Acres of orchards or vineyards with seasonal cover crops | 220 | 1,060 |
| Acres of orchards or vineyards practicing mulching | 220 | 1,060 |
| Acres of orchards or vineyards with compost application | 660 | 3,380 |
| Acres of orchards or vineyards with windbreaks | - | 80 |
| Acres of orchards with reduced tilling | 250 | 790 |
| Acres of vineyards with reduced tilling | 210 | 690 |
| Acres of pastures and rangeland with compost application | 7,430 | 21,430 |
| Acres of pastures and rangeland with prescribed grazing | 22,300 | 57,140 |
| Acres of pastures and rangeland practicing oak restoration | 1,490 | 7,140 |
| Acres of pastures and rangeland practicing riparian restoration | - | 1,710 |
| Acres of rangeland with range planting | 2,870 | 13,780 |
| Acres of grasslands with native grass restoration | 2,610 | 13,150 |
| Acres of forested areas undergoing annual fuel reduction | 3,030 | 15,250 |

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October 2024 | Final Environmental Impact Report
State Clearinghouse No. 2023090467

CONTRA COSTA COUNTY 2045
GENERAL PLAN AND CLIMATE
ACTION AND ADAPTATION PLAN:
CEQA FINDINGS OF FACT AND STATEMENT OF
OVERRIDING CONSIDERATIONS REGARDING THE
FINAL ENVIRONMENTAL IMPACT REPORT

County of Contra Costa

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**CEQA FINDINGS OF FACT
AND STATEMENT OF OVERRIDING CONSIDERATIONS
REGARDING THE
FINAL ENVIRONMENTAL IMPACT REPORT
FOR THE
CONTRA COSTA COUNTY 2045 GENERAL PLAN AND CLIMATE ACTION AND
ADAPTATION PLAN
STATE CLEARINGHOUSE NO. 2023090467**

I. INTRODUCTION

The California Environmental Quality Act (CEQA) requires that a number of written findings be made by the lead agency in connection with certification of an environmental impact report (EIR) prior to approval of the project pursuant to Sections 15091 and 15093 of the CEQA Guidelines and Section 21081 of the Public Resources Code. This document provides the findings required by CEQA. The potential environmental effects of the proposed Contra Costa County 2045 General Plan and Contra Costa County Climate Action and Adaptation Plan 2024 Update (CAAP) have been analyzed in a Draft Environmental Impact Report (DEIR) (State Clearinghouse [SCH] 2023090467) dated February 2024. A Final EIR has also been prepared that incorporates the DEIR and contains comments received on the DEIR, responses to the individual comments, revisions to the DEIR including any clarifications based on the comments and the responses to the comments. A Mitigation Monitoring and Reporting Program (MMRP) has also been prepared for the proposed project. This document provides the findings required by CEQA for approval of the proposed project.

A. Statutory Requirements for Findings

The CEQA (Pub. Res. Code §§ 21000, *et seq.*) and the State CEQA Guidelines (Guidelines) (14 Ca. Code Regs §§ 15000, *et seq.*) promulgated thereunder, require the environmental impacts of a project be examined before a project is approved. Specifically, regarding findings, Guidelines Section 15091 provides:

- (a) No public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding. The possible findings are:
 - 1. Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR.
 - 2. Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

3. Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.
- (b) The findings required by subsection (a) shall be supported by substantial evidence in the record.
 - (c) The finding in subdivision (a)(2) shall not be made if the agency making the finding has concurrent jurisdiction with another agency to deal with identified feasible mitigation measures or alternatives. The finding in subsection (a)(3) shall describe the specific reasons for rejecting identified mitigation measures and project alternatives.
 - (d) When making the findings required in subdivision (a)(1), the agency shall also adopt a program for reporting on or monitoring the changes which it has either required in the project or made a condition of approval to avoid or substantially lessen significant environmental effects. These measures must be fully enforceable through permit conditions, agreements, or other measures.
 - (e) The public agency shall specify the location and custodian of the documents or other material which constitute the record of the proceedings upon which its decision is based.
 - (f) A statement made pursuant to Section 15093 does not substitute for the findings required by this section.

The “changes or alterations” referred to in Section 15091(a)(1) above, that are required in, or incorporated into, the project which mitigate or avoid the significant environmental effects of the project, may include a wide variety of measures or actions as set forth in Guidelines Section 15370, including:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments, including through permanent protection of such resources in the form of conservation easements.

Regarding a Statement of Overriding Considerations, Guidelines Section 15093 provides:

- (a) CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of a proposed project against its unavoidable environmental risks when determining whether to approve the project. If the specific economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered “acceptable.”
- (b) When the lead agency approves a project which will result in the occurrence of significant effects which are identified in the final EIR but are not substantially lessened, the agency shall state in writing the specific reasons to support its action based on the final EIR and/or other information in the record. The statement of overriding considerations shall be supported by substantial evidence in the record.
- (c) If an agency makes a statement of overriding considerations, the statement should be included in the record of the project approval and should be mentioned in the notice of determination. This statement does not substitute for, and shall be in addition to, findings required pursuant to Section 15091.

B. Certification

Having received, reviewed, and considered the Final EIR for the Contra Costa County 2045 General Plan and CAAP, as well as other information in the record of proceedings on this matter, Contra Costa County Board of Supervisors adopts the following Findings of Fact and Statement of Overriding Considerations (Findings), in its capacity as the legislative body for Contra Costa County (County), which is the CEQA Lead Agency. The Findings set forth the environmental and other bases for current and subsequent discretionary actions to be undertaken by the County and responsible agencies for implementation of the proposed project.

In addition, pursuant to State CEQA Guidelines Section 15090, the Contra Costa County Board of Supervisors hereby certifies that:

- (1) The Final EIR has been completed in compliance with CEQA.
- (2) The Final EIR was reviewed and considered by the Board of Supervisors prior to project approval.
- (3) The Final EIR reflects the County’s independent analysis and judgement.

The findings required under California Public Resources Code Section 21081 and State CEQA Guidelines Section 15091 are set forth in Section III below.

C. Project Environmental Report and Discretionary Actions

The Final EIR addresses the direct, indirect, and cumulative environmental effects associated with the proposed project. The Final EIR provides the environmental information necessary for the County to make a final decision on adoption of the 2045 General Plan and CAAP. The Final EIR is also intended to support discretionary reviews and decisions by the County.

II. PROCEDURAL COMPLIANCE WITH CALIFORNIA ENVIRONMENTAL QUALITY ACT

The County published the DEIR for the project on February 9, 2024. The Final EIR has been prepared in accordance with CEQA and the CEQA Guidelines, as amended. As authorized in State CEQA Guidelines Section 15084(d)(2), the County retained a consultant to assist with preparation of the environmental documents. County staff from multiple departments, representing the Lead Agency, have directed, reviewed, and modified where appropriate all material prepared by the consultant. The Final EIR reflects the County's independent analysis and judgement. The key milestones associated with preparation of the DEIR are summarized below. As presented below, an extensive public involvement and agency notification effort was conducted to solicit input on the scope and content of the DEIR and to solicit comments on the results of the environmental analysis presented in the DEIR.

A. Public Notification and Outreach

In conformance with CEQA, the State CEQA Guidelines, and the Contra Costa County CEQA Guidelines, the County conducted an extensive environmental review of the proposed project.

- Completion of a Notice of Preparation (NOP) on September 20, 2023, titled "Notice of Preparation (NOP) for the Contra Costa County 2045 General Plan and Climate Action Plan Environmental Impact Report (EIR) and Notice of Public Scoping Meeting." A public scoping meeting was conducted on October 16, 2023, and the public comment period for the NOP closed on October 20, 2022.
- Preparation of a DEIR, which was made available for a 60-day public review period beginning February 9, 2024, and ending April 8, 2024. The scope of the DEIR was determined based on the CEQA Guidelines Appendix G Checklist, and comments received in response to the NOP. The Notice of Availability (NOA) for the DEIR was sent to interested persons and organizations, sent to the State Clearinghouse in Sacramento for distribution to public agencies, posted at the County's website, and published in the East Bay Times on February 9, 2024. The NOA was posted at the Contra Costa County Clerk's office on February 9, 2024.
- A public hearing to receive written and oral comments on the DEIR was held by the County Zoning Administrator on March 18, 2024.
- Preparation of a Final EIR, including the responses to comments to the DEIR. The Final EIR was released for a 10-day agency review period prior to certification of the Final EIR.
- Public hearings to consider certification of the Final EIR and adoption of the proposed project will be held by the County Planning Commission on October 23, 2024, and Board of Supervisors on November 5, 2024.

In summary, the County conducted all required noticing and scoping for the proposed project in accordance with Section 15083 of the CEQA Guidelines, and conducted the public review for the DEIR, which exceeded the requirements of Section 15087 of the CEQA Guidelines.

B. Final Environmental Impact Report and Proceedings

The County prepared a Final EIR, including Responses to Comments to the DEIR. The Final EIR/Response to Comments contains comments on the DEIR, responses to those comments, and revisions to the DEIR. A total of 15 comment letters were received. Of the 15 comment letters, 13 letters were from public agencies and organizations, one letter was from a resident, and one letter was received from an organization after the public review period ended. Revisions in response to these comments were incorporated within Section 3.2, *DEIR Revisions in Response to Written Comments*, of the FEIR.

The Final EIR found that prior to mitigation, implementation of the proposed project would result in potentially significant impacts to agriculture and forestry resources, air quality, biological resources, cultural and tribal resources, geology and soils, mineral resources, noise, transportation and wildfire. Impacts to agriculture and forestry resources, air quality, cultural and tribal resources, mineral resources, noise, transportation, and wildfire would remain significant and unavoidable. The County prepared a Statement of Overriding Considerations (see Section V.A, *Project Benefits in Support of the Statement of Overriding Considerations*, below) for the following impacts which were found to be significant and unavoidable:

Agriculture and Forestry Resources

- **Impact 5.2-1:** The proposed project could convert approximately 13,816 acres of Important Farmland to nonagricultural use.
- **Impact 5.2-4:** The proposed project would result in the loss of forest land or conversion of forest land to non-forest use.

Air Quality

- **Impact 5.3-2:** Short-term construction activities associated with the proposed project would result in a cumulatively considerable net increase of criteria pollutants for which the project region is in non-attainment under applicable federal or State ambient air quality standards.
- **Impact 5.3-3:** Development under the proposed project would result in a cumulatively considerable net increase of criteria pollutants for which the project region is in non-attainment under applicable federal or State ambient air quality standards (AAQS).
- **Impact 5.3-5:** Operational-phase emissions associated with the proposed project could expose sensitive receptors to substantial pollutant concentrations.

Cultural and Tribal Resources

- **Impact 5.5-1:** Implementation of the proposed project could cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines, Section 15064.5.

Mineral Resources

- **Impact 5.12-1:** Implementation of the proposed project could result in the loss of availability of a known mineral resource.

Noise

- **Impact 5.13-1:** Construction activities would result in temporary noise increases in the vicinity of the proposed project.
- **Impact 5.13-2:** Project implementation would generate a substantial traffic noise increase on local roadways and could locate sensitive receptors near rail in areas that exceed established noise standards.

Transportation

- **Impact 5.16-2:** Implementation of the proposed project would/not conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b).

Wildfire

- **Impact 5.18-2:** Development under the proposed project in or near SRAs or lands classified as Very High FHSZs could exacerbate wildfire risks due to slope, prevailing winds, and other factors, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire.
- **Impact 5.18-5:** Development in designated High or Very FHSZs could expose structures and/or residences to fire danger.

The public can view searchable agendas for scheduled Board of Supervisors meetings and access agenda-related County information and services directly on the following website: <https://contra-costa.legistar.com/Calendar.aspx>.

The Final EIR document will be posted for viewing and download with the previously posted DEIR prior to the County's consideration of the Final EIR and proposed project recommendations on the County's website.

A date for consideration of the Final EIR and proposed project recommendations at the Board of Supervisors was set and notice of the meeting was provided consistent with the Brown Act (Government Code Sections 54950 et seq.). The Board of Supervisors will take testimony on the proposed project and may continue on its calendar to a subsequent meeting date in its discretion.

C. Record of Proceedings

For purposes of CEQA and these Findings, the Record of Proceedings for the proposed project consists of the following documents and other evidence, at a minimum:

- The NOP, NOA, and all other public notices issued by the County in conjunction with the proposed project.
- The DEIR and Final EIR for the proposed project.

- All written comments submitted by agencies or members of the public during the public review comment period on the DEIR.
- All responses to written comments submitted by agencies or members of the public during the public review comment period on the DEIR.
- All written and verbal public testimony presented during a noticed public hearing for the proposed project.
- The Mitigation Monitoring and Reporting Program.
- The reports and technical memoranda included or referenced in the Final EIR.
- All documents, studies, EIRs, or other materials incorporated by reference in the DEIR and Final EIR.
- The Resolutions adopted by the County in connection with the proposed project, and all documents incorporated by reference therein, including comments received after the close of the comment period and responses thereto.
- Matters of common knowledge to the County, including but not limited to federal, state, and local laws and regulations.
- Any documents expressly cited in these Findings.
- Any other relevant materials required to be in the record of proceedings by Public Resources Code Section 21167.6(e).

D. Custodian and Location of Records

The documents and other materials that constitute the administrative record for the County's actions related to the proposed project are at the Contra Costa County Department of Conservation and Development (DCD) (30 Muir Road, Martinez, CA 94553). The Contra Costa County DCD is the custodian of the administrative record for the proposed project. Copies of these documents, which constitute the record of proceedings, are and at all relevant times have been and will be available upon request of the Contra Costa County DCD. The DEIR was also made available for public review at Contra Costa County libraries – El Sobrante Branch, Pleasant Hill Branch, and Brentwood Branch. The documents are available online at: <https://envisioncontracosta2040.org/documents/>. This information is provided in compliance with Public Resources Code Section 21081.6(a)(2) and Guidelines Section 15091(e).

E. Project Location

Contra Costa County is in the East Bay subregion of the San Francisco Bay Area. It borders Alameda County to the south, San Joaquin County to the east, Solano and Sacramento Counties to the north, and San Francisco County to the west. North-to-south regional access is provided through Interstate (I-) 80, I-680, and State Route (SR-) 242; east to west regional access is provided through I-580, SR-4, and SR-24.

The proposed project defines the project area as unincorporated Contra Costa County. This EIR focuses on the analysis of potential impacts on lands and waters only in unincorporated Contra Costa County, including in and outside the Urban Limit Line (ULL) and in each incorporated city's sphere of influence (SOI), but not inside municipal limits.

F. Project Objectives

The following objectives for the Contra Costa County 2045 General Plan and CAAP 2024 Update will aid decision makers in their review of the proposed project and associated environmental impacts:

- Extend the General Plan planning horizon to year 2045 and establish a legally adequate General Plan and CAAP that meet State requirements through a community-based planning process.
- Through the updates to the land use map, align the map with existing uses that already exist on the ground today, while also focusing more mixed-use development and higher density housing within community cores, where infrastructure and services are available.
- Provide planning guidance at a community scale, rather than relying on a one-size-fits-all policy approach throughout the county.
- Create a modern and visionary policy document intended to address the opportunities and challenges of the 21st century including:
 - **Environmental Justice.** Environmental justice policies and actions intend to reduce the unique or compounded health risks in communities that experience the highest levels of pollution and negative health outcomes, such as asthma and low birth weight babies, and the greatest social and economic disadvantages, such as poverty and housing instability. The General Plan refers to these areas as “Impacted Communities” and focuses on improving environmental justice for the people living there by promoting meaningful community engagement and prioritizing improvements that address their needs. Environmental justice is a new topic that was not discussed in the prior General Plan. State law now requires that general plans address environmental justice and it is a matter of great concern to many county residents. While this topic is addressed throughout the General Plan, the Stronger Communities Element provides detailed information about Impacted Communities and environmental justice.
 - **Community Health.** The physical and mental health of community members is inextricably linked to where and how communities are developed. Therefore, the community health policies and actions guide planning and development decisions to provide opportunities for community members to live healthy lifestyles, including by improving peoples’ ability to walk or use other non-automobile forms of transportation to travel between destinations, providing multi-modal transportation connections, creating opportunities for social interaction, and promoting access to outdoor recreation, healthy food, and medical facilities. The community health policy guidance additionally aims to reduce exposure of all community members to pollutants that can adversely affect their health.
 - **Economic Development.** The economic development policies and actions aim to develop the county’s workforce and attract and support sustainable businesses and industries that provide living-wage jobs, invest in hiring from the local workforce, and engage with

communities. Investment in diversified industries, as supported in the economic development policy guidance, promotes innovation, builds the tax base, and allows residents to work in the county where they live.

- **Sustainability.** Sustainability means meeting the needs of today's population while leaving viable resources to meet the needs of future generations. One important part of a sustainable future is resiliency, which is the ability to withstand, recover, and learn from a disruptive experience, such as a wildfire, flood, or pandemic. The sustainability policies and actions aim to conserve resources, improve resiliency (especially to the impacts of climate change), protect the environment, reduce pollution, and enhance overall quality of life.

G. Project Description

Contra Costa County 2045 General Plan

The primary component of the project is an update of Contra Costa County's General Plan. The General Plan is a State-required legal document that provides guidance to decision-makers regarding allocation of resources and determining the future physical form and character of development within the unincorporated county, including land inside each incorporated city's Sphere of Influence (SOI), but not inside municipal limits. The proposed General Plan serves as the County's primary land use regulatory tool and is the basis for all planning-related decisions made by County staff, the Planning Commission, and Board of Supervisors. The proposed General Plan includes the Stronger Communities; Land Use; Transportation; Conservation, Open Space, and Working Lands; Public Facilities and Services; Health and Safety; and Growth Management Elements. The Housing Element, while also a required part of the General Plan, was updated through a separate process, being adopted by the Board of Supervisors on December 12, 2023.

Climate Action and Adaptation Plan 2024 Update

The Contra Costa County CAAP 2024 Update is a comprehensive plan for reducing greenhouse gas (GHG) emissions through a series of actions and strategies that would be undertaken by the County. The CAAP identifies strategies and measures to meet the State's GHG reductions targets. The CAAP also includes an adaptation plan that recommends actions to reduce the community's vulnerability to the anticipated impacts of climate change. The proposed CAAP does not include any development proposals and would not directly result in physical environmental effects associated with construction or operation of facilities.

III. CALIFORNIA ENVIRONMENTAL QUALITY ACT FINDINGS

A. Format

Section 15091 of the CEQA Guidelines requires that a Lead Agency make a finding for each significant effect for the proposed project. This section summarizes the significant environmental impacts of the proposed project, describes how these impacts are to be mitigated, and discusses various alternatives to the proposed project, which were developed to reduce the remaining significant environmental impacts. All impacts are considered potentially significant prior to mitigation unless otherwise stated in the findings.

This remainder of this section is divided into the following subsections:

Section B, Findings on “No Impact” and “Less Than Significant Impacts,” presents environmental issues, as identified in Chapter 5 of the DEIR, which would result in no impact or less than significant impacts.

Section C, Findings on Significant Environmental Impacts That Can Be Mitigated to Less Than Significant, presents significant impacts of the proposed project that were identified in Chapter 5 of the DEIR, the mitigation measures identified in the Mitigation Monitoring Program, and the rationales for the findings.

Section D, Significant and Unavoidable Impacts that Cannot be Mitigated to Below the Level of Significance, presents significant impacts of the proposed project that were identified in the DEIR, the mitigation measures identified in the Mitigation Monitoring Program, the findings for significant impacts, and the rationales for the findings.

Section IV, Alternatives to the Proposed Project, presents alternatives to the proposed project and evaluates them in relation to the findings set forth in Section 15091(a)(3) of the State CEQA Guidelines, which allows a public agency to approve a project that would result in one or more significant environmental effects if the project alternatives are found to be infeasible because of specific economic, social, or other considerations.

Section V, Statement of Overriding Considerations, presents a description of the proposed project’s significant and unavoidable adverse impacts and the justification for adopting a statement of overriding considerations.

Section VI, Findings on Responses to Comments on the DEIR and Revisions to the Final EIR, presents the County’s findings on the response to comments and revisions to the Final EIR, and decision on whether a recirculated DEIR is necessary or not.

Summary of Environmental Impacts

Based on the NOP and DEIR, the following is a summary of the environmental topics considered to have no impact, a less than significant impact, a less than significant impact with incorporation of mitigation measures, or a significant and unavoidable impact.

Less Than Significant Impact or No Impact, No Mitigation Required

- Aesthetics (Impact 5.1-1, Impact 5.1-2, Impact 5.1-3)
- Agriculture and Forestry Resources (Impact 5.2-2, Impact 5.2-3, Impact 5.2-5)
- Air Quality (Impact 5.3-1, Impact 5.3-6)
- Biological Resources (Impact 5.4-1, Impact 5.4-2, Impact 5.4-3, Impact 5.4-5)
- Cultural and Tribal Cultural Resources (Impact 5.5-3)
- Energy (Impact 5.6-1, Impact 5.6-2, Impact 5.6-3)
- Geology and Soils (Impact 5.7-1, Impact 5.7-2, Impact 5.7-3, Impact 5.7-4)
- Greenhouse Gas Emissions (Impact 5.8-1, Impact 5.8-2)
- Hazards and Hazardous Materials (Impact 5.9-1, Impact 5.9-2, Impact 5.9-3, Impact 5.9-4)
- Hydrology and Water Quality (Impact 5.10-1, Impact 5.10-2, Impact 5.10-3, Impact 5.10-4, Impact 5.10-5)

- Land Use and Planning (Impact 5.11-1, Impact 5.11-2)
- Noise (Impact 5.13-4)
- Population and Housing (Impact 5.14-1, Impact 5.14-2)
- Public Services and Recreation (Impact 5.15-1, Impact 5.15-2, Impact 5.15-3, Impact 5.15-4, Impact 5.15-5)
- Transportation (Impact 5.16-1, Impact 5.16-3, Impact 5.16-4)
- Utilities and Service Systems (Impact 5.17-1, Impact 5.17-2, Impact 5.17-3, Impact 5.17-4, Impact 5.17-5, Impact 5.17-6, Impact 5.17-7)
- Wildfire (Impact 5.18-1, Impact 5.18-3, Impact 5.18-4)

Less Than Significant Impact with Mitigation Incorporated

- Air Quality (Impact 5.3-4)
- Biological Resources (Impact 5.4-4)
- Cultural and Tribal Resources (Impact 5.5-2, Impact 5.5-4)
- Geology and Soils (Impact 5.7-5)
- Noise (Impact 5.13-3)

Significant and Unavoidable Impact

- Agriculture and Forestry Resources (Impact 5.2-1, Impact 5.2-4)
- Air Quality (Impact 5.3-2, Impact 5.3-3, Impact 5.3-5)
- Cultural and Tribal Resources (Impact 5.5-1)
- Mineral Resources (Impact 5.12-1)
- Noise (Impact 5.13-1, Impact 5.13-2)
- Transportation (Impact 5.16-2)
- Wildfire (Impact 5.18-2, Impact 5.18-5)

B. Findings on “No Impact” and “Less Than Significant Impacts”

The County determined that the proposed project would have no impact or less than significant impacts, including direct, indirect, and cumulative impacts, for the environmental issues summarized below. The rationale for the conclusion that no significant impact would occur in each of the issue areas is based on the environmental evaluation in the listed topical EIR sections in Chapter 5 of the DEIR.

CEQA Guidelines Section 15901 states that an EIR may not be certified for a project that has one or more significant environmental effects unless one of three findings is made for each significant effect. Since the following environmental issue areas were determined to have no impact or a less than significant impact, no findings for these issues are required.

1. Aesthetics

Impact 5.1-1: Development in accordance with the proposed project would not substantially alter or damage scenic vistas or substantially damage scenic resources,

including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway. [Thresholds AE-1 and AE-2]

Proposed General Plan

As shown in Figure 5.1-1, *Scenic Resources*, of the DEIR, scenic resources are identified throughout the county, including the State-designated scenic route State Route 24 (SR-24) and eligible scenic route State Route 4 (SR-4). The county has vast open spaces, estuary systems, and rolling hills that encompass an outstanding variety of scenic natural vistas, water resources, and landscapes. Therefore, future development under the proposed General Plan could impact scenic resources.

The proposed General Plan includes policies aimed at reducing impacts to identified scenic resources from future development, including:

- **Policy LU-P4.3:** Encourage smooth transitions between new and existing or planned development.
- **Policy LU-P4.4:** Require site and building reconfigurations, setback increases, landscaping enhancements, screening, or other design solutions wherever necessary to minimize potential conflicts between uses.
- **Policy LU-P10.3:** Preserve the rural character of the following areas, which are displayed in Figure LU-5 [of the General Plan] (DEIR Figure 5.1-2):
 - a) Alhambra Valley/Briones;
 - b) Tassajara Valley;
 - c) Delta Primary Zone;
 - d) Agricultural Core between Brentwood and Discovery Bay;
 - e) Crockett Hills between Crockett and State Route 4;
 - f) Franklin Canyon/State Route 4 corridor between Hercules and Martinez;
 - g) Bollinger Canyon Road corridor between Las Trampas Regional Wilderness and Crow Canyon Road;
 - h) Norris Canyon Road corridor between San Ramon and the Alameda County line;
 - i) Marsh Creek Road corridor between Clayton and Byron Highway;
 - j) Kirker Pass Road corridor;
 - k) Morgan Territory Road corridor;
 - l) Deer Valley Road corridor.

Pay special attention to potential aesthetic impacts in these areas and ensure such impacts are adequately mitigated.

- **Policy COS-P12.2:** Require redesign of project components that negatively impact viewsheds or the visual quality of the area.
- **Policy COS-P12.3:** Prohibit development within 100 vertical feet of the top of designated scenic ridges and within 50 vertical feet of other visually prominent ridgelines. Exceptions may be considered on existing legal lots where no other feasible building sites exist, and for infrastructure that requires high-elevation siting, such as wind turbines, communications towers, and water tanks.

When siting buildings or infrastructure on or near ridges is unavoidable, require appropriate measures, such as screening, undergrounding, or camouflaging to mitigate visual impacts.

- **Policy COS-P12.4:** Preserve the scenic qualities of hillsides by encouraging designs that are sensitive to a site's topography and prohibiting unnecessary grading and vegetation removal.
- **Policy COS-P12.5:** Require restoration of natural contours and vegetation after grading and other land disturbances.
- **Policy COS-P12.6:** Prohibit extreme topographic modification, such as filling in canyons or removing prominent hilltops. Exemptions may be considered for landfills, mining operations, and public or semi-public projects that necessitate such modifications.
- **Policy COS-P12.7:** Support preservation and enhancement of natural and human-made features that contribute to the scenic quality of the landscape and viewshed along designated scenic routes and discourage projects that interfere with public views of those features.
- **Policy COS-P12.8:** Require a visual impact analysis for projects with potential to significantly impact public views along designated scenic routes.

Development allowed by the proposed General Plan would be required to comply with development standards in the County Ordinance Code, such as Chapter 814-2, which governs hillside development. Additionally, the ULL limits the extent of urban development, protecting agricultural and open space areas from urbanization, while the 65/35 Standard ensures that urban development is limited to no more than 35 percent of the county's land area, preserving the remaining 65 percent for agriculture, open space, wetlands, parks, and other non-urban uses. The proposed project would continue to support these standards through Policy LU-P2.1, which directs the County to continue implementing the 65/35 Land Preservation Standard in order to preserve agricultural land, rangeland, natural habitats, watersheds, and open space, while focusing development in urban and suburban communities, and Policy LU-P2.3, which directs the County to limit development outside the ULL to non-urban uses.

Public Resources Code Section 12220(g) defines "forest land" as land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. As noted in DEIR Section 5.2, *Agriculture and Forestry Resources*, there are a total of approximately 63,806 acres of forested area in the county. Although development allowed by the proposed General Plan would consist mainly of infill and redevelopment, future development could create aesthetic impacts through conversion of forest to non-forest lands. However, Chapter 816-6, *Tree Protection and Preservation*, of the County Ordinance Code requires that a property owner obtain a Tree Permit from the County before trenching, grading, or filling within the dripline of any protected tree or before cutting down, destroying, trimming by topping, or removal of any protected tree. In addition, the proposed Conservation, Open Space, and Working Lands Element includes policies aimed at preserving and protecting trees from future development. Specifically, Policy COS-P6.1 directs the County to preserve natural woodlands and significant trees, particularly mature native species, intact coastal scrub and chaparral, and grasslands, especially those with native grass and wildflower populations, and Action COS-A6.2 directs the County

to establish an Oak Woodland Conservation Program with mitigation ratios and tree replacement and planting standards.

The proposed project would not substantially alter scenic resources, and the urban nature of future development would be similar to existing conditions. Therefore, public vistas and scenic resources from publicly accessible locations in the county would not be adversely impacted. All General Plan policies, ordinances, and development standards would apply to future development, and impacts would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that does not include specific projects that would have a direct, adverse effect on scenic resources. However, the proposed CAAP includes actions that could result in construction of physical improvements and infrastructure in the county that are designed to help meet the emissions targets in the CAAP. Where located in developed areas, these projects are not expected to significantly affect views from scenic vistas or viewsheds because they would be more likely to blend in with surrounding development and would not be likely to create changes to visual quality that would be visible from a scenic vista or that would significantly interrupt views available from scenic vistas. In addition, future projects facilitated by the CAAP would need to comply with the applicable design standards, ordinances, and proposed General Plan policies discussed previously, which would mitigate potential aesthetic impacts. Therefore, impacts would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact relating to scenic vistas or substantially damage scenic resources. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.1-2: Development under the proposed project would alter visual appearance in the county but would not substantially degrade its existing visual character or quality. [Threshold AE-3].

Proposed General Plan

Although new developments could alter the visual appearance of the county, much of the area inside the ULL is already developed with urban and suburban uses. Future urban growth allowed by the proposed General Plan would be inside the ULL and would be anticipated to develop over time. As discussed in Impact 5.1-1, the proposed project would support the ULL and 65/35 Standard (i.e., through Policy LU-P2.1 and Policy LU-P2.4), which preserve agricultural land, rangeland, natural habitats, watersheds, and open space, while focusing development in urban and suburban communities.

Adherence to County ordinances regarding development, lighting, and landscaping is required of all development. Compliance with development regulations is verified prior to issuance of a building permit and is therefore not reliant on future CEQA action. Because future urban development would be inside the ULL and all projects must comply with design regulations of the County, the proposed project would not substantially degrade the visual character or quality of the county, and impacts are less than significant.

Proposed CAAP

The proposed CAAP does not include specific projects that could directly result in new or expanded development that could substantially degrade the existing visual character or quality of public views of the area due to their height, bulk, pattern, scale, character, or other features; however, projects facilitated by proposed CAAP strategies and actions could do so. All projects facilitated by the proposed CAAP strategies and actions must be consistent with the General Plan and comply with applicable provisions of the County Ordinance Code, including its regulation of height limits, setbacks, bulk, and other development standards appropriate to each zone. Therefore, the impact would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact relating to the visual character or quality. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.1-3: The proposed project would not generate substantial light and glare. [Thresholds AE-4]

Proposed General Plan

The two major causes of light pollution are glare and spill light. Spill light is caused by misdirected light that illuminates outside the intended area. Glare is light that shines directly or is reflected from a surface into a viewer's eyes. Spill light and glare impacts are effects of a project's exterior lighting on adjoining uses and areas.

Sources of light in the county include building lighting (interior and exterior), security lighting, sign illumination, sports fields lighting, and parking area lighting. These sources of light and glare are mostly associated with residential, commercial, and industrial uses, as well as larger community parks. Other sources of nighttime light and glare include streetlights, vehicular traffic along surrounding roadways, and ambient lighting from surrounding communities.

Future development allowed by the proposed General Plan could increase nighttime light and glare, including in areas that are currently undeveloped. However, all new development is required to comply with the lighting standards of the County Ordinance Code in Chapter 76-4, Modifications, which requires that lighting fixtures be installed, controlled, or directed so that the light will not glare or be blinding to pedestrians or vehicular traffic or on adjoining property. Additionally, landscaping, walls, and fences that would be constructed as part of future projects would further reduce light and glare spillover. Furthermore, future development must comply with the most recent CALGreen standards, including 5.106.8, Light Pollution Reduction, which establishes backlight, uplight, and glare ratings to minimize light pollution for nonresidential development. The local building permit process enforces the provisions of CALGreen. Through compliance with the County Ordinance Code and site-planning/design standards pertaining to light and glare, any potential spillover would be minimized, and the impact is considered less than significant.

Proposed CAAP

The proposed CAAP could result in the introduction of lighting to the environment as a result of development of projects called for in proposed CAAP actions, such as mixed-use or infill development, building retrofits, or solar energy generation facilities. Depending on the location and design of these projects, they have the potential to create shade, shadows, daytime or nighttime glare, or nighttime lighting of buildings or other structures. However, through compliance with the County Ordinance Code and site-planning/design standards pertaining to light and glare, any potential spillover would be minimized, and the impact is considered less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact relating to light and glare. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

2. Agriculture and Forestry Resources

Impact 5.2-2: The proposed project would conflict with Williamson Act contracts. [Threshold AG-2]

Proposed General Plan

As described in Chapter 3, *Project Description*, of the DEIR, the proposed General Plan includes an updated land use map, which includes Agricultural Core (AC), Agricultural Lands (AL), and Resource Conservation (RC) land use designations.

The AL designation includes non-irrigated, rural lands that support grazing and dryland farming. Other types of agricultural, open space, and non-urban uses are also allowed. The maximum density under the proposed General Plan is 1 unit per 10 acres, which reduces the density allowance in areas designated AL by half compared to the existing General Plan. AC is a designation applied to 11,900 acres between Brentwood and Discovery Bay, where agricultural production is the primary use and limited tourism activities are allowed. The maximum density is 1 unit per 40 acres. The RC designation applies to open space lands for watershed protection and other environmentally sensitive areas – activities can include low intensity agriculture.

As shown in Figure 5.2-3 of the DEIR, the EIR Study Area contains approximately 40,545 acres of land under Williamson Act contracts, as of 2023. Under the proposed General Plan, most of this land is designated AC, AL, or RC. There are some parcels with Williamson Act contracts that are designated Water, meaning they are inundated by water, or Parks and Recreation. The areas designated Parks and Recreation are owned by East Bay Regional Park District and planned for park and open space uses. The proposed General Plan would not change the Williamson Act process that is owner-initiated through a 10-year contract annually renewed. While conversion of agricultural land is addressed in Impact 5.2-1 and found to be significant and unavoidable, the Williamson Act program is unchanged with adoption of the proposed project, resulting in a less-than-significant impact.

Proposed CAAP

Projects facilitated by the CAAP would be required to be consistent with the proposed General Plan; therefore, the proposed CAAP would result in a less-than-significant Williamson Act contract impact.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact relating to conflicts with Williamson Act contracts. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.2-3: The proposed project would not conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)). [Threshold AG-3]

Proposed General Plan

There are no areas zoned as forest land in unincorporated Contra Costa County. The Zoning Code and the existing and proposed General Plan do not designate any land for forest or timberland uses. Forest and timber lands defined by the State include both land that is used for timber harvesting and other forested land that has aesthetic, recreational, and biological amenities. The proposed General Plan would not conflict with existing zoning for, or cause rezoning of forest land, or timberland zoned Timberland Production. Thus, no impact would occur.

See Section 5.1, *Aesthetics*, of this DEIR regarding consideration of tree aesthetics as defined in Public Resources Code Section 12220(g).

Proposed CAAP

As described above, there is no timberland in the EIR Study Area; therefore, neither the proposed CAAP nor projects facilitated by the CAAP strategies and actions would result in an adverse impact on timberland, so there is no impact.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to existing zoning for, or cause rezoning of, forest land. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.2-5: The proposed project could potentially result in other agricultural impacts not related to the above, such as diminishing available water quality and supply for agricultural uses. [Threshold AG-5]

Proposed General Plan

Future development under the proposed General Plan would increase water demand, as further described in DEIR Section 5.17, *Utilities and Service Systems*, which would diminish the available water supply for agricultural uses. Such development would occur throughout the county, which spreads the impact over a large geographic area. Further, most development would require connection to municipal water provider(s). Water connections are regulated by Section 414-4.2 of the County Ordinance Code, the purpose of which is to “...provide protection of the county’s groundwater sources from degradation that could result from inadequately constructed, defective, or improperly abandoned wells, to provide for regulation of small water systems in accordance with federal standards as mandated by

the state, and to require submission of tentative subdivision maps and building permit applications to the health officer for him to review the availability of an approved water supply prior to recordation of final maps and issuance of building permits.”

Construction activities can increase urban runoff containing nutrients, sediments, and toxic contaminants, which would pollute nearby water streams and could impact agricultural uses. In addition, future development will bring in more residents and people, which can increase urban runoff. However, existing regulations would help avoid or mitigate potential impacts to agricultural lands. For example, Chapter 74-6.012 of the County Ordinance Code states that a drainage plan for development projects is required to determine methods to reduce runoff. The drainage plan must include provisions to stop erosion of exposed soil into drainages, such as by covering stockpiles, using jute-bales and silt fencing, frequent watering, and replanting to prevent both wind and rain erosion. Through compliance with the County Ordinance Code, sediment and erosion of material would not leave project sites and would not affect available water quality or supply for agricultural uses.

In addition, the proposed General Plan also includes Policy COS P2.4, which requires new projects adjacent to agriculture to establish appropriate buffers, with consultation with the County Agricultural Commissioner, on their properties as necessary to minimize conflicts and protect agriculture. The General Plan also includes Action COS-A2.4, which would amend County Ordinance Code Title 8 – Zoning to include development standards and design guidelines for urban land uses that interface with agricultural uses, addressing setbacks on urban properties. Therefore, the other agricultural impacts of the proposed General Plan would be less than significant.

Proposed CAAP

Projects facilitated by the proposed CAAP could result in a beneficial effect on farmland, while other projects could cause other changes in the environment that could result in conversion of farmland to nonagricultural use. However, compliance with the County Ordinance Code and proposed General Plan policies and actions described above would reduce impacts to a less than significant level.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to other agricultural impacts. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

3. Air Quality

Impact 5.3-1: Implementation of the proposed project would not conflict with or obstruct implementation of the BAAQMD Clean Air Plan. [Threshold AQ-1]

Proposed General Plan

Bay Area 2017 Clean Air Plan – Criteria Air Pollutants and Precursors

The proposed General Plan plays an important role in local agency project review by linking local planning and individual projects to the *2017 Clean Air Plan*. It fulfills the CEQA goal of informing decision-makers of the environmental efforts of the project under consideration at an early enough

stage to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to clean air goals in the Bay Area.

Bay Area Air Quality Management District (BAAQMD) requires consistency evaluation of long-range plans with current air quality plan (AQP) control measures. To have a less significant impact on air pollutants and precursor impacts, the plan must support primary goals, include applicable control measures, and not disrupt or hinder implementation. Long-range plans must also demonstrate consistency with projected vehicle activity growth rate vehicle miles traveled (VMT) or vehicle trips, ensuring the project's VMT or trip increase is less than or equal to the projected population increase.

Bay Area Air Quality Management District 2017 Clean Air Plan Goals

The primary goals of the 2017 Clean Air Plan are to attain the State and federal AAQS, reduce population exposure and protect public health in the Bay Area, reduce GHG emissions, and protect the climate. Furthermore, the 2017 Clean Air Plan lays the groundwork for reducing GHG emissions in the Bay Area to meet the State's 2030 GHG reduction target and 2050 GHG reduction goal.

Attain Air Quality Standards

BAAQMD's 2017 Clean Air Plan strategy is based on regional population and employment projections in the Bay Area compiled by the Association of Bay Area Governments (ABAG), which are based in part on County's General Plan land use designations. These demographic projections are incorporated into Plan Bay Area. Demographic trends incorporated into Plan Bay Area determine VMT in the Bay Area, which BAAQMD uses to forecast future air quality trends. The San Francisco Bay Area Air Basin (SFBAAB) is currently designated a nonattainment area for O₃, PM_{2.5}, and PM₁₀ (State AAQS only).

As discussed in Chapter 5.14, *Population and Housing*, of the DEIR, implementation of the proposed General Plan would exceed current regional projections for housing by 26 percent and population by 18 percent. However, the Land Use Element includes goals, policies, and actions aimed to focus the development in areas where current buildings are aging, vacant, or not maintained and approved/pending projects. Therefore, implementation of the proposed General Plan itself would not introduce a substantial amount of unplanned population in the EIR Study Area and is instead the overriding policy document that plans for such growth.

Thus, the population projections of the proposed General Plan would be consistent with regional projections. The emissions resulting from potential future development associated with the proposed General Plan are included in BAAQMD projections, and future development accommodated under the proposed General Plan would not hinder BAAQMD's ability to attain the California or National AAQS. Accordingly, impacts would be less than significant.

Reduce Population Exposure and Protect Public Health

Development under the proposed General Plan could result in new sources of TACs and PM_{2.5}. Stationary sources, including smaller stationary sources (e.g., emergency generators and boilers) are subject to review by BAAQMD as part of the permitting process. Adherence to BAAQMD permitting regulations would ensure that new stationary sources of TACs do not expose populations to significant health risk. Mobile sources of air toxics (e.g., truck idling) are not regulated directly by BAAQMD. Development associated with the proposed General Plan may generate truck traffic; however, CARB regulates limits on diesel truck and bus idling to 5 minutes. Furthermore, individual development

projects would be required to achieve the incremental risk thresholds established by BAAQMD. Thus, implementation of the proposed General Plan would not result in introducing new sources of TACs that on a cumulative basis, could expose sensitive populations to significant health risk. Therefore, impacts would be less than significant.

Reduce GHG Emissions and Protect the Climate

Consistency of the proposed General Plan with State, regional, and local plans adopted for the purpose of reducing GHG emissions are discussed under Impact 5.8-2 in Chapter 5.8, *Greenhouse Gas Emissions*, of this DEIR. Future development allowed by the proposed General Plan would be required to adhere to statewide measures that have been adopted to achieve the GHG reduction targets of AB 32 and SB 32, and a trajectory consistent with the carbon neutrality targets of AB 1279. The proposed General Plan is consistent with regional strategies for infill development identified in *Plan Bay Area 2050* and the existing Contra Costa County CAP. While Impact GHG 5.8-1 identifies that the proposed General Plan would generate a substantial increase in emissions, Impact GHG 5.8-2 identifies that the proposed General Plan is consistent with State, regional, and local plans to reduce GHG emissions. Therefore, the proposed General Plan is consistent with the goal of the 2017 *Clean Air Plan* to reduce GHG emissions and protect the climate, and the impact would be less than significant.

2017 Clean Air Plan Control Measures

Table 5.3-8, *Control Measures from the BAAQMD 2017 Clean Air Plan*, of the DEIR, identifies the control measures included in the 2017 *Clean Air Plan* that are required by BAAQMD to reduce emissions for a wide range of both stationary and mobile sources. As shown in Table 5.3-8, the proposed General Plan would not conflict with the 2017 *Clean Air Plan* and would not hinder BAAQMD from implementing the control measures in the 2017 *Clean Air Plan*. Accordingly, impacts would be less than significant.

Regional Growth Projections for VMT and Population

Future potential development allowed by the proposed General Plan would result in additional sources of criteria air pollutants. Growth accommodated by the proposed General Plan could occur throughout the 2045 planning horizon. BAAQMD's approach to evaluating impacts from criteria air pollutants generated by a plan's long-term growth is done by comparing population estimates to the VMT estimates. This is because BAAQMD's AQMP plans for growth in the SFBAAB are based on regional growth projections identified by ABAG and growth in VMT identified by CCTA. Changes in regional, community-wide emissions in the project area could affect the ability of BAAQMD to achieve the air quality goals in the AQMP. Therefore, air quality impacts for a plan-level analysis are based on consistency with the regional growth projections. Table 5.3-9, *Comparison of the Change in Population and VMT in the Contra Costa County*, of the DEIR, compares the proposed General Plan growth forecast with the projected increase in total VMT.

BAAQMD's AQMP requires that the VMT increase by less than or equal to the projected population increase from the proposed General Plan (i.e., generate the same or less VMT per population). However, because the proposed General Plan accommodates both residential and nonresidential growth, a better indicator of how efficiently the county is growing can be made by comparing the increase in VMT to the increase in service population (e.g., generate the same or less VMT per service

population). This approach is similar to the efficiency metrics for GHG emissions, which consider the total service population when calculating project efficiency.

VTM estimates based on data provided by Fehr & Peers were calculated for Contra Costa County. As shown in Table 5.3-9, implementation of the proposed General Plan would result in an increase of daily VMT by 742,009 vehicle miles per day in the unincorporated county (about a 21-percent increase), but lead to a lower VMT per capita than under existing conditions (approximately a 12-percent decrease) and lower VMT per service population than existing conditions (approximately a 10-percent decrease). Thus, the proposed General Plan would be consistent with the goals of the 2017 *Clean Air Plan* and impacts would be less than significant.

Environmental Justice

BAAQMD's CEQA Air Quality Guidelines also require an analysis of consistency of the proposed General Plan with applicable Community Emission Reduction Plans (CERPs) and local Environmental Justice policies. Environmentally overburdened, underserved, and economically distressed communities may be subject to a higher risk of pollutant-related health effects than the general population because they may be exposed to higher pollutant concentrations; they may experience a larger health impact at a given pollutant concentration; or they may be adversely affected by lower pollutant concentrations than the general population. The most critical air pollutant affecting health in the Bay Area is PM_{2.5}, which includes DPM. The burden of breathing unhealthy air is often disproportionately borne by low-income communities and communities of color, many of which are situated closer to busy highways, ports, factories, and other pollution sources.

Community Emissions Reduction Plans in Unincorporated Contra Costa County

The Richmond-North Richmond-San Pablo AB 617 community (Richmond Area) is partially within the EIR Study Area. The Draft PTCA Plan (Community Emissions Reduction Plan) for the Richmond Area was released for public review in December 2023. The PTCA Plan includes various strategies and actions to address the needs of people who have been disproportionately harmed by environmental injustice. Implementation of Mobile Strategy 6, *Public Transit, Bike, and Pedestrian Infrastructure*, would help to expand access to shared modes of travel and benefit the people who have been historically burdened with lack of viable transportation alternatives. Land Use Strategy 1, *Land Use*, provides recommended strategies to protect sensitive receptors and residential areas from existing and potential future pollution sources and exposure, with an intended outcome of improving community health for all, especially disproportionately impacted communities. Marine & Rail Strategy 1, *Reduce Cancer and Chronic Health Risk from Rail Operations and Facilities*, would directly benefit overburdened communities living adjacent to rail lines and/or operations, such as the Iron Triangle neighborhood in the City of Richmond. Requirements for cleaner rail equipment would improve the health of those most acutely impacted, as well as for the greater community.

Thus, the PTCA Plan considers measures to reduce emissions and improve community health within Overburdened and AB 617 Communities consistent with BAAQMD's environmental justice goals. The proposed General Plan integrates goals, policies, and actions that seek to lessen the environmental burden on disadvantaged populations. Thus, the proposed project would be consistent with the draft PTCA Plan and BAAQMD's environmental justice goals; and impacts would be less than significant.

Contra Costa County Environmental Justice Policies

The proposed General Plan integrates goals, policies, and actions that seek to lessen the environmental burden on disadvantaged populations. The process to develop environmental justice policy guidance involved extensive discussions and many meetings with community members and other stakeholders who live in, work in, or engage with communities that are most impacted by environmental justice issues to ensure the Plan directly responds to the specific needs of Impacted Communities. Engagement included two collaboration meetings with environmental justice stakeholders to identify Impacted Communities and key environmental justice issues, three to four meetings with community members from each Impacted Community in the county, about 15 meetings with community-based organizations who work with Impacted Communities, a three-part meeting series with environmental justice stakeholders to review and refine draft policy guidance, and several meetings with the Board of Supervisors Sustainability Committee and the County's Sustainability Commission and Hazardous Materials Commission to discuss draft policy guidance. The County also conducted a hard copy and online survey to solicit feedback on draft environmental justice policy guidance, working with community partners to distribute hard copies at strategic locations to reach people during the COVID-19 pandemic, including at schools, libraries, farmers markets, food banks, and soup kitchens.

Contra Costa County is home to a high concentration of refineries and other large industrial facilities. To improve the health and safety impacts of these industrial facilities, the County adopted an Industrial Safety Ordinance. This Ordinance requires additional safety measures that go beyond State requirements that protect public health and safety.

In 2022, the County established the Office of Racial Equity and Social Justice to address local racial inequality and social injustice issues. The Office of Racial Equity and Social Justice is envisioned to enact and sustain principles, policies, practices, and investments that are racially just and equitable across all the County's departments and divisions.

State law, enacted through SB 1000, requires that general plans address environmental justice and respond to this inequity by both alleviating pollution and health impacts and compelling cities and counties to include the voices of previously marginalized residents in planning decisions. Therefore, the proposed General Plan contains certain goals, policies, and actions that help aim to promote environmental justice, especially within Impacted Communities.

Proposed policies within the Stronger Communities and Health and Safety Element would reduce and/or avoid environmental effects on vulnerable populations, include:

- Stronger Communities Element Policies SC-P1.1 through SC-P1.6 and Actions SC-A1.1 through SC-A1.8, which ensure an equitable distribution of resources so that Impacted Communities are not disproportionately burdened by environmental pollution and other hazards.
- Health and Safety Element Policies HS-P1.1 through HS-P1.10 and Actions HS-A1.1 through HS-A1.6, that support community and environmental health.
- Health and Safety Element Policies HS-P2.1 through HS-P2.3 and Actions HS-A2.1 through HS-A2.5 that aim to reduce the disproportionate burden of environmental hazards and health risks in the county.

Thus, the proposed General Plan considers measures to reduce emissions and improve community health within Overburdened and AB 617 Communities consistent with BAAQMD's environmental justice goals. Thus, the proposed General Plan would be consistent with BAAQMD's environmental justice goals and impacts would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions. The proposed CAAP includes the "Clean Transportation Network" group of strategies, including Strategy TR-1, which provides actions for reducing VMT and associated transportation related emissions. As discussed under Impact 5.16-1, this strategy supports the County's existing plans to ensure accessibility and safety for alternative transportation options. Thus, implementation of the proposed CAAP would result in beneficial impacts to air quality. Because the proposed CAAP does not involve any land uses changes that would result in indirect growth or change in building density and intensity, implementation of the proposed CAAP would not conflict with or obstruct implementation of the 2017 Clean Air Plan and impacts would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to the implementation of an applicable air quality plan. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.3-6: The proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number or people. [Threshold AQ-4]

Proposed General Plan

Construction-Related Odors

During construction activities of future development in the county, construction equipment exhaust and application of asphalt and architectural coatings would temporarily generate odors. Any construction-related odor emissions would be temporary and intermittent. Additionally, noxious odors would be confined to the immediate vicinity of the construction equipment. By the time such emissions reach any sensitive receptor sites, they would be diluted to well below any level of air quality concern, and impacts would be less than significant.

Operational-Related Odors

Industrial Land Uses

Industrial land uses are the primary types of land uses that have the potential to generate objectionable odors. Future environmental review could be required for industrial projects listed in BAAQMD's CEQA Guidelines Table 4 Project Screening Trigger Levels for Potential Odor Sources to ensure that sensitive land uses are not exposed to nuisance odors. Consequently, review of projects using BAAQMD's odor screening distances is necessary to ensure that odor impacts are minimized. Odor

impacts could be significant for new projects that have the potential to generate odors within the odor screening distances.

Residential and Other Land Uses

Residential and other nonresidential, nonindustrial land uses that would be accommodated by the proposed General Plan could result in the generation of odors such as exhaust from landscaping equipment and from cooking. Unlike industrial land uses, these are not considered potential generators of odor that could affect a substantial number of people.

Furthermore, nuisance odors are regulated under BAAQMD Regulation 7, Odorous Substances, which requires abatement of any nuisance generating an odor complaint. In addition, odors are also regulated under BAAQMD Regulation 1, Rule 1-301, *Public Nuisance*. Compliance with BAAQMD Regulation 7 would ensure that odor impacts associated with the proposed General Plan are minimized to a less than significant level.

Proposed CAAP

As discussed under Impact 5.3-2, implementation of the proposed CAAP would not involve any land use changes that would result in indirect growth or change in building density or intensity; therefore, its implementation would not directly result in the generation of odors or other emissions. Therefore, implementation of the proposed CAAP would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people, and impacts would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to odors. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

4. Biological Resources

Impact 5.4-1: Implementation of the proposed project would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plan, policies, or regulations or by the CDFW or USFWS. [Thresholds B-1]

Proposed General Plan

Tables 5.4-2, *Special-Status and Covered Plant Species in Contra Costa County*, and 5.4-3, *Special-Status and Covered Wildlife Species in Contra Costa County*, of the DEIR, list all the special-status plant and wildlife species in the county (including the EIR Study Area) that have been documented in the California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS). The county contains 66 special-status plant species that are found across the diverse and, in some cases, specialized habitats in the county. Special-status plants are more abundant in the eastern portions of the EIR Study Area, which retains a rural development pattern that is compatible with the habitat needs of many of the special-status plant species. A total of 59 special-status wildlife species are known to occur in the EIR Study Area. Similar to its benefits for special-status plant species, the rural eastern portion of the county provides some of the best remaining undeveloped habitat for special-status wildlife species.

Often, these special-status wildlife species occur in protected areas, such as Mount Diablo State Park or Los Vaqueros Reservoir, or in various East Bay regional parks.

As detailed in Tables 5.4-2 and 5.4-3, critical habitat occurs in the county (including the EIR Study Area) for five plant and five wildlife species. Impacts on special-status species would include the direct loss of individuals or localized populations, elimination or degradation of habitat, and isolation of subpopulations due to habitat fragmentation. The conversion of existing natural habitat to urban development, roadways, or other infrastructure could result in the elimination of populations of special-status species where present within the limits of development. Indirect impacts could include disruption of critical functions, affecting reproductive success; degradation of habitat quality to such an extent that occupied habitat would no longer be suitable for individual survival; and other influences. Indirect impacts on special-status species could also occur because of increases in stormwater runoff, erosion and downstream sedimentation, and the use of pesticides for agriculture and landscaping. However, given that most development under the proposed General Plan is anticipated to occur within the ULL, specific impacts may be lessened through implementation of the goals, policies, and actions of the proposed General Plan.

As detailed in Section 5.4.1.1 in the DEIR, there are a number of federal and State regulations in place to protect biological resources, including special-status species and their habitat, within the EIR Study Area. In addition, the proposed General Plan policies take a comprehensive approach to the protection of biological resources, including special-status species and their habitats. The Conservation, Open Space, and Working Lands Element of the proposed General Plan includes policies and actions that would mitigate potential impacts on special-status species and their habitats, including policies and actions associated with goals that aim to preserve and enhance ecological resources and wildlife habitat (Goal COS-4); protect and restore natural watercourses, riparian corridors, and wetland areas (Goal COS-5); preserve and enhance native upland habitat (Goal COS-6); and protect, preserve, and enhance natural resources of the San Francisco Bay/Sacramento-San Joaquin Delta estuary system and shoreline (Goal COS-9).

The goals, policies, and actions in the proposed General Plan, in combination with existing policies and regulations under the Federal Endangered Species Act (FESA), Migratory Bird Treaty Act (MBTA), California Endangered Species Act (CESA), California Fish and Game Code, Clean Water Act (CWA), and Native Plant Protection Act (NPPA), as well as consistency with the East Contra Costa County HCP/NCCP, would ensure that the potential impacts of the proposed General Plan on special-status species would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that does not include specific projects. However, projects that would implement the proposed CAAP strategies and actions could result in the construction of physical improvements and infrastructure in the county that is designed to help meet the emissions targets in the CAAP, which could potentially impact special-status species. Projects that would implement the proposed CAAP strategies and actions would be required to be consistent with the proposed General Plan, applicable provisions of the Contra Costa County Ordinance Code, the East Contra Costa County HCP/NCCP, and existing policies and regulations under the FESA, MBTA, CESA, California Fish and Game Code, CWA, and NPPA. Compliance with the aforementioned

policies and regulations would reduce potential impacts of the proposed CAAP on special-status species to a less-than-significant level.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to any species identified as sensitive or special-status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS). Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.4-2: Implementation of the proposed project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS. [Thresholds B-2]

Proposed General Plan

As explained in Appendix 5.4-2, *California Department of Fish and Wildlife: RareFind Report, Contra Costa County*, of the DEIR, riparian habitat (i.e., riparian woodland) makes up only 0.16 percent of the county, which includes the EIR Study Area. Most creeks and streams in the EIR Study Area are disconnected from their historic floodplains by levees and channelization. Many of these streams are maintained as flood control channels, which support little or no riparian vegetation, and most drainages outside the urbanized areas are ephemeral or intermittent, generally supporting narrow floodplains with limited riparian habitat. Additional sensitive natural communities in the EIR Study Area include shrublands, woodlands, conifer forests, wetlands and ponds, and baylands. Altogether, nine sensitive natural communities are mapped in the CNDDB as occurring within the county, which includes the EIR Study Area. All but two of these communities are aquatic; thus, most of the sensitive natural communities mapped in the CNDDB are located along the edge of the Delta and/or San Francisco Bay. The eastern portion of the EIR Study Area, in the vicinity of the Los Vaqueros Watershed and Bryon Hills/Vasco Caves, is also a hot spot for sensitive habitats. It contains one of the upland vegetation communities, valley needlegrass grassland. The other upland community, serpentine bunchgrass, is found on the Contra Costa-Alameda County boundary, southwest of the cities in vicinity of Oakland.

Construction activities could have direct and indirect impacts on riparian habitat and other sensitive natural communities. Construction projects in the EIR Study Area could also affect sensitive natural communities by spreading or introducing invasive plant species to currently uninfected areas. Invasive species spread aggressively and crowd out native species, potentially altering the species composition of natural communities. A predominance of invasive species reduces the overall habitat quality for native plants and wildlife. However, given that most development under the proposed General Plan is anticipated to occur within the ULL, specific impacts may be lessened through implementation of the goals, policies, and actions of the proposed General Plan. The Conservation, Open Space, and Working Lands Element of the proposed General Plan includes policies and actions that would mitigate potential impacts on riparian habitat or other sensitive natural communities, including policies and actions associated with goals that aim to preserve open space for environmental protection (Goal COS-1); preserve and enhance ecological resources and wildlife habitat (Goal COS-4); protect and restore natural watercourses, riparian corridors, and wetland areas (Goal COS-5); preserve and enhance native upland habitat (Goal COS-6); protect water quality (Goal COS-8); and protect, preserve, and enhance

natural resources of the San Francisco Bay/Sacramento-San Joaquin Delta estuary system and shoreline (Goal COS-9).

Furthermore, any disturbance or alteration of streams, lakes, or non-federally protected (non-jurisdictional) wetlands would require a permit with conditions that would protect sensitive natural communities. A Section 1602 Streambed Alteration Agreement (SAA) would be needed from the CDFW prior to initiation of project construction activities that would divert, obstruct, or change the natural flow of a river, stream, or lake or use material from a streambed. Non-jurisdictional wetlands include wetland features that are not hydrologically connected to navigable waters in rivers and are not under Corps jurisdiction. These wetlands would still be considered waters of the State and would be regulated according to the waste discharge requirements that would be issued by the RWQCB.

Implementation of proposed General Plan goals, policies, and actions, including conditions associated with SAAs and waste discharge requirements, would ensure that the potential impacts of the proposed General Plan on riparian corridors and other sensitive natural communities would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that does not include specific projects. However, projects that would implement the proposed CAAP strategies and actions could result in the construction of physical improvements and infrastructure in the county that is designed to help meet the emissions targets in the CAAP, which could potentially impact riparian corridors and other sensitive natural communities. Projects that would implement the proposed CAAP strategies and actions would be required to be consistent with the proposed General Plan as well as conditions associated with SAAs and waste discharge requirements. Compliance with the aforementioned policies and regulations would reduce potential impacts of the proposed CAAP on riparian corridors and other sensitive natural communities to a less-than-significant level.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.4-3: Implementation of the proposed project would not have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. [Thresholds B-3]

Proposed General Plan

The EIR Study Area contains waters of the United States, which include jurisdictional wetlands and other waters. Construction activities could have direct and indirect impacts on waters of the United States. However, given that most development under the proposed General Plan is anticipated to occur within the ULL, specific impacts may be lessened through implementation of the goals, policies, and actions of the proposed General Plan. The Conservation, Open Space, and Working Lands Element of the proposed General Plan includes policies and actions that would mitigate potential impacts on

wetlands, including policies and actions associated with goals that aim to protect and restore natural watercourses, riparian corridors, wetland areas (Goal COS-5) and water quality (Goal COS-8).

Implementation of the proposed General Plan goals, policies, and actions, including conditions associated with Section 404 permits and Section 401 water quality certifications, would ensure that the potential impacts of the proposed General Plan on State and federally protected wetlands would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that does not include specific projects. However, projects that would implement the proposed CAAP strategies and actions could result in the construction of physical improvements and infrastructure in the county that is designed to help meet the emissions targets in the CAAP, which could potentially impact federally protected wetlands. Projects that would implement the proposed CAAP strategies and actions would be required to be consistent with the proposed General Plan, conditions associated with Section 404 permits and Section 401 water quality certifications, as well as additional mitigation protection for wetlands during construction activities. Compliance with the aforementioned policies and regulations would reduce potential impacts of the proposed CAAP on federally protected wetlands to a less-than-significant level.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to any on State or federally protected wetlands. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.4-5: The proposed project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan. [Thresholds B-5 and B-6]

Proposed General Plan

As discussed in Chapter 3, *Project Description*, of the DEIR, in 1990, voters adopted Measure C-1990, which created the 65/35 Land Preservation Standard and ULL. County Ordinance Code Chapter 82-1, Section 82-1.010, *Urban Limit Line*, establishes the ULL to ensure the enforcement of the 65/35 Standard set forth in Section 82-1.006 of the County Ordinance Code. The 65/35 Standard limits the amount of land that can be devoted to urban development, while the ULL limits the areas where such development can occur. The 65/35 Standard limits urban development to no more than 35 percent of the land area of the county. The remaining 65 percent must be preserved for agriculture, open space, wetlands, parks, and other non-urban uses. Institutional/public uses such as schools, transit facilities, fire and police stations, water and wastewater treatment plants, correctional facilities, and airports are also counted as non-urban. Urban and non-urban uses are allowed inside the ULL while only non-urban uses are allowed outside. Any change to the ULL that exceeds 30 acres is subject to a four-fifths vote of the Board of Supervisors and requires countywide voter approval. In addition, County Ordinance Code Chapter 12.45, *Trees on Private Property*, requires the preservation of significant trees and permitting for impacts on, or removal of, such trees.

The policies in the proposed General Plan would not conflict with existing aforementioned County ordinances for the protection of biological resources but, rather, would expand on them to address issues regarding sensitive biological resources. Regarding County Ordinance Code Chapter 82-1, Policy LU-P2.1 requires continued implementation of the 65/35 land preservation standard, using the County ULL to focus development while preserving agricultural land, rangeland, natural habitats, watersheds, and open space; Policy LU-P2.2 enhances the ULL's effectiveness by supporting efforts to acquire and permanently protect land along the ULL boundary; and Policy LU-P2.3 limits development outside the ULL to non-urban uses. Regarding County Ordinance Code Chapter 12.45, Policy COS-P6.1 requires the preservation of natural woodlands and significant trees, particularly mature native species, intact coastal scrub and chaparral, and grasslands, especially those with native grass and wildflower populations; Policy COS-P6.3 supports the protection of native trees, especially oaks, in foothill woodlands and agricultural areas by encouraging the voluntary installation of fencing around individuals or clusters of trees to prevent grazing and promoting the replanting of native species. Action COS-A6.1 directs the County to update County Ordinance Code Chapter 816-6 to enhance the protection of specified native trees and strengthen mitigation requirements for removal commensurate with the benefits the tree provides; Action COS-A6.2 directs the County to develop an Oak Woodland Conservation Program that establishes special mitigation ratios for the removal of oak trees, along with specific tree replacement and planting standards to ensure long-term growth and survival and amendments to the County Ordinance Code as needed to implement the program.

The proposed General Plan also includes policies supporting the East Contra Costa County HCP/NCCP. For example, Policy COS-P4.2 supports preservation of HCP/NCCP conservation areas and the Priority Conservation Areas mapped by the Association of Bay Area Governments. Additional policies for the protection of biological resources are also consistent with the HCP/NCCP, including Policy COS-P4.3, which requires a biological resources assessment, prepared according to State and federal protocols, for projects with the potential to affect rare, threatened, endangered, or special-status species or their habitat and implementation of appropriate mitigation for identified impacts, preferably near the impact and within the county; Policy COS-P4.4, which protects wildlife migration corridors including natural and channelized creeks providing habitat in urban settings; Policy COS-P4.5, which requires floristic and vegetation surveys, prepared according to State and federal protocols, when development is proposed on land with potentially suitable habitat for special-status plant species, sensitive natural plant communities, or locally rare plants, including areas mapped by CNPS as Botanical Priority Protection Areas; and Policy COS-P5.1, which supports the protection, restoration, and enhancement of wetlands, marshes, sloughs, tidelands, natural watercourses, and riparian corridors.

Implementation of proposed General Plan goals, policies, and actions, as well as conditions associated with County Ordinance Code Chapters 82-1 and 816-6, would ensure that the potential impacts of the proposed General Plan related to local policies or ordinances for the protection of biological resources or an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that does not include specific projects. However, projects that would implement the proposed CAAP strategies and actions could result in the construction of

physical improvements and infrastructure in the county that is designed to help meet the emissions targets in the CAAP, which could potentially conflict with local policies or ordinances for the protection of biological resources or an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan. Projects that would implement the proposed CAAP strategies and actions would be required to be consistent with the proposed General Plan as well as conditions associated with County Ordinance Code Chapters 82-1 and 816-6. Compliance with the aforementioned policies and regulations would reduce potential conflicts of the proposed CAAP with local policies or ordinances for the protection of biological resources or an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan to a less-than-significant level.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to any local policies or ordinances protecting biological resources. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

5. Cultural and Tribal Cultural Resources

Impact 5.5-3: Implementation of the proposed project would not disturb any human remains, including those interred outside of dedicated cemeteries. [Threshold C-3]

Proposed General Plan

The EIR Study Area has been long inhabited by Native Americans. Therefore, Native American burials may be found in the future on sites where no record of such burials exists. Buried human remains that were not identified during previous research and field studies could be inadvertently unearthed during ground-disturbing activities, possibly resulting in damage to the remains. Accordingly, implementation of the proposed General Plan could potentially damage or destroy human remains in the EIR Study Area.

In the event that human remains are discovered during grading or construction activities, compliance with California Health and Safety Code Section 7050.5, which includes specific provisions for the protection of human remains in the event of discovery, would be required. The treatment of Native American human remains is regulated by Public Resources Code Section 5097.98, as amended by AB 2641, which addresses the disposition of Native American burials, protects remains, and appoints the NAHC to resolve disputes. In addition, California Health and Safety Code Section 7052 makes the willful mutilation, disinterment, or removal of human remains a felony. The Health and Safety Code is applicable to any project where ground disturbance would occur. The proposed Conservation, Open Space, and Working Lands Element includes policies and actions that would mitigate potential impacts on human remains. Specifically, in the event of the discovery of a burial, human remains, or suspected human remains, Policy POS-P11.11 requires excavation and grading activities to halt immediately, protection of the area surrounding the find, notification of the County Coroner, and compliance with California Health and Safety Code Section 7050.5.

The proposed General Plan policy guidance, in combination with existing federal and State regulations in place to protect human remains within the EIR Study Area, would ensure that the potential impacts of the proposed General Plan on human remains would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that does not include specific projects. However, projects that would implement the proposed CAAP strategies and actions could result in the construction of physical improvements and infrastructure in the county that is designed to help meet the emissions targets in the CAAP, which could potentially impact human remains in the EIR Study Area. Projects that would implement the proposed CAAP strategies and actions would be required to be consistent with the proposed General Plan, California Health and Safety Code Section 7050.5, and Public Resources Code Section 5097.98. Compliance with the aforementioned policies and regulations would reduce potential impacts of the proposed CAAP on human remains to a less-than-significant level.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to disturbance of any human remains, including those interred outside of dedicated cemeteries. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

6. Energy

Impact 5.6-1: Implementation of the proposed project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

Proposed General Plan

Short-Term Construction Impacts

Development projects constructed under the proposed General Plan would create temporary demands for electricity. Natural gas is not generally required to power construction equipment, and therefore is not anticipated during construction phases. Electricity use would fluctuate according to the phase of construction. Additionally, it is anticipated that most electric-powered construction equipment would be hand tools (e.g., power drills, table saws, compressors) and lighting, which would result in minimal electricity usage during construction activities.

Construction of development projects facilitated by the proposed General Plan would also temporarily increase demands for energy associated with transportation. Transportation energy use depends on the type and number of trips, VMT, fuel efficiency of vehicles, and travel mode. Energy use during construction would come from the transport and use of construction equipment, delivery vehicles and haul trucks, and construction employee vehicles that would use diesel fuel or gasoline. The use of energy resources by these vehicles would fluctuate according to the phase of construction and would be temporary. It is anticipated that most off-road construction equipment, such as those used during demolition and grading, would be gas or diesel powered. In addition, all operation of construction equipment would cease upon completion of project construction.

Furthermore, the construction contractors would be required to minimize nonessential idling of construction equipment during construction in accordance with the California Code of Regulations Title 13, Chapter 9, Article 4.8, Section 2449. Such required practices would limit wasteful and unnecessary energy consumption. Also, future projects within the EIR Study Area would be similar to projects currently in development within Contra Costa County. Overall, there would be no unusual project characteristics anticipated that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of California. Therefore, short-term construction activities that occur as a result of implementation of the proposed General Plan would not result in inefficient, wasteful, or unnecessary fuel consumption.

Long-Term Impacts During Operation

Operation of potential future development accommodated under the proposed General Plan would create additional demands for electricity and natural gas compared to existing conditions. Operational use of electricity and natural gas would include heating, cooling, and ventilation of buildings; water heating; operation of electrical systems; use of on-site equipment and appliances; lighting; and charging electric vehicles. Land uses accommodated under the proposed General Plan would also result in additional demands for transportation fuels (e.g., gasoline, diesel, compressed natural gas, and electricity) associated with on-road vehicles.

Decreasing Overall per Capita Energy Consumption

Building Electricity

Electrical service to the county is provided by Pacific Gas and Electric (PG&E) and Marin Clean Energy (MCE) through connections to existing off-site electrical lines and new on-site infrastructure. As shown in Table 5.6-4, *Year 2045 Forecast Electricity Consumption*, in the DEIR, by horizon year 2045, electricity use in the EIR Study Area is estimated to increase by 47,697,580 kWh/year, or approximately 9 percent, from existing conditions. As a result, the per service population electricity consumption is estimated to decrease from 4,319 kWh per person per year in existing baseline to 1,982 kWh per person per year in 2045, or a reduction of approximately 474 kWh per person annually.

As previously discussed, all new development facilitated by the proposed General Plan would be required to demonstrate compliance with the current Energy Code and California Green Building Code (CALGreen) standards in effect at the time the individual development applications are submitted and can therefore be expected to be more energy-efficient than the use being replaced, resulting in reductions in electricity consumption on a per dwelling unit and per square foot basis when compared to existing development. It should be noted that it is unknown how much more energy-efficient future iterations of the Energy Code and CALGreen standards would be in 2045 compared to existing conditions as those code updates are released on a 3-year cycle.

Moreover, the proposed General Plan Policies COS-P7.6, COS-P14.7, COS-P14.8, HS-P1.8, and HS-P3.2 would serve to improve energy efficiency and reduce energy consumption in new development facilitated by the proposed General Plan. As a result of compliance with Title 24 energy efficiency standards and implementation of the above proposed General Plan policies and actions, per service

population building electricity consumption is expected to decrease in 2045 compared to existing conditions.

Building Natural Gas and Propane

As shown in Table 5.6-5, *Year 2045 Forecast Natural Gas and Propane Consumption*, in the DEIR, existing natural gas use and propane use in the EIR Study Area totals 43,885,050 therms and 92,942 million British thermal units (MMBTU) annually. By 2045, natural gas use in the EIR Study Area would increase by 6,972,060 therms annually, or approximately 16 percent, from existing conditions to a total of 50,857,110 therms per year. Future development is unlikely to require propane in more rural areas of the county, especially due to the County's all-electric requirements for new construction. Therefore, the propane use in the EIR Study Area is anticipated to remain the same, for a total of 92,942 MMBTU per year.

As a result, the per service population natural gas consumption is estimated to decrease from 206 therms per person per year in existing baseline to 177 therms per person per year in 2045. Propane is also estimated to decrease from 0.44 MMBTU per person per year to 0.32 MMBTU per person per year in 2045.

Similar to electricity consumption, all new development facilitated by the proposed General Plan would be required to demonstrate compliance with the current CBSC and CALGreen and would result in reductions in heating fuel (i.e., natural gas or propane) consumption on a per dwelling unit and per square foot basis when compared to existing development in the county. As stated above, the proposed General Plan Policies COS-P7.6, COS-P14.7, COS-P14.8, HS-P1.8, and HS-P3.2 would serve to improve energy efficiency and reduce energy consumption in new development facilitated by the proposed General Plan. As a result, per service population heating fuel consumption is expected to decrease in 2045 compared to existing baseline conditions.

Transportation Energy

The growth accommodated under the proposed General Plan would consume transportation energy from the use of motor vehicles (e.g., gasoline, diesel, compressed natural gas, and electricity). Table 5.6-6, *Operation-Related Annual Fuel Usage: Net Change from Existing*, in the DEIR shows the net change in VMT, fuel usage, and fuel efficiency under forecast year 2045 proposed General Plan conditions from existing baseline year conditions.

As shown in Table 5.6-6, when compared to existing baseline year conditions, the proposed General Plan and CAAP would result in a decrease in fuel usage for gasoline-, compressed natural gas-, and diesel-powered vehicles, but not for electric-powered vehicles. The decrease in fuel usage for gasoline-powered vehicles and large increase in VMT and fuel usage for electric-powered vehicles are primarily based on the assumption in EMFAC that a greater mix of light-duty automobiles would be electric-powered in future years based on regulatory (e.g., Advanced Clean Cars) and consumer trends. Furthermore, per service population VMT generation would decrease by an estimated 722 VMT/SP from baseline conditions.

The overall VMT as shown in the table would be primarily attributable to the overall growth associated with the proposed General Plan compared to existing conditions. As discussed in Section 5.14, *Population and Housing*, in the DEIR implementation of the proposed General Plan would exceed

current regional projections for housing by 26 percent and population by 18 percent. However, it is important to note that regional projections used were from *Plan Bay Area 2040* and not the updated *Plan Bay Area 2050*, which does not differentiate between Contra Costa County as a whole and only the unincorporated portion of the county.

As identified in Section 5.16 of the DEIR, *Transportation*, the proposed General Plan Land Use Element includes goals, policies, and actions to minimize VMT and therefore reduce emissions from automobiles. Additionally, fuel efficiency of vehicles under year 2045 conditions would improve compared to existing baseline year conditions. The improvement in fuel efficiency would be attributable to regulatory compliance (e.g., Corporate Average Fuel Economy standards), resulting in new cars that are more fuel efficient and the attrition of older, less fuel-efficient vehicles. The CAFE standards are not directly applicable to residents or land use development projects, but to car manufacturers. Thus, Contra Costa County and its residents do not have direct control in determining the fuel efficiency of vehicles manufactured and that are made available. However, compliance with the CAFE standards by car manufacturers would ensure that vehicles produced in future years have greater fuel efficiency and would generally result in an overall benefit of reducing fuel usage by providing the population of the county more fuel-efficient vehicle options.

While the demand in electricity would increase under the proposed General Plan, in conjunction with the regulatory (i.e., Renewables Portfolio Standard, SB 350, and SB 100) and general trend toward increasing the supply and production of energy from renewable sources, it is anticipated that a greater share of electricity used to power electric vehicles would be from renewable sources in future years (e.g., individual photovoltaic systems, purchased electricity from PG&E, and/or purchased electricity from MCE that is generated from renewable sources). In addition to regulatory compliance that would contribute to more fuel-efficient vehicles and less demand in fuels, the proposed General Plan includes policies that will contribute to minimizing overall VMT, and thus associated fuel usage. In combination with improvements in fuel economy standards through 2045, the proposed General Plan would result in a decrease in transportation energy consumption. As a result, the proposed General Plan would result in an overall decrease in energy consumption through 2045.

Decreasing Reliance on Fossil Fuels

The proposed General Plan would be considered to conflict with this criterion if it did not take steps to decrease the reliance on fossil fuels. As discussed in Section 5.8 of the DEIR, *Greenhouse Gas Emissions*, individual development projects accommodated by the proposed General Plan would be required to comply with the California Building Standards Code (CBSC) that is current at the time of their building application submittal. As the current CBSC is the 2022 CBSC, individual development projects going through the application process today would result in greater energy efficiency than the current performance of existing structures in the EIR Study Area. In addition, the 2022 CBSC currently includes provisions for development projects to include rooftop photovoltaic systems and BES infrastructure or demonstrate energy efficiency performance equivalent to including photovoltaic and BES features.

In addition to improvements in energy efficiency and on-site renewable energy generation and energy storage requirements, SB 100 requires that Load Serving Entities (LSEs) incrementally increase their energy procurement sources to include eligible renewable and carbon-free sources. By January 1, 2046, all LSEs in California are required to source 100 percent of their in-state electricity sales from renewable

and carbon-free sources. As a result, individual development projects accommodated by the proposed General Plan would improve their energy efficiency through compliance with the CBSC current at the time of their building application submittal and LSEs would supply electricity that is increasingly sourced from carbon-free sources.

Moreover, consistent with Executive Order N-79-20 and CARB's Advanced Clean Cars II Regulation, which require that 100 percent of new passenger vehicles sold in-state are ZE (i.e., battery electric, hybrid plug-in electric, and fuel cell electric vehicles) by 2035, vehicles utilized by future residents and employees accommodated by the proposed General Plan are expected to consist more of EVs than what is experienced under existing conditions. In addition, the proposed General Plan includes policies that are intended to reduce the use of nonrenewable energy. Specifically, Policies COS-P14.7, COS-P14.8, HS-P1.8, and HS-P3.2 encourage the reduction of nonrenewable energy use and the utilization of new energy sources and building electrification. As a result, the proposed General Plan would incrementally decrease reliance on fossil fuel energy resources through 2045.

Increasing Reliance on Renewable Energy

As previously discussed, the 2022 CBSC currently requires a variety of development projects that don't meet specific exceptions or exemptions to include rooftop photovoltaic systems and Battery Energy Storage (BES) infrastructure or otherwise match or exceed the energy efficiency performance experienced by including photovoltaic and BES systems, as applicable. In addition, it is anticipated that each new Code cycle for the CBSC will improve on the last one by requiring higher performance for energy efficiency and incorporating additional requirements for on-site renewable energy and EV charging infrastructure. Future development projects accommodated by the proposed General Plan would therefore result in a net increase from existing conditions in on-site photovoltaic electricity generation and EV charging stations and associated infrastructure, further supporting and accelerating the adoption of EVs and the use of renewable energy in future years.

Similarly, LSEs that serve future development projects accommodated by the proposed General Plan, such as PG&E and MCE, would be required to incrementally increase their energy procurement sources to include eligible renewable and carbon-free sources through 2045 under SB 100. As a result, electricity consumed by individual development projects under the proposed General Plan, as well as existing structures in the county, would rely more on renewable and carbon-free sources for electricity in future years than is experienced under existing conditions.

Moreover, the proposed General Plan includes various policies that are intended to support the use of renewable energy beyond compliance with the CBSC, including creating a walkable urban environment to encourage future residents and employees in the county to use active modes of transportation instead of motorized vehicles.

The following proposed General Plan policies focus on minimizing VMT through land use and transportation planning efforts that work in conjunction, including:

Policy TR-P1.4 which aims to reduce single-occupant vehicle usage and VMT by significantly enhancing the availability and safety of other travel modes through infrastructure investment, policy support (Vision Zero, Transportation Demand Management Ordinance, and other best practices), and support for public transit. Policy TR-P4.7 which promotes walkability and safety through traffic-

calming measures through the Neighborhood Traffic Management Program. Policy TR-P5.2 that focuses on coordinating with Caltrans to provide safe highway interchange crossings for all ages and abilities. Policy TR-P5.7 encourages walking, bicycling, and rolling as travel modes for short to medium-length trips to schools, parks, transit stops, local shopping areas, and neighborhood services. Policy TR-P5.10 requires generous parking for bicycles and other mobility devices at key destinations, such as shopping centers, parks, schools, employment centers, transit stations, and multiple-family housing, and directs that this parking be conveniently located near entrances, include charging infrastructure, and accommodate cargo bikes when appropriate for the land use.

Summary

Compliance with federal, State, and local regulations (e.g., Energy Code, CALGreen, Renewables Portfolio Standard, and CAFE standards) would increase building energy efficiency and vehicle fuel efficiency. Compliance would also reduce building energy demand and transportation-related fuel usage in the future. Additionally, the proposed General Plan includes policies related to land use and transportation planning, energy efficiency, promotion of housing near public and active transit, and renewable energy generation that will contribute to minimizing building and transportation-related energy demands overall. As stated, development that could occur under the proposed General Plan would reduce the per capita transportation energy consumption, decrease reliance on fossil fuels, and increase reliance on renewable energy sources.

Implementation of policies under the proposed General Plan, in conjunction with and complementary to regulatory requirements, would ensure that energy demand associated with growth under the proposed General Plan would decrease overall energy consumption, decrease reliance on fossil fuels, and increase reliance on renewable energy. As such, the energy consumption under the proposed General Plan would not be considered inefficient, wasteful, or unnecessary. Therefore, energy impacts associated with implementation and operation of land uses accommodated under the proposed General Plan would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions; it does not involve any land use changes that would result in indirect growth or change in building density or intensity. Because there is no specific land use component associated with the proposed CAAP, its implementation would not directly result in energy impacts.

Furthermore, the proposed CAAP would help reduce GHG emissions and energy demand generated by existing and proposed land uses in the EIR Study Area. For example, proposed CAAP transportation strategies that reduce VMT (e.g., Strategy TR-1) would result in a reduction in transportation-related fuel usage. Likewise, the proposed CAAP also promotes building energy-efficiency improvements (e.g., Strategies BE-1 and BE-2), increasing water efficiency (e.g., Strategy DR-1 and DR-2), and reducing energy demand through renewable energy sources (e.g., Strategy BE-3) to minimize energy sector emissions. In addition, the proposed CAAP supports the East Bay Energy Watch, which is a partnership between PG&E and local governments in the East Bay region to conduct energy efficiency outreach to residents and businesses, retrofit existing government facilities to improve energy efficiency, and provide training to agency staff. Thus, implementation of the proposed

CAAP would result in beneficial impacts to energy consumption. Overall, implementation of the proposed CAAP would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation and impacts would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to wasteful, inefficient, or unnecessary consumption of energy resources. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.6-2: Implementation of the proposed project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

Proposed General Plan

The state's electricity grid is transitioning to renewable energy under California's Renewable Portfolio Standard (RPS) Program. Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. In general, California has RPS requirements of 33 percent renewable energy by 2020 (SB X1-2), 40 percent by 2024 (SB 350), 50 percent by 2026 (SB 100), 60 percent by 2030 (SB 100), and 100 percent by 2045 (SB 100). SB 100 also establishes RPS requirements for publicly owned utilities that consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. Additionally, SB 1020 requires all State agencies to procure 100 percent of electricity from renewable energy and zero-carbon resources by 2035.

The statewide RPS requirements do not directly apply to individual development projects, but to utilities and energy providers such as PG&E and MCE, whose compliance with RPS requirements would contribute to the State's objective of transitioning to renewable energy. In addition, the County Board of Supervisors voted to go Deep Green 100 percent renewable (i.e., all power which customers buy comes from 100 percent non-polluting wind and solar power) with MCE for the majority of the County's accounts. Even if customers in the county were to opt-out of the Deep Green program, and therefore receive all their electricity from PG&E, 33 percent of PG&E's electricity has been generated from renewable energy since 2017. By 2030, PG&E is set to meet the State's new 60 percent renewable energy mandate set forth in SB 100.

The land uses accommodated under the proposed General Plan would be required to comply with the current and future iterations of the Building Energy Efficiency Standards and CALGreen. Furthermore, as described for Impact Discussion 5.6-1, the proposed General Plan includes policies that would support the statewide goal of transitioning the electricity grid to renewable sources. The net increase in energy demand associated with implementation of the proposed General Plan would be within the service capabilities of MCE and PG&E and would not impede their ability to implement California's renewable energy goals. Therefore, implementation of the proposed General Plan would not conflict with or obstruct implementation of California's Renewables Portfolio Standard program, and the impact would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions; it does not involve any land use changes that would result in indirect growth or change in building density or intensity. As discussed under Impact Discussion 5.6-1, the proposed CAAP transportation strategies would reduce VMT (e.g., Strategy TR-1) to aid in the reduction in transportation-related fuel usage. Likewise, the proposed CAAP also promotes building energy-efficiency improvements (e.g., Strategies BE-1 and BE-2), increasing water efficiency (e.g., Strategy DR-1 and DR-2), and reducing energy demand through renewable energy sources (e.g., Strategy BE-3) to minimize energy sector emissions. Furthermore, the proposed CAAP supports the East Bay Energy Watch, which is a partnership between PG&E and local governments in the East Bay region to conduct energy efficiency outreach to residents and businesses, retrofit existing government facilities to improve energy efficiency, and provide training to agency staff. Therefore, the proposed CAAP would complement the statewide goal of transitioning the electricity grid to renewable sources. Implementation of the proposed CAAP would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency and impacts would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to conflicting with a State or local plan for renewable energy or energy efficiency. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.6-3: Implementation of the proposed project would not require or result in the relocation or construction of new or expanded energy facilities, the construction or relocation of which could cause significant environmental effects.

Proposed General Plan

The proposed General Plan would accommodate future growth in the EIR Study Area that would require new or expanded energy facilities; however, the proposed General Plan would not directly result in the construction of new or expanded energy facilities that would not otherwise be reviewed and mitigated to reduce potentially significant environmental effects. As discussed in Section 5.6.1.1, *Regulatory Background*, of the EIR, the Integrated Resource Plan (IRP) is the principal planning document that identifies California Independent System Operator (CAISO's) forecasts for electricity demand, supply, and transmission needs over a 20-year planning horizon, as well as its strategies for integrating renewable energy resources and other grid services to meet those needs. These forecasts consider the expected growth in population and development in corresponding LSE's service areas, such as the population and development envisioned under the proposed General Plan within PG&E and MCE's service area.

The IRP is developed in collaboration with LSEs, regulators, and other stakeholders, and is updated periodically to reflect changes in the energy landscape and evolving policy goals. Overall, the IRP plays a critical role in ensuring the reliability and resilience of California's electricity grid as the state continues to transition to a cleaner and more sustainable energy system. When an LSE identifies that new or expanded energy facilities are needed to accommodate the population and development growth in its service area, those proposed improvements are reviewed to identify consistency with local, State, and

federal regulatory compliance as well as potential environmental effects that may result. For on-site systems, such as rooftop solar, the review would be conducted by the applicable lead agency as part of that individual development project. For energy infrastructure improvements that involve the construction of new or expansion of existing transmission lines, generation systems, or BES facilities separate from an individual development project, the review would be conducted by the California Public Utilities Commission (CPUC) and/or California Energy Commission (CEC) depending on the type of facility. The CEC typically acts as a CEQA lead or responsible agency for energy infrastructure improvements involving generation or BES systems, whereas the CPUC typically acts as a CEQA lead or responsible agency for improvements involving transmission lines or other distribution infrastructure.

Once the new or expanded energy facility is reviewed and approved, incorporating any necessary and appropriate mitigation, it is assigned a point of interconnection on the grid, and its output is added to the IRP as a resource that can provide electricity and other grid services, such as frequency regulation or ramping support. The facility is then dispatched by CAISO based on its bids into the day-ahead and real-time electricity markets, and its output is used to help balance supply and demand on the grid in real-time. CAISO operates a wholesale electricity market in which LSEs can participate by offering to buy or sell electricity and other grid services, such as demand response or energy storage. This market helps to ensure that the electricity system operates efficiently and reliably by providing economic incentives for electricity providers to use their resources effectively.

In addition to the IRP, which principally governs the planning efforts for new and expanded electricity and natural gas facilities, the CPUC in December 2022 adopted a new framework to comprehensively review utility natural gas infrastructure investments in order to help the State transition away from natural-gas fueled technologies and avoid stranded assets in the gas system. The new framework requires utilities to seek CPUC approval of natural gas infrastructure projects of \$75 million or more or those with significant air quality impacts. The new framework is intended to capture natural gas projects likely to have the most substantial community and environmental impacts and to require demonstrate project compliance with CEQA. Therefore, while the proposed General Plan may result in increased energy resource demand by facilitating population and development growth in the EIR Study Area, and subsequently in PG&E and MCE's service area, any new or expanded facilities needed as a result of meeting that increased demand would undergo its own review to mitigate potentially significant environmental effects and demonstrate compliance with regulatory requirements. As such, the proposed General Plan would not result in new or expanded energy facilities which may cause significant environmental effects. This impact would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions; it does not involve any land use changes that would result in indirect growth or change in building density or intensity. Because there is no specific land use component associated with the proposed CAAP, its implementation would not directly result in relocation or construction of new or expanded energy facilities.

As discussed under Impact Discussion 5.6-1, the proposed CAAP promotes building energy-efficiency improvements (e.g., Strategies BE-1 through BE-2) and reducing energy demand through renewable energy sources (e.g., Strategy BE-3) to minimize energy sector emissions. Furthermore, the proposed

CAAP supports the East Bay Energy Watch, which is a partnership between PG&E and local governments in the East Bay region to conduct energy efficiency outreach to residents and businesses, retrofit existing government facilities to improve energy efficiency, and provide training to agency staff. Therefore, implementation of the proposed CAAP would not directly result in new or expanded energy facilities which may cause significant environmental effects and impacts would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to the relocation or construction of new or expanded energy facilities. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

7. Geology and Soils

Impact 5.7-1: The proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; ii) Strong seismic ground shaking; iii) Seismic-related ground failure, including liquefaction; or iv) Landslides, mudslides, or other similar hazards. [Threshold G-1i, G-1ii, G-1iii and G-1iv)].

Proposed General Plan

Surface Rupture of a Fault

As shown in Figure 5.7-1, *Regional Fault Map*, of the DEIR, there are five major faults that run through Contra Costa County including the Calaveras (North Central), Concord-Green Valley, Greenville, Hayward, and Mount Diablo Faults. The EIR Study Area also includes Alquist-Priolo Fault Zones. Future development within the EIR Study Area could have potential impacts in regard to seismic activities at or from nearby faults. However as required by the Alquist-Priolo Act Fault Zoning Act, the approval of projects within Earthquake Fault Zones must be in accordance with the policies and criteria established by the Surface Mining and Geology Board (SMGB). SMGB regulations require that fault investigation reports be prepared by a professional geologist registered in the State of California. Additionally, the Seismic Hazards Mapping Act requires projects for human-occupancy that are within mapped fault zones to obtain a site-specific geotechnical report prior to the issuance of individual grading permits, and each new development would be required to retain a licensed geotechnical engineer to design new structures to withstand probable seismically induced ground shaking.

The proposed General Plan Health and Safety Element includes policies aimed at reducing potential impacts from development in and near areas with known faults. In particular, Policy HS-P4.3 discourages new below-market-rate housing in Alquist-Priolo Fault Zones; Policy HS-P11.1 requires appropriately detailed engineering geologic or geotechnical investigations for projects in Alquist-Priolo Earthquake Fault Zones or Seismic Hazard Zones delineated by the California Geological Survey, as well as any other areas of steep slopes or areas of suspected ground failure known to the county; Policy HS-P11.2 prohibits the construction of buildings for human occupancy in areas where seismic and other geologic hazards cannot be adequately mitigated; and Policy HS-P11.3 discourages construction of critical facilities and buildings in Alquist-Priolo Fault Zones, encourages earthquake retrofitting, and

requires critical facilities and buildings to be sited, designed, and constructed to withstand seismic stresses.

Furthermore, all new development in California is subject to the seismic design criteria of the CBC, which requires that all improvements be constructed to withstand anticipated ground shaking from regional fault sources. The CBC standards require all new developments to be designed consistent with a site specific, design-level geotechnical report, which would be fully compliant with the seismic recommendations of a California-registered professional geotechnical engineer. Adherence to the applicable CBC requirements, Alquist-Priolo Fault Zoning Act, Seismic Hazards Mapping Act, and proposed General Plan policies would ensure that implementation of the proposed General Plan would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. Compliance with State and local regulations would therefore mitigate impacts due to rupture of a known fault to a less than significant level.

Ground Shaking

Due the location and underlying geology of Contra Costa County, all future development in the EIR Study Area would likely be subject to strong seismic ground shaking. Several policies in the proposed Health and Safety Element help to mitigate impacts from ground shaking. Policy HS-P11.2 prohibits construction of buildings for human occupancy in areas where seismic and geologic hazards cannot be mitigated. Policy HS-P11.3 discourages construction of critical facilities and buildings in Alquist-Priolo Fault Zones, encourages earthquake retrofitting, and if there are no feasible alternatives to siting critical facilities and buildings intended for human occupancy in the Fault Zones, requires buildings to be sited, designed, and constructed to withstand seismic stresses. Additionally, all future residential development would be required to conform to CBC requirements and standards established to prevent significant damage due to ground shaking during seismic events. Adhering to these requirements would make impacts associated with ground shaking less than significant.

Liquefaction

As shown in Figure 5.7-2, Liquefaction Hazard Zones, of the DEIR, several areas of the county are susceptible to liquefaction hazards. Therefore, future development under the proposed General Plan has the potential to be subject to liquefaction hazards. However, the proposed General Plan Health and Safety Element includes policies that address development in areas prone to liquefaction hazards and help to mitigate the risks posed by liquefaction. Policy HS-P11.1 requires appropriately detailed engineering geologic or geotechnical investigations for projects in Alquist-Priolo Earthquake Fault Zones or Seismic Hazard Zones delineated by the California Geological Survey, as well as any other areas of steep slopes or areas of suspected ground failure known to the county and requires that these reports include recommended means of mitigation of any adverse condition representing a hazard to improvements and recommendations to assure proper implementation of mitigation measures during construction. In addition, Policy HS-P11.2 prohibits construction of buildings intended for human occupancy in areas where geologic hazards, such as liquefaction, cannot be adequately mitigated.

Additionally, all future development would be required to conform to CBC requirements and standards established to prevent significant damage due to ground shaking during seismic events. Therefore, impacts associated with liquefaction would be considered less than significant.

Landslides

As shown on Figure 5.7-3, *Landslide Hazards*, of the DEIR, large areas of the EIR Study Area with hill terrain are susceptible to landslides. The County restricts development on open hillsides and ridgelines and generally prohibits development on hillsides above a 26 percent grade, as referenced in Section 82-1.016, *Hillside Protection*, of the County Ordinance Code. Compliance with CBC requirements, including implementation of recommendations provided in site-specific geotechnical reports would reduce or avoid impacts related to landslides. In addition, the proposed General Plan Health and Safety Element includes policies that help to mitigate impacts related to landslides and unstable geologic conditions. For example, Policy HS-P11.5 discourages development on slopes exceeding 15 percent and prohibits development on slopes of 26 percent or greater to avoid instability, unnecessary grading, and extensive land disturbance and facilitate long-term control of erosion and sedimentation, and Policy HS-P11.6 prohibits road dedications or private road construction in unstable hillside and landslide hazard areas unless potential hazards have been mitigated to the County's satisfaction.

Based on the existing and proposed County regulations, policies, and actions, combined with CBC requirements, implementation of the proposed General Plan would not directly or indirectly result in adverse effects related to landslides, and the impact would be less than significant.

Summary

Overall, implementation of the above proposed policies and actions, as well as compliance with State, regional, and local regulations pertaining to structural safety regarding fault rupture, ground shaking, liquefaction, and landslides, would ensure that potential future development that results from implementation of the proposed project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death. Therefore, impacts would be less than significant.

Proposed CAAP

The proposed CAAP aims to reduce GHG emissions from activities in the county. The proposed CAAP is a policy document that does not include specific projects that could cause potential substantial adverse impacts, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known active fault trace, or involving seismic ground shaking, liquefaction, or landslides. In addition, the proposed CAAP includes actions under Strategy CE-1 and Strategy NI-6 that require new housing for low-income households to be outside of hazard-prone areas, including for landslides. Therefore, the impact is less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to geological hazards. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.7-2: Development under the proposed project would not result in substantial soil erosion or the loss of topsoil. [Threshold G-2]

Proposed General Plan

Future development facilitated by the proposed General Plan would involve soil disturbance, construction, and operation of developed land uses that could be subject to unstable soils conditions. However, the proposed General Plan is a policy-level document and does not include any development proposals or development entitlements that would directly result in the construction or expansion of any new development.

As described further in Section 5.10 of the DEIR, *Hydrology and Water Quality*, of this DEIR, any new development that would require the disturbance of one or more acres during construction would be subject to the requirements of the National Pollutant Discharge and Elimination System (NPDES) General Permit for Stormwater Discharge Associated with Construction and Land Disturbance Activities (Construction General Permit). The NPDES permit requires the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which would include Best Management Practices (BMPs) designed to control and reduce soil erosion. The BMPs may include dewatering procedures, storm water runoff quality control measures, watering for dust control, and the construction of silt fences, as needed. In addition, County Ordinance Code Section 716-4.202 requires standard erosion control practices to be implemented for all construction. These State and local regulations would effectively mitigate construction stormwater runoff impacts from development under the proposed General Plan.

Furthermore, the proposed General Plan also include policies aimed at mitigating soil erosion. The Health and Safety Element includes Policy HS-P11.5, which discourages development on slopes exceeding 15 percent to avoid excessive grading. The Conservation, Open Space, and Working Lands Element includes Policy COS-P8.4, which requires new development to retain vegetation and topography and use BMPs to minimize erosion. The Public Facilities and Services Element includes Policy PFS-P7.10, which requires that new landfills provide an approved erosion control and drainage plan.

Implementation of these State and local requirements, as well as policies in the proposed General Plan would effectively ensure that future projects would not result in substantial soil erosion or the loss of topsoil from construction activities, and impacts would be less than significant.

Proposed CAAP

The proposed CAAP aims to reduce GHG emissions from activities in the county. Although the proposed CAAP is a policy document that does not include specific projects, projects could be facilitated by proposed CAAP actions that involve construction activity and soil disturbance, creating the potential for soil erosion. However, such projects would be subject to the same State and local requirements and proposed General Plan policies described above for the discussion of proposed General Plan impacts. Therefore, the impact is less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to substantial soil erosion or the loss of topsoil. Accordingly, no changes or alterations

to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.7-3: Development under the proposed project would not subject people or structures to hazards from unstable soil conditions. [Thresholds G-3 and G-4]

Proposed General Plan

Development on unstable or expansive soils could create substantial risks to life or property and result in adverse impacts such as on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse. As shown in Figures 5.7-1, *Regional Fault Map*, 5.7-2, *Liquefaction Hazard Zone*, and 5.7-3, *Landslide Hazards*, of the DEIR, there are seismic and geologic hazards throughout the EIR Study Area. In addition, as mentioned in Section 5.7.1.2, *Existing Conditions*, of the DEIR, the three classified soils in the county have expansive capabilities; therefore, future development within the EIR Study could have potentially significant impacts if located in these hazardous areas.

However, the proposed General Plan policies listed in Impact Discussion 5.7-1 would ensure geologic hazards such as unstable soils, liquefaction, subsidence, and other potential geologic or soil stability issues be addressed and mitigated. In addition, the County Ordinance Code Section 94-4.420 requires the preparation of a preliminary soil report to accompany a tentative parcel for a subdivision, and Section 716-2.418 requires a soil investigation for all development identified to have the potential for hazards related to soil conditions such as expansive soils, so the project can mitigate impacts through site-specific design. In addition, all new projects within the EIR Study Area must comply with the CBC, which contains provisions for soil preparation and conditioning to minimize geologic hazards such as unstable soils, liquefaction, subsidence, and other potential geologic or soil stability issues. Therefore, this impact is less than significant.

Proposed CAAP

The proposed CAAP aims to reduce GHG emissions from activities within the county. Although the proposed CAAP is a policy document that does not include specific projects, projects could be facilitated by proposed CAAP actions that would place structures on a geologic unit or soil that is unstable. However, such projects would be subject to the same State and local requirements and proposed General Plan policies described above for the discussion of proposed General Plan impacts. Therefore, the impact is less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to unstable soil conditions. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.7-4: Development under the proposed project would connect to existing sewer lines or comply with State and local regulations for on-site septic tanks or alternative wastewater disposal systems. [Threshold G-5].

Proposed General Plan

Most new development would connect to existing sewer lines, and on-site septic tanks and alternative wastewater disposal systems would be limited to rural areas. Any new development within the EIR Study Area that would include the utilization of a septic tank or alternative wastewater disposal system would be regulated by the Contra Costa Health Services Environmental Health Division. Obtaining a permit would be required prior to the construction of any septic tank or alternative wastewater disposal system, and each system would be constructed within the parameters of the State Water Resources Control Board (SWRCB) Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems, as well as the Contra Costa County Health Officer Regulations for Sewage Collection and Disposal. As this procedure would be required prior to construction of any and all septic tanks and alternative wastewater disposal systems, all new development under the proposed General Plan would be subject to these State and local requirements. Proper soils are essential for installation and maintenance of septic tank and alternative wastewater disposal systems; compliance with these State and local requirements would ensure that impacts related to adequate soils for supporting such systems are less than significant.

Proposed CAAP

The proposed CAAP aims to reduce GHG emissions from activities within the county. Although the proposed CAAP is a policy document that does not include specific projects, projects could be facilitated by proposed CAAP actions that include structures that connect to existing sewer lines, on-site septic tanks, and/or alternative wastewater disposal systems. In the event that a septic tank or alternative wastewater disposal system installation is proposed, a testing and permitting process would be completed before installation based on individual project-level review, as described above for the discussion of proposed General Plan impacts.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to alternative wastewater disposal systems. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

8. Greenhouse Gas Emissions

Impact 5.8-1: Implementation of the proposed project is not projected to result in emissions that would exceed the unincorporated county's GHG reduction target established under SB 32 and progress toward the State's carbon neutrality goal. [Thresholds GHG-1]

Proposed General Plan

Future potential development under the proposed General Plan would contribute to global climate change through direct and indirect emissions of GHGs from land uses within the unincorporated

county. However, a general plan is a long-range policy document that does not directly result in development without additional approvals. Before any development can occur in the unincorporated county, it must be analyzed for consistency with the General Plan, zoning requirements, and other applicable local and State requirements; comply with the requirements of CEQA; and obtain all necessary clearances and permits from regulatory agencies.

Horizon Year 2045 Emissions Compared to Existing Conditions

The projected development under the proposed General Plan is not linked to a specific development time frame but is assumed over a 20-year project horizon through 2045. Implementation of the proposed General Plan by the horizon year of 2045 would result in a net increase in service population of 74,969 in the EIR Study Area. Table 5.8-6, *Unincorporated Contra Costa County GHG Emissions Business-as-Usual Forecast*, in the DEIR, provides a comparison of the change in GHG emissions in the EIR Study Area between the CEQA baseline (2019) and the proposed General Plan horizon year (2045) conditions.

As shown in Table 5.8-6, the increase in residential units and population associated with the proposed General Plan results in an increase in on-road transportation, residential and nonresidential building energy use, solid waste, off-road equipment, water and wastewater, and BART.

After accounting for reductions from State actions, projected development in 2045 that would be accommodated under the proposed General Plan would result in a net decrease of 109,209 MTCO₂e GHG emissions from existing conditions. The primary reason for the decrease in overall community-wide GHG emissions, despite an increase in service population, is a result of regulations adopted to reduce GHG emissions and turnover of California's on-road vehicle fleets. Consequently, implementation of the proposed General Plan would not result in a substantial increase in GHG emissions because there would be a decrease in emissions from existing conditions (CEQA baseline). However, without additional local GHG reduction strategies, Contra Costa County would not achieve consistency with the GHG reduction goals of AB 1279 (i.e., 85 percent reduction below 1990 levels by 2045).

Local GHG Reduction Measures

The proposed General Plan directs implementation of the proposed CAAP. The proposed CAAP draws upon strategies from the 2015 CAAP, with new strategies to address current State regulations and local issues of concern. Contra Costa County has implemented the following GHG reduction measures identified in the 2015 CAAP to reduce GHG emissions in the EIR Study Area:

- To increase the number of carbon neutral buildings, the Board of Supervisors adopted the All-Electric Ordinance (Ordinance No. 2022-02) to require new construction of residential, detached accessory dwelling units (ADU), hotel, office, and retail building types to be all-electric. As of June 2022, 67 single-family or duplex projects and 40 ADU projects received permits in alignment with the all-electric ordinance. Current new construction and major renovations of County facilities include LED lighting and heat pump technology, and the County enrolled in MCE's Strategic Energy Management Program to increase energy efficiency in County facilities. Additionally, 42 projects within the unincorporated area utilized the Bay Area Regional Energy Network program, which provides rebates to single-family homeowners for energy efficiency improvements.

- To replace fossil fuel electricity with renewable electricity, the majority of residential accounts in the unincorporated area are enrolled in MCE for an estimated 43,690 metric tons of CO₂e reduced. Around 70 percent of the County's electricity usage is associated with MCE's Deep Green account, which provides electricity from 100 percent renewable energy.
- The County has developed a carbon sequestration feasibility study through a grant from the California Department of Conservation. The study, *Healthy Lands, Healthy People*, will identify strategies to store carbon in various land uses across the county, such as agriculture, parks and open space, conservation lands, and towns and cities.
- The County has also enhanced the accessibility and connectivity of active transportation options with the adoption of the Active Transportation Plan and 2022 Capital Road Improvement & Preservation Program (CRIPP). The CRIPP lays out funded transportation projects in the county that provide safe, efficient, and reliable transportation. Currently, there are 33 actively funded projects.
- The County is working to implement projects at over 25 sites to facilitate the transition to an all-electric County fleet. MCE has also established numerous EV charging ports over the years, including 33 EV charging port installations in year 2022.

The proposed CAAP identifies GHG emissions reductions targets for the EIR Study Area that would ensure consistency with the State GHG reduction goals of AB 1279 and substantial progress toward the State's carbon neutrality goals. In addition, the proposed CAAP includes additional GHG reduction measures to achieve the State's carbon neutrality goals identified in the 2022 Scoping Plan. Table 5.8-7, *Proposed CAAP Local GHG Reduction Strategies*, of the DEIR, shows the local GHG reduction measures and reductions associated with the local measures in the proposed CAAP in 2045 that would help achieve those reductions.

Table 5.8-8, *Contra Costa County 2045 GHG Emissions Reduction Target Analysis with the Proposed CAAP*, in the DEIR, shows that with the additional local measures identified in the proposed CAAP, the unincorporated county would achieve the AB 1279 GHG reduction targets for year 2045. With implementation of the proposed CAAP, Contra Costa County would achieve an 85-percent decrease in GHG emissions in the unincorporated areas of the county by 2045 from 1990 levels and would make substantial progress toward the State's carbon neutrality goals. Therefore, the proposed General Plan, which includes implementation of the proposed CAAP, would not result in a substantial increase in the magnitude of GHG emissions and would be consistent with the GHG reduction goals identified under AB 1279.

Additionally, implementation of the following proposed General Plan policies and actions would also minimize energy and mobile-source emissions in the unincorporated areas.

- **Policy LU-P3.3:** Encourage extremely high-density, mixed-use development that combines employment, housing, and services near major transit facilities. Such development should be planned and designed to encourage walking, micromobility, and transit use; shorter commutes; and reduced dependency on single-occupant vehicles.
- **Policy LU-P3.7:** Welcome development that supports the countywide goal of reducing VMT, thus reducing greenhouse gas emissions, to meet climate change targets. Require projects that do not support the County's VMT-reduction goals to incorporate necessary changes (e.g., design, land use mix) to ensure they support those goals.

- **Policy TR-P1.3:** Ensure emerging transportation technologies and travel options, such as autonomous and ZEVs and transportation network companies, support the County's goals for reducing emissions, adapting to climate change, improving public safety, and increasing equitable mobility.
- **Policy TR-P1.4:** Reduce single-occupant vehicle usage and VMT by significantly enhancing the availability and safety of other travel modes through infrastructure investment, policy support (Vision Zero, TDM Ordinance, and other best practices), and support for public transit.
- **Policy TR-P1.11:** Support transitioning all on-road vehicles, including personal vehicles and business, government, and public transit fleets, to electric power from renewable sources or other emission-free fuels.
- **Policy TR-P1.12:** Continue to improve ZEV charging/fueling infrastructure within new development and public rights-of-way, incorporating new technologies whenever possible.
- **Policy TR-P1.13:** Require designs for new parking facilities to incorporate ZEV charging/fueling infrastructure and maximize opportunities for adaptive reuse.
- **Action TR-A1.4:** Implement programs to encourage transit use, bicycling, walking, telecommuting, and use of alternative vehicle fuels by County employees.
- **Action TR-A1.11:** Coordinate with CCTA and other local and regional agencies to implement the Contra Costa Electric Vehicle Readiness Blueprint and related policies and apply best practices in ZEV charging/fueling infrastructure requirements.
- **Action TR-A1.12:** Update the County Ordinance Code as necessary to support advances in ZEV charging/fueling infrastructure.
- **Policy COS-P14.1:** Implement Climate Action and Adaptation Plan strategies to improve energy efficiency and conservation, promote carbon-free energy sources, and reduce energy-related GHG emissions.

Individual development projects facilitated by the proposed General Plan would experience emission reductions from implementation of State measures and strategies to reduce statewide GHG emissions, such as the Low Carbon Fuel Standard (LCFS) mandate or RPS requirements. The above proposed General Plan policies and actions would serve to further support potential GHG reductions for individual development projects facilitated by the proposed General Plan. Furthermore, individual projects would be required to demonstrate consistency with the proposed CAAP by preparing a CAAP Consistency Checklist, identify specific GHG emissions reduction strategies from the proposed CAAP that are applicable to the project, and demonstrate how the project will implement these strategies to ensure that the project's emissions are consistent with the community-wide emissions forecast contained herein.

In summary, implementation of the proposed General Plan would result in a net decrease in emissions from existing conditions. Additionally, with implementation of the proposed CAAP, emissions from existing and planned development in the EIR Study Area would achieve the GHG reduction goals identified under AB 1279 for year 2045, which is consistent with the thresholds identified by BAAQMD in their CEQA Guidelines. Therefore, growth within the county associated with the proposed General Plan would not have a cumulatively considerable impact on GHG emissions and this impact would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions; it does not involve any land use changes that would result in indirect growth or change in building density or intensity. Because there is no specific land use component associated with the proposed CAAP, its implementation would not directly result in the generation of GHG emissions.

In addition, the proposed General Plan directs implementation of the proposed CAAP, recognizing that the County's climate action planning efforts must be updated more regularly to be responsive to the changing regulations, guidance, technology, best practices, and science. For instance, the proposed CAAP transportation strategies that reduce VMT (e.g., Strategy TR-1) would result in a reduction in GHG emissions from the transportation sector. Likewise, the proposed CAAP also promotes building energy-efficiency improvements (e.g., Strategies BE-1 and BE-2), increasing water efficiency (e.g., Strategy DR-1 and DR-2) and reducing energy demand through renewable energy sources (e.g., Strategy BE-3) to minimize energy sector emissions. Furthermore, the proposed CAAP supports the East Bay Energy Watch, which is a partnership between PG&E and local governments in the East Bay region to conduct energy efficiency outreach to residents and businesses, retrofit existing government facilities to improve energy efficiency, and provide training to agency staff. Thus, implementation of the proposed CAAP would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment and impacts would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to generating GHG emissions. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.8-2: Implementation of the proposed project would not conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions. [Thresholds GHG-2]

Proposed General Plan

CARB Scoping Plan

The CARB Scoping Plan is applicable to State agencies but is not directly applicable to cities, counties, and individual projects (i.e., the Scoping Plan does not require local jurisdictions to adopt its policies, programs, or regulations to reduce GHG emissions). However, new regulations adopted by the State agencies from the Scoping Plan result in GHG emissions reductions at the local level. So local jurisdictions benefit from reductions in transportation emissions rates, increases in water efficiency in the building and landscape codes, and other statewide actions that affect a local jurisdiction's emissions inventory from the top down. Statewide strategies to reduce GHG emissions include the LCFS and changes in the CAFE standards. Additionally, local jurisdictions are encouraged to prepare local GHG reduction plans to align local GHG reductions with the State GHG reduction targets identified in the Scoping Plan.

Development projects under the proposed General Plan would be required to adhere to the programs and regulations identified by the Scoping Plan and implemented by State, regional, and local agencies

to achieve the statewide GHG reduction goals of AB 32, SB 32, and AB 1279. Future development projects would be required to comply with these State GHG emissions reduction measures because they are statewide strategies. For example, new buildings under the proposed General Plan would be required to meet the CALGreen and Building Energy Efficiency Standards in effect at the time when applying for building permits. Furthermore, the proposed General Plan includes policies that minimize GHG emissions and therefore help achieve GHG reduction goals.

Moreover, the proposed General Plan directs implementation of the proposed CAAP. As described under Impact 5.8-2, the proposed CAAP aligns the GHG reduction goals for the unincorporated areas for existing and new development with AB 1279 and the carbon neutrality goals identified in the 2022 Scoping Plan. Therefore, the proposed General Plan would result in a net benefit because implementation of the proposed CAAP would align future development in the county with the policies and objectives identified by CARB. Implementation of the proposed General Plan would not obstruct implementation of the CARB Scoping Plan, and impacts would be less than significant.

ABAG/MTC's Plan Bay Area

Plan Bay Area 2050 is the Bay Area's regional transportation plan to achieve the passenger vehicle emissions reductions identified under SB 375. Plan Bay Area 2050 is the current SCS for the Bay Area, adopted October 21, 2021. In addition to significant transit and roadway performance investments to encourage focused growth, Plan Bay Area 2050 directs funding to neighborhood active transportation and complete streets projects, climate initiatives, lifeline transportation and access initiatives, safety programs, and PDA planning. In Contra Costa County, a number of PDAs and Transit Priority Areas have been designated in the EIR Study Area, as shown on Figure 5.16-1, *Priority Development Areas and Transit Priority Areas*, in Section 5.16 of the DEIR.

While Plan Bay Area 2050 does not override local land use control, it provides guidance to the local jurisdictions such as Contra Costa County on how future development can be consistent with the State's GHG and VMT reduction goals. This includes constructing more infill development in downtowns and centers in close proximity to jobs and services.

As further discussed in Section 5.14 of the DEIR, *Population and Housing*, the proposed General Plan would exceed current regional projections for housing and population. However, it is important to note that regional projections used were from Plan Bay Area 2040, which does not differentiate between Contra Costa County as a whole and the unincorporated portion of the county. In addition, the proposed General Plan includes policies and actions that would limit development in certain areas and control the growth within the EIR Study Area. All potential future development would be required to comply with any required site-specific infrastructure improvements and to pay any project-specific impact fees.

The proposed Land Use Element includes policies to encourage high-density, mixed-use development to create shorter commutes and reduced dependency on single-occupant vehicles (see Land Use and Planning Impact 5.11-2). The proposed Growth Management Element also establishes goals, policies, and actions intended to manage and mitigate impacts of future growth within the unincorporated county. Furthermore, future development projects that could result in significant VMT impacts are required to include Transportation Demand Management (TDM) strategies and physical measures to reduce VMT.

Overall, the proposed General Plan would be consistent with the goals of Plan Bay Area 2050 in concentrating new development in locations where there is existing infrastructure and transit. Therefore, the proposed General Plan would not conflict with the land use concept plan in Plan Bay Area 2050 and impacts would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions; it does not involve any land use changes that would result in indirect growth or change in building density or intensity. Furthermore, as discussed under Impact Discussion 5.8-1, implementation of the proposed CAAP would result in beneficial GHG emissions impacts by contributing to reducing VMT, increasing energy and water use efficiency, and increasing renewable energy use. Therefore, the proposed CAAP would be complementary to statewide and regional plans to reduce GHG and would not interfere with or obstruct the implementation of the CARB Scoping Plan or Plan Bay Area 2050. Implementation of the proposed CAAP would not conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions and impacts would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to an applicable plan, policy, or regulations regarding GHG emissions. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

9. Hazards and Hazardous Materials

Impact 5.9-1: Implementation of the proposed project, including construction and operation activities, could involve the transport, use, and/or disposal of hazardous materials; however, compliance with existing local, state, and federal regulations would ensure impacts are minimized. [Thresholds H-1, H-2, and H-3].

Proposed General Plan

Pipelines

As noted in Section 5.9.1.2, *Existing Conditions*, of the DEIR, several hundred miles of pipelines transporting natural gas, petroleum, or other hazardous liquids run through the EIR Study Area. The pipelines are monitored by pipeline operators who are responsible for the upkeep of pipelines and the authorization of excavations around pipeline locations. Development under the proposed General Plan would increase the exposure of people and the environment to potential hazards related to pipeline or electrical line rupture. As with all developments in California, development in Contra Costa County would be required to follow the procedural requirements of the Underground Service Alert of Northern California, or USA North 811.

Construction

Construction of future projects would involve the use of substances such as paints, sealants, solvents, greases, adhesives, cleaners, lubricants, and fuels. However, the materials used would not be in such quantities or stored in such a manner as to pose a significant safety hazard to the public or the

environment. These activities would also be short term or one time in nature. Project construction workers would be trained in safe handling and hazardous materials use, as required under Occupational Safety and Health Administration (OSHA) Regulation 29 CFR 1926.62 and CCR Title 8. Project construction contractors would maintain equipment and supplies on construction sites for containing and cleaning up spills. If a hazardous materials release could not be safely contained and cleaned up by on-site personnel, the affected project applicant would notify the applicable fire department immediately.

Additionally, to prevent hazardous conditions, existing local, State, and federal laws and regulations—such as those listed under Section 5.9.1.1, *Regulatory Background*, of the DEIR, are required to be enforced at construction sites. For known or potential contaminated sites, prior to issuing a grading or building permit, the County would require an assessment of potential hazards. If the development project could pose a human health or environmental risk, the Contra Costa Health Services Hazardous Materials Programs (CCHSHMP) would require that such hazards be managed appropriately. This could include, but would not be limited to, actions such as removal of the contaminants, site controls to reduce exposure, or administrative mechanisms.

Compliance with existing laws and regulations governing the use, storage, transportation, and disposal of hazardous materials would ensure that all potentially hazardous materials are used and handled in an appropriate manner and would minimize the potential for safety impacts to occur.

Demolition

Future development projects under the proposed General Plan may involve demolition of existing buildings and structures associated with a specific development site. Some building materials used in the mid and late 1900s are considered hazardous to the environment and harmful to people. Asbestos, for example, was generally not used in building materials by 1980, but was still occasionally used until the late 1980s. Lead-based paint was banned for residential use in 1978 and phased out for commercial structures in 1993.

Due to the age of the buildings and structures in the EIR Study Area (many over 50 years old), it is likely that some contain asbestos-containing materials (ACMs) and lead-based paint (LBP), as well as other building materials containing lead. Demolition could cause encapsulated ACM (if present) to become friable; once airborne, they are considered a carcinogen. Demolition could also cause the release of lead into the air. The USEPA has classified lead and inorganic lead compounds as “probable human carcinogens”, and such releases could pose significant risks to persons living and working in and around a proposed development.

Abatement of all ACM and LBP encountered during any future building demolition activities would be required in accordance with all applicable laws and regulations, including those of the USEPA (which regulates disposal), OSHA, U.S. Department of Housing and Urban Development, the California Division of Occupational Safety and Health (Cal/OSHA, which regulates employee exposure), and BAAQMD.

To further prevent impacts from the potential release of ACM or LBP, an ACM and LBP survey of existing buildings and structures prior to the commencement of any demolition or renovation is required under BAAQMD Regulation 11, Rule 2, *Asbestos Demolition, Renovation, and Manufacturing*. Lead

emissions are similarly controlled under Regulation 11, Rule 1, *Lead*. With compliance of existing laws and regulations, hazardous impacts related to the release of ACMs and LBP are not anticipated to occur. Compliance with these laws, regulations, and mitigation measures would be ensured through the County's development review and building plan check process.

Operation

Industrial uses and some commercial uses utilize greater amounts of hazardous materials than do other uses such as residential uses and schools. The proposed General Plan could facilitate the development of up to 1.2 million square feet of new commercial space and 5 million square feet of new industrial space in the EIR Study Area. Uses of hazardous materials in operations of land uses permitted under the proposed General Plan would be subject to regulations enforced by the same agencies as for uses of hazardous materials in construction.

However, per Chapter 83-63, *Land Use Permits for Development Projects Involving Hazardous Material*, of the County Ordinance Code, the operation or expansion of hazardous waste facilities is required to comply with the County Hazardous Waste Management Plan, which identifies siting criteria, siting principles, and other policies applicable to hazardous waste facilities. Businesses that generate any amount of hazardous waste or handle hazardous materials equal to, or greater than, program threshold quantities are also required to obtain a Hazardous Materials (CUPA) Permit per Chapter 450-2, *Hazardous Materials Release Response Plans and Inventories*. Under these regulations, businesses would be required to provide workers with training on safe use, handling, and storage of hazardous materials. Businesses would maintain equipment and supplies for containing and cleaning up spills of hazardous materials that could be safely contained and cleaned by onsite workers; and would immediately notify emergency response agencies in the event of a hazardous materials release that could not be safely contained and cleaned up by onsite personnel.

Furthermore, the proposed Health and Safety Element contains goals, policies, and actions that require local planning and development decisions to consider impacts that contribute to the risk of loss, injury, or death as a result of hazardous materials releases. The proposed policies and actions under Goal HS-9 that are italicized in Section 5.9.3.1, *Proposed General Plan Goals, Policies, and Actions*, of the DEIR, would serve to minimize potential adverse impacts from hazardous materials, including by proposing more stringent regulation on certain hazardous material uses. For example, Policy HS-P9.5 would require industrial projects involving use, management, or generation of hazardous materials or waste, particularly those utilizing stationary or fixed storage tanks, in areas at risk from sea-level rise, surface or emergent groundwater flooding, or tsunami to incorporate best management practices to reduce risk and prepare plans for prevention and remediation of hazardous materials/waste releases resulting from inundation. Policy HS-P9.10 specifically prohibits hazardous waste facilities in ecologically sensitive areas or areas at-risk of flood and geologic hazards. Policies HS-P9.10, HS-P9.11, and HS-P9.12 would also help to ensure that hazardous waste facilities are assessed and sited in compliance with SB 673 (Health and Safety Code Sections 25200.21(b) and (c)).

Furthermore, the proposed Health and Safety Element contains goals, policies, and actions that require local planning and development decisions to consider impacts that contribute to the risk of loss, injury, or death as a result of hazardous materials releases. The proposed policies and actions under Goal HS-9 that are italicized in Section 5.9.3.1, *Proposed General Plan Goals, Policies, and Actions*, would serve to minimize potential adverse impacts from hazardous materials, including by proposing more

stringent regulation on certain hazardous material uses. For example, Policy HS-P9.5 would require industrial projects involving use, management, or generation of hazardous materials or waste, particularly those utilizing stationary or fixed storage tanks, in areas at risk from sea-level rise, surface or emergent groundwater flooding, or tsunami to incorporate best management practices to reduce risk and prepare plans for prevention and remediation of hazardous materials/waste releases resulting from inundation. Policy HS-P9.10 specifically prohibits new hazardous waste facilities in ecologically sensitive areas or areas at-risk of flood and geologic hazards. Policies HS-P9.10, HS-P9.11, and HS-P9.12 would also help to ensure that hazardous waste facilities are assessed and sited in compliance with SB 673 (Health and Safety Code Sections 25200.21(b) and (c)).

Proposed CAAP

The proposed CAAP is a policy document that aims to reduce greenhouse gas (GHG) emissions and help the County to adapt to changing climate conditions and is therefore not expected to result in any specific impacts with regard to the use, transport, or disposal of hazardous materials. Strategies and actions included in the proposed CAAP could result in the construction of physical improvements and infrastructure in the county that is designed to help meet the emissions targets in the CAAP. However, future construction of these physical infrastructure improvements and other related development would be unlikely to involve the transport or disposal of hazardous materials. Additionally, all future construction would be subject to the applicable federal, State, and local regulations outlined above.

Furthermore, in addition to including strategies that aim to reduce GHG emissions, the proposed CAAP includes a suite of climate adaptation strategies aimed at responding to the key vulnerabilities identified in the County's vulnerability assessment. As noted in Section 5.9.1.2, *Existing Conditions*, of the DEIR, this assessment identified several existing industrial and hazardous waste facilities located within areas at risk of climate hazards, including flooding, landslides, and wildfire. Strategies that address these hazards include Strategy NI-1 and its accompanying actions that aim to protect the community against permanent and temporary inundation from rising sea levels and shoreline flooding through green infrastructure, effective building siting and retrofits, and informed land use decisions; Strategy NI-2 and its actions that aim to increase community resilience to the direct and indirect effects of wildfires; and Strategy NI-6 and its actions that include a broader suite of actions aimed at protecting existing and future development from hazards including by considering projected impacts of climate change when siting, designing, and identifying the construction and maintenance costs of capital investment projects. These strategies and actions would help to reduce impacts from climate-related hazards to existing and future development in the county, including facilities and uses that involve the handling of hazardous materials.

Therefore, adoption of the proposed CAAP would primarily result in beneficial impacts with regard to hazardous material use, transport, and disposal, and would therefore have less than significant impacts.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to the routine transport, use, or disposal of hazardous materials. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.9-2: Implementation of the proposed project could facilitate development of a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5, but would not create a significant hazard to the public or the environment. [Threshold H-4].

Proposed General Plan

As indicated in Table 5.9-1 *Active Hazardous Materials Sites in the EIR Study Area*, and in Figure 5.9-1, *Active Hazardous Material Sites*, of the DEIR, there are multiple sites identified in the EIR Study Area that are considered active, open, or in need of further review for hazardous material cleanup. Redevelopment of these sites for development under the proposed General Plan could potentially expose future residents and workers to hazards from known hazardous materials releases on and near the sites.

However, development would be conducted in accordance with the proposed General Plan and the regulations and policies of the agency assigned to the site (i.e., DTSC, Water Quality Control Board, CUPA, or USEPA). Environmental site assessments by a qualified professional would also be required as applicable to ensure that the relevant projects would not disturb hazardous materials on any of the hazardous materials sites or plumes of hazardous materials diffusing from one of the hazardous materials sites, and that any proposed development, redevelopment, or reuse would not create a substantial hazard to the public or the environment. Phase I Environmental Site Assessments are also required for land purchasers to qualify for the Innocent Landowner Defense under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and to minimize environmental liability under other laws such as Resource Conservation and Recovery Act (RCRA). Properties contaminated by hazardous substances are also regulated at the local, State, and federal level and are subject to compliance with stringent laws and regulations for investigation and remediation. For example, compliance with the CERCLA, RCRA, California Code of Regulations Title 22, and related requirements would remedy all potential impacts caused by hazardous substance contamination.

Furthermore, requirements for hazardous materials sites are bolstered by various goals, policies, and actions of the proposed General Plan, including those discussed in Impact 5.9-1 of the DEIR. Additional relevant General Plan policies and actions included under Goal HS-10 specifically address efforts to ensure that future and existing development would not be impacted by historic hazardous material releases. These include Policy HS-P10.2, which requires development of contaminated sites to comply with all cleanup plans, land use covenants, and deed restrictions imposed by the DTSC or RWQCB, and Action HS-A10.2, which directs the County to establish a mechanism to ensure that new or expanded industrial uses involving hazardous materials will fund any needed cleanup of resulting contamination.

Compliance with existing regulations and adherence to proposed General Plan goals, policies, and actions would ensure that impacts from the proposed project would be less than significant.

Proposed CAAP

As indicated in the discussion of the proposed CAAP in Impact 5.9-1, this policy document is not expected to result in any specific impacts with regard to hazardous materials, including development on a hazardous material release or cleanup site. The proposed CAAP does not include strategies or

actions specific to hazardous materials and contaminated sites; however, as noted above, several CAAP strategies and actions would help to increase the County's ability to adapt to climate change-related hazards and increase resiliency against these hazards. As such, the proposed CAAP would have no impact.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to being located on or near hazardous listed sites. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.9-3: Development under the proposed project would not result in a safety hazard or excessive noise for people residing or working within two miles of an airport. [Threshold H-5].

Proposed General Plan

Airport-related hazards are generally associated with aircraft accidents, particularly during take-off and landing. Airport operation hazards include incompatible land uses, power transmission lines and tall structures that penetrate airspace operational areas, visual distractions, and wildlife hazards (e.g., bird strikes). In accordance with State law, the Contra Costa County Airport Land Use Commission adopted an Airport Land use Compatibility Plan (ALUCP). The ALUCP sets land use compatibility and design criteria applicable to all development, including residential, that is within a certain distance from one of the County's two public airports. The ALUCP was updated in 2022 to implement the Byron Development Program. This effort included updates with new policies and maps specific to Byron Airport that reflect the 2017 Airport Layout Plan for Byron Airport, the 2005 Byron Airport Master Plan, and guidance set forth in the most recent version of the Caltrans California Airport Land Use Planning Handbook.

The proposed General Plan would allow for the development of sites that are within the Safety Zones of the Buchanan Field Airport or Byron Airport, as shown in Figure 5.9-2, *Buchanan Field Airport and Byron Airport Safety Zones*, of the DEIR. However, all potential development within each airports' Safety Zones would be required to comply with the provisions for development within the ALUCP, which restricts the heights of structures pursuant to FAA Part 77 regulations. The height regulations are also adopted within the County Ordinance Code under Chapter 86.4, Airport Zoning, for the Buchanan Field Airport. Additionally, pursuant to Section 21096 of the Public Resources Code, the County must consider during future environmental review whether the project will result in a safety hazard or noise problem for persons using the airport or for persons residing or working in the project area. In addition to the provisions of the ALUCP, the FAA and Caltrans Division of Aeronautics provide guidance for land use safety near airports. With adherence to these guidelines, high concentrations of people will not be exposed to potential airplane accidents along runways or near airports while airplanes are departing and arriving. There are also guidelines on the placement of housing, schools, and other sensitive land uses near airports because of the noise pollution caused by airplanes (see also Section 5.13, *Noise*, of the DEIR).

The proposed General Plan also includes several policies under Goal TR-7 of the Transportation Element that would help to ensure that development is compliant with the airport land use requirements. These include Policy TR-P7.4, which directs the County to protect its airports from

encroachment by incompatible uses and minimize the public's exposure to safety hazards and excessive noise by ensuring that all future development within each Airport Influence Area is consistent with the Contra Costa County ALUCP. Additionally, Policies TR-P7.5 and TR-P7.6 further reinforce the County's commitment to land use compatibility by directing the County to support existing and planned airport activities consistent with each airport's respective Airport Master Plan and the ALUCP.

With adherence to applicable procedures and requirements described above, future development projects under the proposed project would not contribute to airport-related hazards and the impact would be less than significant.

Proposed CAAP

As indicated in the discussion of the proposed CAAP in Impact 5.9-1 and Impact 5.9-2, the CAAP is a policy document and is not expected to result in any specific impacts with regard to hazards, including safety and noise hazards associated with development in proximity to an airport. The proposed CAAP does not include any strategies or actions specific to airports or airport-related hazards. Therefore, the proposed CAAP would have no impact.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to development within an airport land use plan. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.9-4: Development under the proposed project could affect the implementation of an emergency responder or evacuation plan. [Threshold H-6].

Proposed General Plan

As shown in Figure 5.9-4, *Evacuation Routes*, of the DEIR, major evacuation routes for the county include a large network of interstate freeways, state routes, arterial streets, and minor roads that feed into the higher capacity evacuation routes. However, as shown in Figure 5.9-5, *Single-Access Road Residential Parcels*, of the DEIR, many residential areas in the EIR Study Area have access to only one viable evacuation route, which presents a significant risk to safe evacuation for existing and future residents of these areas. As discussed in greater detail within Section 5.7, *Geology and Soils*, Section 5.10, *Hydrology and Water Quality*, and Section 5.18, *Wildfire*, of the DEIR, many areas of the county are vulnerable to hazards including earthquakes, liquefaction, landslides, flooding, and wildfire. Any disasters involving these hazards can cause damage to transportation infrastructure, preventing or impeding access by emergency responders and evacuation by residents. In addition, future development under the proposed General Plan would result in construction activities that could temporarily affect roadways as a result of lane closures or narrowing for roadway and/or utility improvements. This could affect emergency response times or evacuation routes. By increasing the residential and daytime population in the EIR Study Area, traffic congestion may increase in some areas as well. Therefore, in the event of an accident or natural disaster, evacuation plans and routes could be adversely affected by the increased traffic.

To address such impacts, the County has adopted and continually updates an LHMP. The LHMP reduces injury, loss of life, property damage, and loss of services from natural disasters and provides a

comprehensive analysis of the natural and human-caused hazards that threaten the county, with a focus on mitigation. This allows the County to remain eligible to receive additional federal and State funding to assist with emergency response and recovery, as permitted by the federal Disaster Mitigation Act of 2000 and California Government Code Sections 8685.9 and 65302.6. In addition to the LHMP, the County implements the EOP and a Community Wildfire Protection Plan (CWPP) to address emergency response and wildfire mitigation planning. Contra Costa County also participates in implementing regional plans, including the Bay Area Multi-Jurisdictional Hazard Mitigation Plan, to provide the framework for responding to major emergencies or disasters.

Additionally, several proposed General Plan Health and Safety Element policies and actions support the update and implementation of the County's LHMP and other emergency planning efforts, as described in Impact 5.9-4, Section 5.9, *Hazards and Hazardous Materials*, of the DEIR.

Implementation of these proposed General Plan policies would ensure that development under the proposed General Plan would not affect the implementation of an emergency responder or evacuation plan, resulting in a less-than-significant impact.

Proposed CAAP

As indicated in the impact discussions above, the proposed CAAP is a policy document that provides strategies to reduce GHG emissions and improve climate resiliency and adaptation. As such, all strategies and actions within the proposed CAAP inherently support the implementation of emergency responder and evacuation plans, while some directly address County efforts for emergency planning. For example, Strategy NI-3 and its accompanying actions direct the County to establish and maintain community resilience hubs with microgrids, education, training opportunities, and other community-focused resources, in line with the policies and actions included under proposed Health and Safety Element Goal HS-12. Therefore, the proposed CAAP would have no impact on emergency response and evacuation plans.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to interference with an emergency response or evacuation plan. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

10. Hydrology and Water Quality

Impact 5.10-1: Implementation of the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. [Threshold HYD-1].

Proposed General Plan

Construction Impacts

Clearing, grading, excavation, and other construction activities have the potential to impact water quality due to soil erosion and increases in the amount of silt and debris carried in runoff. Additionally, the use of construction materials such as fuels, solvents, and paints may present a risk to surface water quality. The refueling and parking of construction vehicles and other equipment on-site during

construction may result in oil, grease, or related pollutant leaks and spills that could discharge into the storm drain system.

To minimize these potential impacts, future development that disturbs one acre or more of land would require compliance with the Construction General Permit (CGP) Order WQ 2022-0057-DWQ, which includes the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP). A SWPPP requires the incorporation of best management practices (BMPs) to control sediment, erosion, and hazardous materials contamination of runoff during construction and prevent contaminants from reaching receiving water bodies. The CGP also requires that prior to the start of construction activities, the project applicant must file Permit Registration Documents (PRDs) with the State Water Resources Control Board (SWRCB), which includes a Notice of Intent, risk assessment, site map, annual fee, signed certification statement, and SWPPP. The construction contractor is required to maintain a copy of the SWPPP at the site and implement all construction BMPs identified in the SWPPP during construction activities. Prior to the issuance of a grading permit, the project applicant is required to provide proof of filing of the PRDs with the SWRCB and Contra Costa County.

Submittal of the PRDs and implementation of the SWPPP throughout the construction phase of the future development through implementation of the proposed General Plan would address anticipated and expected pollutants of concern from construction activities. As a result, water quality impacts associated with construction activities would be less than significant.

Operational Impacts

Future development has the potential to generate pollutants, such as nutrients, pesticides, sediment, trash and debris, oxygen demanding substances, oil and grease, and pathogens. These pollutants could eventually end up in stormwater discharged from the site and impact downstream watercourses. However, development under the proposed General Plan would be subject to the MS4 permit issued by the San Francisco Bay RWQCB, which was recently updated and reissued in December 2022. Project applicants would also need to comply with the requirements outlined in the CCCWP's *Stormwater C.3 Guidebook*. The Guidebook is updated periodically to reflect the latest MS4 permit requirements; therefore, future development under the proposed General Plan would need to comply with the latest thresholds listed for the area and the reissuance of the MS4 permit.

All projects that create or replace between 2,500 and 5,000 square feet of impervious surface must submit a Stormwater Control Plan for a Small Land Development Project, as described in CCCWP's *Stormwater C.3 Guidebook*. The project applicant also must incorporate at least one of the control measures listed in the guidebook:

- Disperse runoff from the roof or paved area to a vegetated area.
- Incorporate some amount of permeable pavement.
- Include a cistern or rain barrel, if allowed by the municipality.
- Incorporate a bioretention facility or planter box.

The 2022 revised MS4 permit has new stricter criteria for what constitutes a Regulated Project. Prior to July 1, 2023, approved projects that created or replaced more than 10,000 square feet of impervious surface were considered Regulated Projects. Effective July 1, 2023, approved projects that meet the following thresholds are considered Regulated Projects:

- A single-family home that is not part of a larger development that creates and/or replaces 10,000 square feet or more.
- All other projects that create and/or replace between 5,000 square feet and one acre of impervious surface. This now includes road and sidewalk repair projects that are greater than 5,000 contiguous square feet and road reconstruction and pavement widening that is greater than one contiguous acre.

These Regulated Projects are required to prepare a Stormwater Control Plan (SCP) that incorporates low impact design (LID) features. The SCP must include site design features that protect natural resources, source control measures that reduce pollutants in stormwater, and stormwater treatment measures that temporarily retain and treat stormwater on-site prior to discharge to the storm drain system. The project applicant must also prepare an Operation and Maintenance Plan that details how the stormwater treatment measures will be inspected and maintained and provide a maintenance agreement that “runs with the land” for perpetuity.

The SCP would demonstrate that runoff from impervious areas is either dispersed to landscape or routed to a properly designed LID treatment facility. LID is an approach to land development (or redevelopment) that works with nature to manage stormwater as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features and minimizing impervious surfaces. There are many options for LID features, including bioretention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements. By implementing LID principles and practices, water can be managed in a way that reduces the impact of built areas and directs runoff to natural landscape features. Applied on a broad scale, LID can maintain or restore a watershed's hydrologic and ecological function.

In addition, projects that create and/or replace one acre or more of impervious surfaces must comply with the hydromodification requirements of the MS4 permit, unless exempted. This requires the design and construction of stormwater treatment measures so that post-project runoff rates and durations match the pre-project runoff rates and durations for ten percent of the 2-year peak flow up to the pre-project 10-year peak flow. Since the proposed General Plan does not include specific or detailed development plans, SCPs are not required at this time. New development and redevelopment projects within the EIR Study Area will be required to prepare SCPs consistent with the guidance in the CCCWP Stormwater C.3 Guidebook and the MS4 permit at the time of project application.

As part of the statewide mandate to reduce trash within receiving waters, the County is required to adhere to the requirements of the California Trash Amendments and is also required to adhere to Provision C.10 of the San Francisco Bay MS4 permit. This includes the installation and maintenance of trash screening devices at all public curb inlets, grate inlets, and catch basin inlets or control measures for full trash capture equivalency. The trash screening devices must be approved by the SWRCB. Additionally, all development that discharges storm water associated with industrial activity must also comply with the requirements of the General Industrial Permit (Order No. 2014-0057-DWQ, last amended in 2018).

As described above in Section 5.10.3.1, *Proposed General Plan Goals, Policies, and Actions*, of the DEIR, the proposed Conservation, Open Space, and Working Lands and Public Services and Facilities Elements of the proposed General Plan contain goals, policies, and actions that require local planning

and development decisions to consider impacts to water quality. Compliance with and implementation of these proposed General Plan goals, policies, and actions, in conjunction with the CCCWP and MS4 permit requirements, would ensure that development pursuant to the proposed General Plan would not violate any water quality standards or waste discharge requirements for both construction and operational phases, and impacts would be less than significant.

Proposed CAAP

The proposed CAAP focuses on the reduction of GHG emissions and help the County adapt to changing climate conditions. As part of the proposed CAAP's strategies to reduce water use and increase drought resilience (DR), provisions which ensure sustainable and diverse water supply are encouraged. For example, Strategy DR-2 includes actions that encourage the County Environmental Health Division to work with Groundwater Sustainability Agencies (GSAs) to ensure sustainable yield goals are met through hydrogeological evaluations in areas with known water shortages and that discourage new development that may lead to negative groundwater quality impacts. Therefore, implementation of the proposed CAAP would likely be beneficial and would result in a less than significant effect on water quality.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to water quality. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.10-2: Implementation of the proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. [Threshold HYD-2]

Proposed General Plan

Groundwater Use

Five of the eight groundwater basins within Contra Costa County are categorized as very low priority basins and there is no groundwater withdrawal from these basins for municipal water supply. East Bay Municipal Utility District (EBMUD) and Contra Costa Water District (CCWD) are the main water purveyors in Contra Costa County. EBMUD's service area is generally in the western portion of the county and CCWD's service area includes most of central and northeastern Contra Costa County.

Although EBMUD does pump groundwater from the Santa Clara Valley – East Bay Plain groundwater basin, most of its water supply is from surface water sources. Because of saltwater intrusion issues, there are no municipal groundwater wells in the northern portion of this groundwater basin that is within the county. Therefore, implementation of the proposed General Plan would not have a significant impact on groundwater supply in this basin. CCWD's water supply is surface water from the Central Valley Project (CVP) and CCWD does not use groundwater to meet its demands.

The Diablo Water District obtains approximately 20 percent of its total water supply from groundwater wells that are located within the San Joaquin Valley-East Contra Costa groundwater basin. This has been designated as a medium priority basin by DWR and is not in overdraft. The Diablo Water District is one of the GSAs for the East Contra Costa Subbasin Groundwater Sustainability Plan (GSP). The

GSP states that there are no signs of over pumping in this groundwater subbasin, and groundwater conditions reflect stability over the past 30 years. In addition, the Diablo Water District passed Regulation No. 10, Groundwater Sustainability and Protection, in 2021, which requires new residential developments and non-residential groundwater wells to install groundwater monitoring wells, connect to a recycled water system (if developed), provide access to groundwater elevation data, and perform regular water quality testing. Although Diablo Water District plans to install additional groundwater wells to supplement its surface water supply with future growth, compliance with the provisions of the GSP and Regulation No. 10 will ensure that there are no substantial decreases in groundwater supplies or interferences with sustainable groundwater management of the basin.

Bay Point, Discovery Bay, and Byron in eastern Contra Costa County have small community systems that rely on groundwater provided by Golden State Water Company and the Town of Discovery Bay Community Services District. These water agencies pump a total of 2,000 and 3,224 acre-feet per year of groundwater. Golden State Water Company pumps groundwater from the Pittsburg Plain Basin, which is a very low priority basin because of minimal groundwater use and the availability of surface water supplies. Therefore, a GSP is not required for this basin. The Town of Discovery Bay Community Services District relies solely on groundwater, but it is a GSA with the East Contra Costa Subbasin GSP. As stated previously, the GSP indicates that the East Contra Costa Subbasin is being operated within its sustainable yield and projected future growth in this area is modest. Therefore, additional development in these areas would not substantially impact groundwater supplies. In addition, the Contra Costa County Ordinance Code 81-56 § 1 states that any property needing water for domestic purposes must demonstrate an approved water supply and obtain written approval from the health officer for such development.

Additionally, future development pursuant to the proposed General Plan would be required to implement the water-efficient requirements specified in the CALGreen and California Plumbing Codes and the Model Water Efficient Landscape Ordinance requirements for water efficient landscaping. As specified in California Water Code Section 10910, future projects subject to CEQA that also meet the criteria under California Water Code Section 10912 would be required to prepare a Water Supply Assessment (WSA) that demonstrates that project water demands would not exceed water supplies. In addition, residential, commercial, and industrial water usage can be expected to decrease in the future as a result of the implementation of water conservation practices.

Groundwater Recharge

Although new projects pursuant to the proposed General Plan would increase the amount of impervious surfaces and could potentially impact groundwater recharge, these projects would be required to implement BMPs and LID measures, which include on-site infiltration, where feasible. The MS4 permit and the CCCWP *Stormwater C.3 Guidebook* require site design measures, source control measures, stormwater treatment measures, and hydromodification measures to be included in a SCP that must be submitted and approved by the County. These measures minimize the impact of impervious surfaces by including permeable pavement, drainage to landscape areas and bioretention areas, and the collection of rooftop runoff in rain barrels or cisterns. These measures would increase the potential for groundwater recharge and have a less than significant impact on groundwater levels.

If construction dewatering is required with future development within the EIR Study Area, a permit would need to be obtained from the County's Environmental Health Division for the construction of

dewatering wells. An application and permit fee are required and the water discharge location, whether it is the sewer system or storm drain, must be approved by the local Building Department. The applicant must also evaluate the impact of the dewatering system on neighboring wells or the potential of spreading contamination if near a cleanup site. Construction dewatering could have a temporary effect on the shallow groundwater aquifer, but this effect would be limited in terms of the quantity of water withdrawn and the duration of the withdrawal. Therefore, construction dewatering would not result in a significant impact in terms of groundwater recharge.

As described above in Section 5.10.3.1, *Proposed General Plan Goals, Policies, and Actions*, of the DEIR, the proposed Conservation, Open Space, and Working Lands Land Use, and Public Services and Facilities Elements of the proposed General Plan contain goals, policies, and actions that require local planning and development decisions to consider impacts to water quality and groundwater supply. Compliance with and implementation of these proposed General Plan goals, policies, and actions would serve to minimize potential adverse impacts on groundwater.

Therefore, the proposed project would not significantly interfere with groundwater recharge and would not substantially deplete groundwater supplies. Thus, impacts would be less than significant.

Proposed CAAP

The proposed CAAP focuses on strategies to reduce GHG emissions and foster a sustainable community. As part of the CAAP's strategies to reduce water use and increase drought resilience (DR), provisions which ensure sustainable and diverse water supply are encouraged. For example, Strategy DR-2 includes actions that encourage the County Environmental Health Division to work with GSAs to ensure sustainable yield goals are met through hydrogeological evaluations in areas with known water shortages and coordination with GSAs to expand opportunities for groundwater recharge. The CAAP also provides reduction strategies to minimize this increase in GHG emissions through water conservation, water efficient retrofits, water-wise landscaping, and graywater and recycled water programs. Implementation of the proposed CAAP would further reduce water demand as compared to the analysis provided above (and provided in Section 5.17 of the DEIR, *Utilities and Service Systems*). Therefore, impacts to groundwater supply and recharge are less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to groundwater supplies or recharge. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.10-3: Implementation of the proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) result in substantial erosion or siltation on- or off-site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional

sources of polluted runoff; or iv) impede or redirect flood flows. [Threshold HYD-3]

Proposed General Plan

Erosion and Siltation

All potential new development pursuant to the proposed General Plan would be required to implement construction-phase BMPs as well as post-construction site design, source control measures, and treatment controls in accordance with the requirements of the CGP, the MS4 Permit, and the CCCWP *Stormwater C.3 Guidebook*. Typical construction BMPs include silt fences, fiber rolls, catch basin inlet protection, water trucks, street sweeping, and stabilization of truck entrances and exits. Each new development or redevelopment project that disturbs one or more acre of land would also be required to prepare and submit a SWPPP to the SWRCB that describes the measures to control discharges from construction sites. The SWPPP must list BMPs that would be implemented to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources.

Once potential future development projects have been constructed, there are C.3 requirements in the MS4 permit for new development or redevelopment projects that must be implemented and include site design measures, source control measures, LID, and stormwater treatment measures that address stormwater runoff and would reduce the potential for erosion and siltation. Site design measures include minimizing impervious surfaces, conserving the natural areas of the site as much as possible, and protecting slopes and channels from erosion. LID measures include the use of permeable pavements, directing runoff to pervious areas, and the construction of bioretention areas. The SCP must also include operation and maintenance procedures and an agreement to maintain any stormwater treatment facilities for perpetuity. Adherence to the streambed alteration agreement process under Sections 1601 to 1606 of the California Fish and Game Code would further reduce erosion and siltation impacts that may occur due to streambed alterations. Projects that create or replace one acre or more of impervious surface and are subject to hydromodification may not increase the erosion potential of the receiving stream over pre-project conditions. Compliance with these regional and local regulatory requirements will ensure that erosion and siltation impacts from implementation of the proposed General Plan would be less than significant.

Flooding On- or Off-Site

New development and/or redevelopment and changes in land uses could result in increases in impervious surfaces, which in turn could result in an increase in stormwater runoff, higher peak discharges to drainage channels, and the potential to cause nuisance flooding in areas without adequate drainage facilities. However, all potential future development must comply with the requirements of the MS4 Permit and the CCCWP *Stormwater C.3 Guidebook*. Regulated projects must implement BMPs, including LID BMPs and site design BMPs, which effectively minimize imperviousness, temporarily detain stormwater on-site, decrease surface water flows, and slow runoff rates. Projects that create and/or replace one acre or more of impervious surface must also adhere to the hydromodification requirements of the CCCWP *Stormwater C.3 Guidebook* to ensure that post project runoff does not exceed pre-project runoff for 10 percent of the pre-project 2-year peak flow rate up to the pre-project 10-year peak flow rate. Adherence to these regulatory requirements would minimize the amount of stormwater runoff from new development and redevelopment within the EIR Study Area. Therefore,

the projects pursuant to the proposed General Plan would not result in flooding on- or off-site and impacts would be less than significant.

Stormwater Drainage System Capacity

As stated in the impact discussions above, an increase in impervious surfaces with new development or redevelopment could result in increases in stormwater runoff, which in turn could exceed the capacity of existing or planned stormwater drainage systems. However, municipalities within the county have storm drain master plans, green infrastructure plans, and capital improvement programs that account for future development and expansion of the storm drain system, as needed. Also, the Contra Costa County Flood Control and Water Conservation District (CCCFCWCD) has detailed Flood Control Zone and Drainage Area maps that are used to evaluate future development plans within each zone or area and determine if the existing storm drainage infrastructure is adequate to accommodate the proposed projects.

All potential future development and redevelopment projects would be required to comply with the MS4 permit requirements and follow the CCCWP *Stormwater C.3 Guidebook* when designing on-site stormwater treatment facilities. Hydrology studies and SCPs are subject to County review for projects in the unincorporated areas to verify that the on-site storm drain systems and treatment facilities can accommodate stormwater runoff from the site and would not exceed the capacity of downstream drainage systems at the point of connection. Also, implementation of the C.3 provisions for new development, which include LID design and bioretention areas, would minimize increases in peak flow rates and runoff volumes, thus reducing stormwater runoff to the storm drain system. In addition, the County requires the payment of drainage area fees before filing the final map for new subdivisions or prior to the issuance of a building permit. These fees are paid directly to the CCCFCWCD or via cities per fee collection agreements and the funds are used to construct new storm drain infrastructure and/or maintain or repair existing storm drain infrastructure, as needed. With implementation of these regulatory requirements, there would not be a significant increase in stormwater runoff to the existing storm drain systems.

Also, new development pursuant to the proposed General Plan would not create substantial additional sources of polluted runoff. During the construction phase, projects would be required to prepare SWPPPs, thus limiting the discharge of pollutants from the site. During operation, projects must implement BMPs and LID measures that minimize the amount of stormwater runoff and associated pollutants.

With implementation of these control measures and regulatory provisions to limit runoff from new development sites, the proposed General Plan would not result in significant increases in runoff that would exceed the capacity of existing or planned storm drain facilities, and the impact is less than significant.

Redirecting Flood Flows

The discussion above regarding on- and off-site flooding is also applicable to the analysis of impeding or redirecting flood flows. Since new development projects are required to comply with MS4 permit requirements, implement the procedures in the CCCWP *Stormwater C.3 Guidebook*, and retain stormwater on-site via the use of LID design and bioretention facilities, any flood flows would also be retained for a period of time on-site, which would minimize the potential for flooding impacts. Impact

5.10-4 of the DEIR discusses the potential for impeding or redirecting flood flows with development in areas within the 100-year floodplain. Based on these discussions, impacts related to impeding or redirecting flood flows would be less than significant.

As described above in Section 5.10.3.1, *Proposed General Plan Goals, Policies, and Actions*, of the DEIR, the proposed Conservation, Open Space, and Working Lands, Health and Safety, Land Use, and Public Services and Facilities Elements of the proposed General Plan contain goals, policies, and actions that require local planning and development decisions to consider impacts of future development and redevelopment on erosion and siltation, surface drainage, and flooding. Compliance with and implementation of these proposed General Plan goals, policies, and actions, in conjunction with State and local requirements, would not result in substantial erosion or siltation and would not substantially increase the rate of surface runoff that would result in flooding, impede or redirect flood flows, or exceed the capacity of the drainage system. Impacts would be less than significant.

Proposed CAAP

The proposed CAAP focuses on the reduction of GHG emissions and includes strategies and actions for reducing these emissions in the water and wastewater sectors. As part of the proposed CAAP's strategies related to resilient communities and natural infrastructure (NI), provisions protect against and adapt to changes in sea levels and other shoreline flooding conditions. For example, Strategy NI-1 includes actions that establish requirements for new development to locate habitable areas above the highest expected water level for the lifetime of the project, support natural infrastructure that protects against sea-level rise and shoreline flooding, coordinate with State and regional agencies to prepare for sea-level rise adaptation, and identify opportunities for employing natural area buffers against sea levels. Therefore, implementation of the proposed CAAP would have a less than significant effect on erosion or siltation, storm drain capacity, flooding on- or off-site, or impeding or redirecting flood flows.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to erosion and siltation, flooding, stormwater drainage, redirecting flood flows, tsunamis, and seiches. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.10-4: Implementation of the proposed project would not risk release of pollutants due to project inundation if in a flood hazard, tsunami, or seiche zones. [Threshold HYD-4].

Proposed General Plan

Flood Hazard Zones

Implementation of the proposed General Plan could involve development of some projects in FEMA 100-year flood zones. As shown in Figure 5.10-3, *FEMA 100-Year and 500-Year Flood Zones*, of the DEIR, large areas around the north and the eastern portion of Contra Costa County are within the 100-year floodplain, as well as inland areas adjacent to creeks and streams.

Future development in these areas would be subject to Contra Costa County's Floodplain Management Ordinance. Prior to the start of construction or development within a Flood Hazard Area (i.e., 100-year floodplain or coastal high hazard area), the County requires project applicants to apply for a

Floodplain Permit from the Public Works Department and construct new development in accordance with the standards of construction in Article 82-28.1002. The standards of construction vary depending on where the proposed structure is located, but typically the finished floor must be elevated at least one to two feet above the base flood elevation. Prior to occupancy of any building, proof that a Letter of Map Revision (LOMR) and an elevation certificate have been submitted to FEMA must be provided to the County. Compliance with FEMA's NFIP requirements and the County's floodplain requirements would reduce potential flood hazards and ensure that pollutants are not released during flood inundation.

Sea-Level Rise

Similar to flood hazard zones, implementation of the proposed General Plan could involve development of some projects in areas that will be inundated by sea-level rise and associated coastal flooding. Future development under the proposed project within 100 feet of the San Francisco, San Pablo, or Suisan Bay shoreline would be subject to review and approval by Bay Conservation and Development Commission (BCDC). Future large shoreline projects, including shoreline protection projects, would be required to conduct a sea-level rise risk assessment and be designed to be resilient to a midcentury sea-level rise projection. BCDC requires that, if it is likely that the project will remain in place longer than midcentury, an adaptive management plan be developed to address the long-term impacts that will arise, based on the risk assessment.

Sea-level rise is also expected to raise groundwater levels, inundating areas with contaminated soils. Given that some contaminated sites in the county are located near the shoreline, rising groundwater associated with sea-level rise may cause the release of pollutants. Sea-level rise and associated groundwater rise are considered to be an effect of the environment on the project.

As explained in Chapter 5, *Environmental Analysis*, of the DEIR, the California Supreme Court has determined that the evaluation of the significance of project impacts under CEQA should focus on the potential impacts of the proposed project on the environment, including whether the proposed project may exacerbate any existing environmental hazards. Sea-level rise is an existing environmental hazard in Contra Costa County. The discussion in this section explains the potential of the proposed project to exacerbate impacts from sea-level rise. However, the effects of sea-level rise on the proposed project are not subject to CEQA review following the *California Building Industry Association vs. Bay Area Air Quality Management District* (CBIA vs. BAAQMD) case. Therefore, this EIR does not make a finding regarding level of impact from sea-level rise.

Dam Inundation

There are several portions of the county that are impacted by dam inundation zones. The probability of dam failure is low and there has never been a reported dam failure in Contra Costa County. In addition, dam owners are required to maintain EAPs that include procedures for damage assessment and emergency warnings. An EAP identifies potential emergency conditions at a dam and specifies preplanned actions to help minimize property damage and loss of life should those conditions occur. The Contra Costa County Office of Emergency Services maintains copies of the most recent dam EAPs and inundation maps and uses this information to notify downstream areas in the event of a dam failure. The likelihood of catastrophic dam failure is very low.

Tsunami and Seiches

Given that Contra Costa County has never been impacted by a tsunami, the risk of flooding and the release of pollutants due to a tsunami event is unlikely. The probability that tsunamis would impact San Francisco Bay and San Pablo Bay is much smaller than areas along the Pacific Coast because the bays are enclosed bodies of water. Due to the infrequent nature of tsunamis and relatively low predicted tsunami wave heights in the area, the county is reasonably safe from tsunami hazards. Also, the County's Floodplain Ordinance includes requirements for development within coastal high-hazard areas, which include tsunami zones. In addition, there are various precautions and warning systems that would be implemented by the County in the event of a tsunami. As discussed previously, seiches are unlikely to occur because tsunamis have frequencies too short to resonate within San Pablo and San Francisco Bay.

Summary

As described above in Section 5.10.3.1, *Proposed General Plan Goals, Policies, and Actions*, of the DEIR, the proposed Conservation, Open Space, and Working Lands, Health and Safety, Land Use, and Public Services and Facilities Elements of the proposed General Plan contain goals, policies, and actions that require local planning and development decisions to address the potential for flooding, dam inundation, and tsunamis. Compliance with and implementation of these proposed General Plan goals, policies, and actions, in conjunction with FEMA and County regulatory requirements regarding construction in 100-year floodplains, the potential impact that there would be a release of pollutants from flooding, dam inundation, tsunamis, or seiches would be less than significant.

Proposed CAAP

The proposed CAAP focuses on the reduction of GHG emissions and includes strategies and actions for reducing these emissions in the water and wastewater sectors. As part of the CAAP's strategies related to resilient communities and natural infrastructure (NI), provisions protect against and adapt to changes in sea levels and other shoreline flooding conditions. For example, Strategy NI-1 includes actions that establish requirements for new development to locate habitable areas above the highest expected water level for the lifetime of the project, support natural infrastructure that protects against sea-level rise and shoreline flooding, coordinate with State and regional agencies to prepare for sea-level rise adaptation, and identify opportunities for employing natural area buffers against sea levels. Therefore, implementation of the proposed CAAP would not result in any issues related to flooding and would have a less than significant impact on flood hazards.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to the release of pollutants due to inundation of flood hazards, tsunamis, or seiche zones. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.10-5: The proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. [Threshold HYD-5].

Proposed General Plan

Adherence to the Construction General Permit, the MS4 permit, and the CCCWP *Stormwater C.3 Guidebook* would ensure that surface and groundwater quality are not adversely impacted during construction and operation of future development pursuant to the proposed General Plan. As a result, site development would not obstruct or conflict with implementation of the San Francisco Bay RWQCB's and the Central Valley RWQCB's Water Quality Control Plans (Basin Plans).

There are three groundwater basins within Contra Costa County that have GSPs. No water agencies are using groundwater from the Santa Clara Valley – East Bay Plain Subbasin as a municipal water supply source. The Livermore Valley Subbasin is managed by the Zone 7 Water Agency, which submitted an Alternative GSP. The groundwater basin is not in critical overdraft condition and the 2021 Alternative GSP demonstrates that the basin has continued to operate within its sustainable yield over a period of at least 10 years. The San Joaquin Valley – East Contra Costa Subbasin is not in critical overdraft and does not show any signs of over-pumping. In addition, the water purveyors within the Contra Costa County service area rely primarily on surface water, which accounts for more than 85 percent of their water supply.

As described in Section 5.10.3.1, *Proposed General Plan Goals, Policies, and Actions*, in the DEIR, the proposed Conservation, Open Space, and Working Lands, Land Use, and Public Services and Facilities Elements of the proposed General Plan contain goals, policies, and actions that require local planning and development decisions to consider impacts to groundwater supply and groundwater management. Therefore, future development and redevelopment as a result of the proposed project would not obstruct or conflict with any groundwater management plans, and the impact would be less than significant.

Proposed CAAP

The proposed CAAP focuses on strategies to reduce GHG emissions and foster a sustainable community. It provides reduction strategies to minimize increases in GHG emissions through water conservation, water efficient retrofits, water efficient landscaping, and graywater and recycled water programs. Proposed CAAP Strategy DR-2 includes actions that encourage the County Environmental Health Division to work with GSAs to ensure sustainable yield goals are met through hydrogeological evaluations in areas with known water shortages and coordination with GSAs to expand opportunities for groundwater recharge. The CAAP also provides reduction strategies to minimize this increase in GHG emissions through water conservation, water efficient retrofits, water-wise landscaping, and graywater and recycled water programs. Therefore, implementation of the proposed CAAP would not conflict or obstruct implementation of the Basin Plan or GSP, and impacts are considered less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to the obstruction of a water quality or management plan. Accordingly, no changes or

alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

11. Land Use and Planning

Impact 5.11-1: Project implementation would not divide an established community. [Threshold LU-1]

Proposed General Plan

The project does not propose project-specific development. The design direction for the proposed General Plan is to improve access and mobility for existing and future residents by providing vehicular connections and non-motorized transportation options. The land use pattern proposed in the General Plan would increase development density and intensity in established community cores. The county provides access through these community cores and throughout the county via major roadways and transit and pedestrian pathways. Overall, the land uses in the proposed General Plan are largely consistent with existing development patterns.

No aspect of the proposed General Plan would divide existing communities in the county. In addition, the proposed General Plan includes provisions that directly address land use connectivity, compatibility, and encroachment of new development on existing neighborhoods and land uses, as detailed in Section 5.11, *Land Use and Planning*, of the DEIR.

Because implementation of the proposed General Plan would not divide established communities and it includes policies and a land use plan that improve connectivity, the impact would be less than significant.

Proposed CAAP

The proposed CAAP aims to reduce GHG emissions and improve resiliency to future climate conditions. The proposed CAAP does not involve any land use changes. As this is a policy document with no land use changes, the proposed CAAP would not have any significant physical environmental effects related to land use and planning. No impact would occur.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to the division of an established community. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.11-2: Project implementation would not conflict with applicable plans adopted for the purpose of avoiding or mitigating an environmental effect. [Threshold LU-2]

Proposed General Plan

Plan Bay Area 2050

Plan Bay Area 2050 is a 30-year plan that charts a course for a Bay Area that is affordable, connected, diverse, healthy, and vibrant for all residents through 2050 and beyond. While Plan Bay Area 2050 does

not override local land use control, it provides guidance to local jurisdictions, including Contra Costa County, on how future development can be consistent with the State's GHG and VMT reduction goals. This includes constructing more infill development in downtowns and centers in close proximity to jobs and services.

The Land Use Element of the proposed General Plan sets the foundation for future growth, change, and preservation in the EIR Study Area. In addition to the policies identified in Impact 5.11-1, the following proposed General Plan goals and policies would serve to support the concepts in Plan Bay Area by encouraging infill and limiting the extent of development (Goal LU-2 and associated policies), supporting a sustainable development pattern that places a mix of jobs and housing in close proximity to each other and to transit (Goal LU-3 and associated policies), directing development to where there is already infrastructure and services (Goal LU-5 and associated policies, plus Policy LU-P7.6), and promoting mixed-use development (Goal LU-8 and associated policies).

The proposed General Plan goals and policies listed above would support the goals of Plan Bay Area. Accordingly, the proposed project would not conflict with or be inconsistent with Plan Bay Area 2050, resulting in a less-than-significant impact.

Airport Land Use Compatibility Plan

Areas within the unincorporated county and several cities are in Buchanan Field and Byron Airports' Safety Compatibility Zones, as shown in Figure 5.9-3, *Buchanan Field Airport and Byron Airport Safety Zones*, in Section 5.9, *Hazards and Hazardous Materials*, in the DEIR. These zones restrict certain land uses and heights of structures pursuant to Federal Aviation Administration Part 77 Regulations protecting airspace near the airport. All potential development within each airport's Safety Zones would be required to comply with the provisions for development in the ALUCP and FAA Part 77 regulations. In addition, proposed General Plan Policies TR-P7.4 through TR-P7.6 would serve to minimize impacts from development in close proximity to the airports.

In accordance with these policies, the County will continue to coordinate with agencies and jurisdictions regarding development in close proximity to the airports and ensure that future development is consistent with the ALUCP. Future development within airport influence areas would also be subject to review by the ALUC for a determination of consistency with the ALUCP. Therefore, the proposed project would not conflict with or be inconsistent with the ALUCP, resulting in a less-than-significant impact.

Delta Plan

The Delta Plan is a comprehensive long-term management plan for the Sacramento-San Joaquin River Delta. The Delta Plan includes rules and recommendations that support the State's goals for the Delta to: (1) improve water supply; (2) protect and restore a vibrant and healthy Delta ecosystem; and (3) preserve, protect, and enhance the unique agricultural, cultural, and recreational characteristic of the Delta. The proposed General Plan includes goals and policies that support these goals of the Delta Plan:

Policy COS-P7.1 requires new developments to reduce water consumption through the use of water-saving devices, efficient technology, landscaping strategies, and treated recycled water where available. Policy COS-P7.4 requires proof of adequate on-site groundwater during the development review

process for projects in areas without a water service provider and compliance with the County's well regulations ensuring the project will not significantly impact the aquifer or negatively affect existing development. Policy COS-P7.5 prohibits new developments that would create or significantly aggravate groundwater overdraft conditions, land subsidence, or other "undesirable results," as defined in Section 354.26 of the California Water Code. Policy COS-P7.6 supports having multipurpose water storage options that incorporate water supply, flood control, surface and groundwater storage, groundwater management, and ecosystem components. Policy COS-P8.1 protects public water supplies by preventing pollution from new sources in groundwater basins and watersheds and supporting efforts to acquire and protect reservoir watersheds. Policy COS-P8.5 requires having groundwater monitoring programs for all large-scale commercial and industrial facilities using wells and prohibit discharge of hazardous materials through injection wells. Policy COS-P9.1 promotes for having increased freshwater flow into, through, and from the Delta into San Francisco Bay, and support other efforts to protect and improve Delta water quality. Policy COS-9.2 supports having continued maintenance and improvement of Delta levees to protect water quality, ecosystems, agricultural land, and at-risk communities. Policy COS-P9.3 opposes all efforts to construct an isolated conveyance (such as a peripheral canal or tunnel) or any other water diversion system that reduces Delta water flows unless and until it can be conclusively demonstrated that such a system would protect, preserve, and enhance water quality and fisheries of the San Francisco Bay/Delta estuary system. Policy COS-P9.4 plans for land uses near shorelines that do not pose a threat to Bay or Delta resources, including water quality and shoreline and marshland habitats.

In addition, Delta Plan Policy DP P1 requires that any new residential, commercial, or industrial development must be limited to areas within the ULL, and also specifies that no new residential, commercial, or industrial development may occur on Bethel Island, even though it is inside the ULL unless it is consistent with the existing General Plan. Although the proposed General Plan would redistribute some of the existing General Plan development capacity on Bethel Island by expanding commercial uses and reducing residential uses, the proposed General Plan does not allow a net increase in allowed development on the island. Therefore, the proposed General Plan is consistent with this key Delta Plan policy.

Furthermore, proposed Policy LU-P6.1 directs the County to ensure that County projects and decisions on private development and land use activities in the Legal Delta are consistent with the Delta Plan. Overall, the proposed General Plan goals, policies, and land use map support the goals of the Delta Plan, and the impact is less than significant.

Land Use and Resource Management Plan for the Primary Zone of the Delta

As mentioned in Section 5.11.1.1, *Regulatory Background*, of the DEIR, the Land Use and Resource Management Plan guides local decisions related to agriculture, flood protection, Delta communities, natural resources, recreation, and utilities and infrastructure within the Primary Zone of the Delta. General plans and projects within the Primary Zone must align with the Plan and are subject to review by the Commission. As shown in Figure 5.11-1, *Sacramento-San Joaquin Delta*, in the DEIR, the Primary Zone extends into the eastern portion of the county, including the unincorporated areas of Winter Island, Jersey Island, Bradford Island, Web Tract, Quimby Island, Holland Tract, a portion of Knightsen, Veale Tract, Palm Tract, Orwood Tract, and Coney Island. The proposed General Plan would designate these areas as Public/Semi-Public, Parks and Recreation, Resource Conservation, Agriculture Core, and Agriculture Lands. These designations would maintain the primarily agricultural,

natural resource, recreation, and public service uses in these areas, which are consistent with the Land Use and Resource Management Plan. In addition, proposed Policy LU-P6.1 directs the County to ensure that County projects and decisions on private development and land use activities in the Legal Delta are consistent with the Land Use and Resource Management Plan. Therefore, the impact would be less than significant.

San Francisco Bay Plan

The San Francisco Bay Plan provides a formula for developing the Bay and shoreline to their highest potential while protecting the Bay as an irreplaceable natural resource. General plans and projects within the Bay Area must align with the San Francisco Bay Plan. The portions of the EIR Study Area that are covered by the San Francisco Bay Plan include the west and northwest portions of the unincorporated county along Suisun Bay and San Francisco Bay. The proposed General Plan includes policies aimed at protecting these areas and Bayshore resources. In particular, Policy COS-P9.3 directs the County to oppose all efforts to construct an isolated conveyance or any other water diversion system that reduces Delta water flows unless and until it can be conclusively demonstrated that such a system would protect, preserve, and enhance water quality and fisheries of the San Francisco Bay/Delta estuary system. In addition, Policy COS-P9.4 directs the County to plan for land uses along shorelines that do not pose a threat to Bay or Delta resources, including water quality and shoreline and marshland habitats. Furthermore, Policy LU-P9.4 directs the County to prioritize industrial land along the Bay and Delta for uses requiring deep-water access or large quantities of raw water and discourages the siting of other industrial uses at these locations. This would help to ensure the area along the Bay in the EIR Study Area is developed to its highest potential, as called for in the Bay Plan. Therefore, the proposed General Plan would be consistent with the Bay Plan and the impact would be less than significant.

East Contra Costa HCP/NCCP

As discussed in Section 5.4, *Biological Resources*, in the DEIR, the East Contra Costa County HCP/NCCP is intended to provide regional conservation and development guidelines to protect natural resources while improving and streamlining the permit process for take of State and federally listed species. The HCP/NCCP was developed by a team of scientists and planners with input from independent panels of reviewers and stakeholders. The proposed General Plan discourages conversion of land designated Resource Conservation or Parks and Recreation to urban uses and requires mitigation through the replacement of land with equal biologic, scenic, or recreational value if such conversion is to occur, per Policy COS-P1.3. Additionally, Policy COS-P4.2 encourages consistency with the HCP/NCCP by directing the County to support land conservation and restoration consistent with the HCP/NCCP and discourage development in areas where conservation is planned. Policies COS-P1.1 and COS-P1.2 also support the goals of the HCP/NCCP to protect open space and ecologically sensitive areas. As such, the proposed General Plan is consistent with the adopted HCP/NCCP in terms of land uses and habitat protection. Implementation of the General Plan would not conflict with the provisions of the East Contra Costa HCP/NCCP.

Summary

In summary, the proposed General Plan is the primary planning document for Contra Costa County. The proposed General Plan is intended in part to ensure consistency between the General Plan and updated State laws. As described above, it would support applicable land use plans adopted for the

purpose of avoiding or mitigating an environmental impact. The proposed General Plan is the overriding planning document for the county, and it would replace the current General Plan. Therefore, the impact would be less than significant.

Proposed CAAP

The proposed CAAP aims to reduce GHG emissions and improve resiliency to future climate conditions. The proposed CAAP does not involve any land use changes. As this is a policy document with no land use changes, the proposed CAAP would not have any significant physical environmental effects related to conflicts with land use plans adopted for the purpose of avoiding or mitigating an environmental impact. No impact would occur.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to conflicting with adopted plans aimed at avoiding or mitigating environmental effects. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

12. Noise

Impact 5.13-4: Implementation of the proposed project would not expose future residents to excessive levels of airport-related noise. [Threshold N-3].

Proposed General Plan

Aircraft noise in the county is typically characterized as occasional, and the majority of flights served by the Buchanan Field Airport and Byron Airport are for training or recreational purposes. Pursuant to Section 21096 of the Public Resources Code, the lead agency must consider whether the project will result in a safety hazard or noise problem for persons using the airport or for persons residing or working in the project area. Future housing development or other sensitive uses could be in areas that exceed the 60 dBA CNEL as a result of implementation of the proposed project. However, several proposed General Plan policies in the Transportation and Health and Safety Element would reduce impacts to a less than significant impact, as discussed in Impact 5.13-4, Section 5.13, *Noise*, in the DEIR.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions. The proposed CAAP would not directly result in any new development that would place sensitive receptors near airport noise sources, nor would it facilitate the development of new airstrips or airports. Therefore, impacts would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to exposure of future residents to excessive levels of airport-related noise. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

13. Population and Housing

Impact 5.14-1: The proposed project would not induce substantial unplanned population growth in the EIR Study Area. [Threshold P-1].

Proposed General Plan

Future development in the EIR Study Area is projected to occur through approved and pending development projects and on vacant and underutilized parcels within unincorporated communities that are designated for a use that allows development. Therefore, the proposed General Plan could induce substantial, unplanned population growth directly or indirectly in any particular location. As of 2020, the EIR Study Area has a population of approximately 174,000 with about 64,000 homes. The proposed General Plan is projected to result in an increase of 23,200 new housing units and 65,600 new residents in the EIR Study Area by 2045. This equates to a 38-percent increase in housing units and a 36-percent increase in total population over the 25-year planning timeframe.

Approximately 33 percent of this residential growth would be required to fulfill the unincorporated county's 2023-2031 Regional Housing Needs Allocation (RHNA) of 7,610 units, which is growth dictated by California Housing Law and not the County. It is anticipated that future RHNA cycles will continue to dictate additional housing growth within the EIR Study Area after 2031 and through the proposed General Plan's 2045 horizon.

As shown in Table 5.14-6, *Summary of the EIR Area's Projected Growth (5-Year Increments)*, of the DEIR, regional projections for the EIR Study Area anticipate an approximately 12-percent increase in housing units and a 20-percent increase in population by 2040. The development potential under the proposed General Plan would allow for a 38-percent increase in housing units and population by 2045. Therefore, implementation of the proposed General Plan would exceed current regional projections for housing by 26 percent and population by 18 percent based on these factors alone. However, it is important to note that regional projections used were from Plan Bay Area 2040 and not the updated Plan Bay Area 2050 because the more recent Plan does not differentiate between Contra Costa County as a whole and the unincorporated portion of the county. In addition, Plan Bay Area relies on local general plan growth projections when preparing growth forecasts, so the proposed project would be incorporated into future growth forecasts.

The proposed Land Use Element serves as the blueprint for the development of public and private property in the EIR Study Area and sets the foundation for future growth, change, and preservation. Several Land Use Element policies and actions would serve to minimize potential adverse impacts related to growth, as discussed in Impact 5.14-1, Section 5.14, *Population and Housing*, of the DEIR. These policies and actions described would limit development to areas that are planned for urban uses and direct the County to monitor and control growth in the EIR Study Area to ensure it remains within the development projections analyzed in the EIR.

Although the proposed General Plan would accommodate population and housing growth that exceeds the Plan Bay Area 2040 projections, it would not introduce a substantial amount of unplanned population in the EIR Study Area because it will become the overriding policy document that plans for such growth. All potential future development would be required to adhere to the policy guidance described above, which limits development to areas that are already planned for urban uses, as well as

comply with any required site-specific infrastructure improvements and pay any project-specific impact fees. Therefore, implementation of the proposed General Plan would not induce substantial unplanned population growth either directly or indirectly and the impact is less than significant.

Proposed CAAP

The proposed CAAP does not include projects that would result in residential development nor an unanticipated increase in density or population growth outside of what was accounted for and projected within the proposed General Plan. Some CAAP strategies could promote the construction of utility-scale energy projects (e.g., solar, battery storage, substation, and transmission) and water facilities and supplies. However, these types of facilities would not directly serve residential uses such that they would induce population growth in their vicinity. Therefore, impacts would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to population growth. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.14-2: The proposed project would not result in the displacement of people and/or housing. [Threshold P-2].

Proposed General Plan

Implementation of the proposed General Plan is projected to result in an increase of 23,200 housing units in the EIR Study Area over a 25-year horizon, contributing to a net increase in housing units. It is anticipated that residential development would occur on vacant sites, as well as through redevelopment on sites that may include existing housing units, although no major redevelopment projects are envisioned in the General Plan. Therefore, it is possible that construction activities could displace an unknown number of existing residents or housing units. However, all redevelopment would be voluntary in nature, and no housing units would be displaced without permission of the property owners.

In addition, the County's 6th Cycle Housing Element includes policies that minimize potential adverse impacts related to population and housing displacement. For example, Policy HE-P1.4 directs the County to maintain a condominium conversion ordinance aimed at mitigating the impacts to displaced tenants and ensuring the quality of the units being sold to homeowners. Also, Policy HE-P1.5 directs the County to preserve existing affordable housing developments at risk of converting to market-rate housing through bond refinancing and other mechanisms.

Because the proposed General Plan would allow a net increase of housing and does not envision substantial redevelopment projects, and because the existing Housing Element includes policies that protect existing neighborhoods and housing, the impact related to housing displacement would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that does not include projects that would displace substantial numbers of existing people or housing. To the contrary, the proposed CAAP strategies and actions would support affordable housing, promote stability in housing, and otherwise support development as already anticipated by General Plan land use assumptions. Strategy BE-2 includes an action to create a detailed County road map to convert existing homes and business to use low-carbon or carbon-free appliances while supporting an equitable that minimizes the risk of displacement or disruptions. These retrofits and upgrades for new developments are not anticipated to displace substantial housing or population. This impact would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to the displacement of existing people or housing. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

14. Public Services and Recreation

Impact 5.15-1: The proposed project could introduce new structures and residents into the CCCFPD, RHFPD, SRVFPD, and KFPD service boundaries, thereby increasing the requirement for fire protection facilities and personnel. [Threshold FP-1]

Proposed General Plan

As discussed under Section 5.15.1.1, *Environmental Setting*, of the DEIR, the EIR Study Area is served by several fire protection districts including the Contra Costa County Fire Protection District (CCCFPD), Rodeo-Hercules Fire Protection District (RHFPD), San Ramon Valley Fire Protection District (SSRVFPD), and Kensington Fire Protection District (KFPD). The total growth projected in the unincorporated county by 2045 under the proposed General Plan is approximately 23,200 new housing units, 65,600 new residents, 1.2 million square feet of new commercial space, and 5 million square feet of new industrial space. The increase in population as a result of the proposed General Plan would be expected to generate the typical range of service calls, including fire, emergency medical service, and other incidents. New fire personnel, vehicles, and equipment would be required to provide adequate response times to serve future development. Therefore, the CCCFPD, RHFPD, SRVFPD, and KFPD's respective costs to maintain equipment and facilities and to train and equip personnel would also increase. However, the additional personnel and materials costs would likely be gradual as the increase in population would occur incrementally over time.

As detailed in the policies and actions included under Goal PFS-3 in the proposed Public Facilities and Services Element, future development would help to fund public facilities and services, including fire protection services. For example, Policy PFS-P3.2 requires that new development pay its fair share of public improvement costs for services based on the proportionate cost of serving the project. Action PFS-A3.2 would require the County to regularly update its development fees to support Policy PFS-P3.2. Policy PFS-P3.3 would require new development lacking sufficient infrastructure and facilities to implement a public facilities financing plan. The proposed General Plan's wildfire safety-related policies

within the Health and Safety Element would also ensure that new development is designed and operated under stringent safety standards, thereby reducing the demand on fire services.

As such, it would be possible to assess the need for additional fire and emergency medical service personnel and equipment and address these needs to ensure that adequate fire service response time standards are maintained. However, as a matter of information, if and when the construction or expansion of facilities to accommodate additional personnel or equipment should become necessary, CEQA review, General Plan provisions, Ordinance Code regulations, and payment of impact fees would all be required. The County would continue to monitor service needs and construct facilities as needed over time. The impact on fire protection and emergency medical response services would be less than significant.

Proposed CAAP

As a policy document that aims to reduce GHG emissions and to help the county to adapt to changing climate conditions, the proposed CAAP is not expected to result in any impacts with regard to fire protection services. Strategy BE-3 under the proposed CAAP would seek to accelerate the replacement of electricity generated by fossil fuels with electricity generated from renewable or carbon-free sources. To implement this strategy, the CAAP directs the County to work with CCCFPD and other organizations that provide fire protection services to promote participation in the Self-Generation Incentive Program and related efforts to provide education and incentives for battery storage programs. The Self-Generation Incentive Program is a statewide initiative to provide incentives for battery storage systems among other energy storage systems. While this action directs coordination with the county's fire protection districts to potentially provide increased fire protection services, it is not likely to result in the need for new facilities. Therefore, impacts from the proposed CAAP are considered less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to the need for new or physically altered fire protection facilities. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.15-2: The proposed project could introduce new structures and residents into the CCCOS service boundaries, thereby potentially increasing the requirement for police protection facilities and personnel. [Threshold PP-1].

Proposed General Plan

While no specific development proposals are directly associated with the proposed General Plan, theoretical development would result in an increase in population and thus an increase in demand for police protection services from the Contra Costa County Office of the Sheriff. As discussed under Impact 5.15-1 in the DEIR, development under the proposed General Plan could result in an increase of approximately 65,600 new residents in the county. As development occurs, there would be an increase in calls for service which may require additional police personnel. Future development is expected to generate the typical range of service calls. Additional police personnel, vehicles, and equipment would likely be required to provide adequate response times to serve future growth. Therefore, the County's costs to maintain equipment and facilities and to train and equip personnel

would also increase. However, the additional personnel and materials costs would likely be gradual as the increase in population would occur incrementally over time.

Several policies and actions proposed in the General Plan would ensure that future development would be provided police services and contribute to the funding of such services. As discussed under Impact 5.15-1, Policies PFS-3.2 and PFS-3.3 would require new development to pay its fair share of costs for public improvements and services or develop a public facilities financing plan in the event that existing infrastructure cannot adequately serve the development. Action PFS-A6.1 also directs the County to revise the County Ordinance Code to incorporate standards for new development that support a safe, accessible public realm for all through environmental design, thereby decreasing potential demand for police services. The County also currently levies land development impact fees to fund police services.

As such, it would be possible to assess the need for additional police personnel and equipment and address these needs to ensure that the law enforcement response time standards in the county are maintained. However, as a matter of information, if and when the construction or expansion of facilities to accommodate additional personnel or equipment could become necessary, CEQA review, proposed General Plan provisions, Ordinance Code regulations, and payment of impact fees would all be required. Therefore, the impact on police protection services would be less than significant.

Proposed CAAP

As a policy document that aims to reduce GHG emissions and to help the county to adapt to changing climate conditions, the proposed CAAP is not expected to result in any impacts with regard to police protection services. The CAAP does not include any strategies or actions that would result in a direct increase in demand for police protection services, nor does it otherwise address police services. As such, the proposed CAAP would have no impact.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to the need for new or physically altered police facilities. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.15-3: Development under the proposed project could generate new students who would impact the school enrollment capacities of area schools and result in the need for new and/or expanded school facilities, the construction of which could result in environmental impacts [Threshold SS-1].

Proposed General Plan

A significant impact would result if, in order for the school districts to adequately serve the EIR Study Area, increased school enrollment would require the construction of new facilities or the expansion of existing schools, the construction or operation of which would cause significant environmental impacts. New development under the proposed General Plan would cause an increase of student population over the next 20 years. The projected increase in students across the EIR Study Area would likely be gradual for the duration of the proposed project as more housing units are incrementally added to the EIR Study Area.

Under the proposed project, approximately 23,200 new housing units are projected to be developed across the unincorporated county by 2045. The average of all school districts' published single- and multi-family generation factors is 0.295 students per housing unit, per the student generation factors shown in Table 5.15-5. *Student Generation Factors for Contra Costa County School Districts*, from the DEIR. Therefore, approximately 6,844 new students would be added to the unincorporated county's student population from new residential development. Similarly, development under the proposed General Plan could result in 1.2 million square feet of new commercial space and 5 million square feet of new industrial space. If using West Contra Costa USD's 2020 student generation factor (SGF) for students per square foot of commercial/industrial space shown in Table 5.15-5, the resulting increase in student population from new commercial and industrial development is approximately 3,100 students. Therefore, approximately 9,944 total new students would be added to the unincorporated county over the planning horizon of the proposed project.

To ensure that school capacities are not exceeded from new development, the proposed Public Facilities and Services Element includes Policy PFS-P9.1 which directs the County to coordinate with affected school districts to ensure adequate school capacity is or will be available, school sites are designated or dedicated if necessary, and adequate access is provided, when reviewing new development proposals. Additionally, existing funding mechanisms would lessen potential impacts related to an increase in the student population. As detailed in Section 5.15.3.1, *Environmental Setting*, of the DEIR, all districts in the county are funded through the payment of development fees pursuant to SB 50/Government Code Section 65995 and County Ordinance 812. These fees are required to be paid by future development prior to issuance of building permits and would be used to offset the impact of the number of new students generated by the anticipated population increase under the proposed General Plan. Ultimately, the provision of schools is the responsibility of the school district. SB 50 provides that the statutory fees found in the Government and Education Codes are the exclusive means of considering and mitigating for school impacts. Imposition of the statutory fees constitutes full and complete mitigation (Government Code Section 65995[b]).

Furthermore, a school district and a development project have the option of entering into various alternative mitigation agreements to ensure the timely construction of school facilities to house students from new residential development. The primary financing mechanism authorized in these mitigation agreements is the formation of a community facilities district, pursuant to the Mello-Roos Community District Act of 1982. In lieu of an alternative mitigation agreement, State-mandated school facilities fees, which help maintain adequate school facilities and levels of service, may also reduce potential impacts, as described above.

The existing regulatory setting, including funding mechanisms, would ensure that potential impacts to school facilities and services with development under the proposed General Plan would be less than significant. Furthermore, the proposed General Plan includes goals and policies to maintain adequate levels of service for schools. Therefore, impacts would be less than significant.

Proposed CAAP

As a policy document that aims to reduce GHG emissions and to help the county to adapt to changing climate conditions, the proposed CAAP is not expected to result in any impacts with regard to school services. There are no strategies or actions in the proposed CAAP that relate to school services, nor

would the CAAP directly contribute to population growth in the EIR Study Area that would result in increased student population. Therefore, the proposed CAAP would have no impacts.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to the need for new or physically altered school facilities. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.15-4: Development under the proposed project could generate new residents in the county and result in the need for new and/or expanded library facilities, the construction of which could result in environmental impacts. [Threshold LS-1].

Proposed General Plan

Projected development under the proposed General Plan would result in the potential for increased demand for library services within the county to the extent that expansion and construction of new facilities could be required. As described above, the horizon-year projection for the proposed General Plan includes approximately 65,600 new residents in the county. To meet the future demand for library services, the proposed Public Facilities and Services Element would include Policy PFS-P10.3 which requires the County to ensure the County budget has adequate funding for maintaining and improving library services. Action PFS-A10.1 directs the County to develop library service and facility standards, while PFS-A10.2 directs the County to adopt a library impact fee to ensure that new development mitigates its impacts on library services.

Future development would also generate new tax revenues and funding sources for the Contra Costa Library System consisting of property taxes, State assistance, and revenue from fines, fees, and other miscellaneous revenue. Furthermore, development or expansion of libraries would be subject to the County's policies that protect environmental resources including environmental review and impact mitigation per CEQA. Impacts associated with development of new libraries are therefore determined to be less than significant.

Proposed CAAP

As a policy document that aims to reduce GHG emissions and to help the county to adapt to changing climate conditions, the proposed CAAP is not expected to result in any impacts with regard to library services. There are no strategies or actions in the proposed CAAP that relate to library services, nor would the CAAP directly contribute to population growth in the EIR Study Area that would result in increased population. Therefore, the proposed CAAP would have no impacts.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to new or physically altered library facilities. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.15-5: The proposed project could generate additional residents that would increase the use of existing park and recreational facilities but would not require the

**immediate provision of new and/or expanded recreational facilities.
[Thresholds R-1 and R-2].**

Proposed General Plan

As discussed in Section 5.15.5.1, *Environmental Setting*, of the DEIR, a total of 108,393 acres of parks and recreation land are available to residents of the unincorporated county. This acreage includes regional park facilities managed by EBRPD, EBMUD, and CCWD, as well as State and federal park facilities. Development under the proposed General Plan would introduce approximately 65,600 new residents, which would increase the demand for parks and recreational facilities. The California Department of Finance's E-5 Population and Housing Estimates estimate the total 2023 population for Contra Costa County (incorporated and unincorporated) to be 1,147,653 people; based on that estimate, the existing total park acreage per 1,000 residents in all of Contra Costa County is 94.45. If no further parkland is added, the ratio of parkland per 1,000 population would decrease to 89 acres of parks per 1,000 residents when the projected residential buildout of the proposed General Plan is added to the county's total population. However, this is a very conservative assumption; it is expected that parks will be acquired, expanded, and/or made publicly accessible as part of private development over the horizon of the proposed General Plan.

As shown, the combination of existing local, regional, State, and national parks and recreation facilities exceed all targets for parks and recreation service standards for both the county's existing population and future population that includes the projected growth under the General Plan. In addition, while this calculation includes the total population of both the incorporated and unincorporated county to account for the use of regional park and recreational facilities, most incorporated jurisdictions also provide local parks and recreation facilities for their respective populations that have not been accounted for in this calculation. However, as noted in Table 5.15-6, *Contra Costa County Parks and Recreation Services Summary*, of the DEIR, most local districts and service areas providing parks and recreation facilities in the county do not currently provide enough service within their district to meet the County's existing service standard of four acres per 1,000 residents. As shown in the proposed Policy PFS-P8.2, the County aims to provide a local park within a safe 10-minute walk for all residents in urban communities or within a 5-minute drive for residents in suburban communities, as indicated in Figures PFS-9 and PFS-10 of the proposed Public Facilities and Services Element. While the county does not have a deficit of regional parks and recreation facilities, additional local facilities are likely needed to meet the existing and future demand of development.

To offset impacts from future development, all new projects must adhere to County Ordinance Code Division 720 (Ordinance No. 2007-17), which collects impact fees from new development to fund parks and recreation services. The County's continued implementation of park improvement and development projects would ensure that the adequate amount of parkland would be available. Each RPD and CSD (of those that provide parks and recreation services) also collect revenue from property taxes, assessments, and service charges to fund improvements, which in turn would serve to reduce the potential for deterioration of existing facilities. Several additional policies and actions under Goal PFS-8 of the proposed Public Facilities and Services Element would also help to provide adequate local facilities. For example, Policy PFS-P8.5 directs the County to require projects subject to the Park Dedication or Park Impact Fee Ordinances to develop parks and recreation amenities identified in, or proposed for addition to, the County's Park Capital Improvement Plan. Park impact fees or in-lieu fees

should be assessed only when the County determines developer improvements are not feasible. Action PFS-A8.3 would help to implement this policy by requiring an annual update of the park dedication and in-lieu fee requirements. Action PFS-A8.1 would also support local parks by creating a cross-agency County entity that coordinates the planning and funding of local parks, recreational facilities, and trails.

The estimated timing or location of new facilities or the exact nature of these facilities are not known, so project-specific environmental impacts that would occur from their construction and operation cannot be determined at this time. However, depending on the type, size, and location of new parks, the construction of new parks would be subject to environmental review and the mitigating policies and mitigation measures described in the EIR to ensure the impacts from the construction would be less than significant. The construction of project-specific parks would require permitting and review in accordance with County standards, which would ensure that any environmental impacts are disclosed and mitigated to the extent possible. Therefore, the impact is considered less than significant.

Proposed CAAP

As a policy document that aims to reduce GHG emissions and to help the county to adapt to changing climate conditions, the proposed CAAP is not expected to result in any impacts with regard to parks and recreational services. As part of the CAAP's climate adaptation and equity strategies, the provision of parks for health and climate-related uses is encouraged. For example, Strategy NI-5, which aims to minimize the urban heat island effect through use of green infrastructure, tree, canopy, cool paint and pavement, and other emerging strategies, includes an action that encourages the County to plant trees in urbanized areas and open spaces which in turn promotes the creation of new or more inviting public spaces. Strategy CE-3 specifically targets the increase of access to parks and open space by encouraging the County to adopt a target to provide all residents a park or other green space within a half-mile of their dwelling, supporting land acquisition for new parks and open space areas and protecting such lands through fee title acquisition or through deed restrictions like conservation easements, continuing to construct and develop opportunities for new trails, and supporting investment in existing park facilities in partnership with regional agencies.

The proposed CAAP would not directly contribute to increased population growth in the EIR Study Area and includes several strategies and actions aimed at improving and providing parks and recreational facilities in the county. As such, the CAAP is expected to have beneficial impacts on parks and recreational facilities, resulting in a less than significant impact finding.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to new or expanded recreational facilities. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

15. Transportation

Impact 5.16-1: Implementation of the proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. [Threshold T-1].

Proposed General Plan

As discussed in Section 5.15.1.1, *Regulatory Background*, of the DEIR, several programs, plans, and policies guide the planning of circulation systems in the EIR Study Area. In general, the overarching goals of these policy documents are to ensure a safe, efficient, and accessible multi-modal transportation network for all users that also reduces VMT to improve air quality and reduce GHG emissions. As discussed in Chapter 3, *Project Description*, of the DEIR, the proposed General Plan would guide development in the unincorporated county to the planning horizon year of 2045, but it would not otherwise result in any immediate development actions and impacts to the county's circulation system. Therefore, impacts would be less than significant if the proposed General Plan goals, policies, and actions are consistent with and support the equivalent policy guidance of the applicable program, plan, ordinance, or policy.

While the proposed General Plan includes several policies and actions specific to roadway, bicycle, transit, and pedestrian facilities, as discussed below, the policies and actions listed under Goal TR-3 specifically target coordination and consistency with other agencies for the purpose of providing well-planned, funded, and maintained transportation facilities. For example, Policy TR-P3.1 would direct the County to coordinate planning, construction, and maintenance of streets, transit infrastructure, non-motorized rights-of-way and associated facilities, the countywide bicycle network, and Pedestrian Priority Areas with neighboring jurisdictions and Contra Costa Transportation Authority (CCTA). Action TR-A3.1 similarly directs the County to work with Caltrans, neighboring jurisdictions, CCTA, and the Regional Transportation Planning Committees (see Section 5.16.1.1 of the DEIR) to implement complete streets concepts. Action TR-A3.2 would also have the County partner with these agencies to explore and implement options for transportation system funding, including assessment districts, county service areas, impact fees, tax revenue, and other funding sources. Similarly, the policies and actions included in the proposed Growth Management Element also seek to ensure that the County develops consistent with its growth management requirements under Measure J. Each of these policies and actions, as listed above in Section 5.16.3.1, *Proposed General Plan Goals, Policies, and Actions*, of the DEIR, address coordination with other transportation-related agencies. These policies and actions, in addition to others shown under Goal TR-3 in Section 5.16.3.1, of the DEIR, and those discussed below related to specific transportation facility types, express a commitment to consistency with the planning efforts of other agencies and would help to ensure that the proposed project does not conflict with these efforts.

With regard to impacts of future development under the proposed General Plan, the County requires all development to go through a review of pedestrian, bicycle, and transit facilities in the area surrounding the individual development project to ensure that developments do not conflict with existing or planned facilities supporting those travel modes. Therefore, development under the proposed General Plan would not conflict with any adopted plans, policies, ordinances or programs related to circulation systems and impacts would be less than significant.

Roadway

CCTA implements and manages several countywide programs that direct circulation improvements on County roadways, including the Congestion Management Program (CMP) and Growth Management Program. These programs help to ensure that County roadway improvements are organized and funded. The County's Transportation Demand Management Ordinance (Chapter 82-32 of the County Ordinance Code) helps to implement these CCTA programs within the EIR Study Area. Development under the proposed General Plan would be subject to Transportation Demand Management (TDM) requirements in addition to transportation impact development fees, as applicable. Several proposed General Plan policies and actions also demonstrate compliance with and support CCTA's and the County's roadway-related programs. These include Policy TR-P1.4, which would reduce single-occupant vehicle use and vehicle miles traveled (VMT) by improving infrastructure, implementing supportive policies such as the TDM Ordinance, and enhancing public transit options, and Policy TR-P1.6, which directs the County to partner with CCTA and Caltrans to better manage traffic operations on the State highway system in the county. Action TR-A1.2 would ensure that the County reviews and updates County Ordinance Code Chapter 82-32 – Transportation Demand Management and the TDM guidelines at least every five years to incorporate best practices. Through these and other policies and actions throughout the Transportation Element, the proposed General Plan shows consistency with the goals and intent of the County/CCTA's roadway-related programs, plans, policies, and ordinances. Therefore, impacts are less than significant.

Bicycle and Pedestrian Facilities

Both CCTA and the County also manage and implement several bicycle and pedestrian-related planning efforts, including the Countywide Transportation Safety Policy and Implementation Guide and CBPP from CCTA, which focus on improving safety for and access to active transportation options across both the incorporated and unincorporated county, and the County's Active Transportation Plan (ATP), Vision Zero Action Plan, and Complete Streets Policy that promote similar goals and efforts within the jurisdiction of unincorporated Contra Costa County. The policies and actions included under Goal TR-5 of the proposed Transportation Element express the County's commitment to improving active transportation including by prioritizing construction of capital improvement project in the County ATP, per Policy TR-P5.3, and supporting the explicit goals of the Complete Streets Policy, per Policy TR-P5.1. Action TR-P5.8 would also support CCTA bicycle and pedestrian planning efforts by directing the County to partner with CCTA to build out the countywide bicycle and pedestrian network. Through these and other policies and actions throughout the Transportation Element, the proposed General Plan shows consistency with the goals and intent of the County/CCTA's bicycle and pedestrian facility-related programs, plans, policies, and ordinances. Therefore, impacts are less than significant.

Transit Service and Facilities

As discussed in Section 5.16.1.2, *Existing Conditions*, of the DEIR, the EIR Study Area is served by numerous transit agencies that provide residents opportunities for long-range and short-range travel across the county and Bay Area region. Each of these agencies have published planning documents that guide the provision of their services and update the documents as necessary to accommodate demand for service. Future potential development under the proposed General Plan would contribute to an increased use of transit in the EIR Study Area due to growth in population and employment.

However, several goals, policies, and actions within the proposed Transportation Element would support the goals of these agencies by encouraging enhanced transit access and increased coordination of service needs and opportunities in the county. For example, Policy TR-P1.8 would support improvement and expansion of passenger and commuter rail service countywide and Policy TR-P1.10 directs the County to enhance multi-modal access to all transit stops. Several actions under Goal TR-1 would also ensure that transit planning efforts are coordinated between the County and providers, including Action TR-A1.6 which directs the County to partner with transit providers, cities, and CCTA to develop a countywide transit stop program that takes a holistic approach to transit stop planning and construction. Action TR-A1.7 would have the County work with transit agencies to provide options for residents to report transit shelters and other amenities that are in disrepair.

Through these and other policies and actions throughout the Transportation Element, the proposed General Plan shows consistency with the goals and intent of transit agency's programs, plans, policies, and ordinances. Therefore, impacts are less than significant.

Summary

In summary, the proposed Transportation Element includes goals, policies, and actions that both support the goals of circulation-related planning efforts and requirements and specifically direct consistency and coordination with the county's circulation planning and other transportation-related agencies' efforts. All development under the proposed General Plan would be required to comply with existing transportation-related laws and policies as applicable, so impacts would be less than significant.

Proposed CAAP

As a policy document that aims to reduce GHG emissions and help the county to adapt to changing climate conditions, the proposed CAAP is not expected to result in any specific impacts with regard to conflicts with circulation-related policies and planning. Similar to the proposed General Plan, the proposed CAAP provides a policy framework that supports the goals of the transportation planning efforts discussed above. For example, Strategy TR-1 provides actions for improvements to walking, biking and other zero-carbon commuting options to reduce GHG emissions, which reference support of the County's TDM program, CCTA programs, and regional transit agencies. As such, the proposed CAAP is expected to result in beneficial impacts with regard to this impact and would have no significant impact.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to conflicting with a program, plan, ordinance, or policy addressing the circulation system. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.16-3: Implementation of the proposed would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). [Threshold T-3]

Proposed General Plan

While adoption of the proposed General Plan would not directly result in any physical development projects or construction activities, implementation of the policy framework in the proposed General

Plan could result in transportation improvement projects. While these types of improvements could be installed and implemented under the proposed General Plan, they would be intended to facilitate movement throughout the EIR Study Area and accommodate existing local development, and would therefore be unlikely to introduce conflicts, hazards, or incompatible uses.

All subsequent development under the proposed General Plan, including residential, commercial, and industrial development, in addition to transportation improvement projects, would be subject to and designed in accordance with County standards and specifications that address potential design hazards, including sight distance, driveway placement, and signage and striping. Additionally, any new transportation facilities or improvements to such facilities associated with subsequent projects would be constructed based on industry design standards and best practices consistent with the County Ordinance Code, building design and inspection requirements, and any applicable community-based transportation plans. The County's evaluation of projects' access and circulation will incorporate analysis with respect to County standards for vehicular level of service and queueing, as well as for service to pedestrians, bicyclists, and transit users.

Furthermore, the proposed Transportation Element provides additional guidance to help design a sustainable and comprehensive transportation system that is safe and accessible for all users and modes of travel. For example, the policies and actions included under Goal TR-2 provide several strategies for reducing roadway hazards and improving safety. Policy TR-P2.1 directs the County to pursue the priorities in the County's Vision Zero program and Policy TR-P2.2 advises careful site planning and prioritization of safety for active modes of travel. Action TR-A2.3 would require coordination with the California Public Utilities Commission and railroads to design and implement projects that address safety concerns and conflicts from at-grade rail crossings. In compliance with the County's standards and the proposed General Plan policies and actions, development under the proposed General Plan would result in a less-than-significant impact to transportation hazards.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions. While the proposed CAAP would not directly result in any new development, the implementation of its actions, which may indirectly result in new development, would be subject to the same County standards that apply to development under the proposed General Plan, as applicable. The proposed CAAP does not include any strategies or actions that would otherwise result in roadway hazards, so impacts would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to hazards due to a geometric design feature or incompatible uses. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.16-4: Development associated with the proposed project would not result in inadequate emergency access. [Threshold T-3]

Proposed General Plan

The implementation of transportation improvements supported by the proposed project would include modifications to the existing transportation network that could potentially impact emergency access response times. These modifications, along with land use changes under the proposed General Plan, could result in increased vehicle delays at intersections as well as along roadway segments. Although the project would reduce VMT overall, as described in Impact Discussion 5.16-2, increased delays at intersections could result in an increase in emergency response times. However, future development under the proposed project would be subject to the requirements contained in the County Ordinance Code, which includes requirements for emergency access, and would be reviewed by public safety officials for compliance with applicable safety, fire, and building codes as part of the County's entitlement process.

Additionally, the proposed General Plan includes several policies and actions that would help to ensure that roadways accommodate emergency access, including Policy TR-P4.10 in the proposed Transportation Element, which would ensure that roadway infrastructure within new development areas balances the accommodation of emergency response vehicles with the day-to-day safety of vulnerable road users. Additionally, policies and actions in the proposed Health and Safety Element that apply to evacuation routes would have similar impacts on emergency access routes. These include Policy HS-P7.3, which requires new development within a Very High Fire Hazard Severity Zone in the Local Responsibility Area (LRA) or State Responsibility Area (SRA) or in areas that may be designated as the Wildland-Urban Interface (WUI), and on a residential parcel with evacuation constraints, to prepare a traffic control plan to ensure that construction equipment or activities do not block roadways or interfere with evacuation plans during the construction period; this policy would ensure that temporary roadway impairments are addressed within traffic control plans. In addition, Policy HS-P13.1 requires new development in High and Very High Fire Hazard Severity Zones, the WUI, and 100-year or 200-year floodplains to have access to at least two emergency evacuation routes. Action HS-A13.1 would direct the County to partner with cities and public protection agencies to delineate evacuation routes, identifying their capacity, safety, and viability under different hazard scenarios, as well as emergency vehicle routes for disaster response, and where possible, alternate routes where congestion or road failure could occur.

Furthermore, emergency vehicles are able to use vehicle preemption technology (where possible) and sirens to reduce their response times, and they would continue to do so regardless of any roadway capacity modification. Locations that would experience a reduction in vehicular roadway capacity would undergo individual operations analyses to assess the potential impacts to emergency vehicle access, and mitigation measures would be developed as needed to reduce potentially significant impacts.

Implementation of the proposed General Plan goals, policies, and actions identified would address emergency access by considering access routes, developing and updating emergency response plans, and incorporating emergency access considerations in the design of future street improvements

Therefore, implementation of the proposed General Plan would not result in inadequate emergency access. Impacts would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that aims to reduce GHG emissions and provide guidance to the County for adapting to changing climate conditions. Therefore, the proposed CAAP would not have any direct impacts on emergency access. Strategy NI-2 of the proposed CAAP provides an action that would require projects requiring a land use permit in a High or Very High Fire Hazard Severity Zone to prepare a site-specific fire protection plan. This action supports the policies and actions in the proposed Health and Safety Element and would further ensure proper emergency access for the purpose of firefighting. As such, the proposed CAAP would have potentially beneficial impacts on emergency access and no significant impacts would occur.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to emergency access. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

16. Utilities and Service Systems

Impact 5.17-1: Sewer and wastewater treatment systems are adequate to meet project requirements. [Thresholds U-1 and U-2].

Proposed General Plan

Wastewater generation associated with the proposed General Plan was calculated using the 2045 horizon-year growth projections shown in Table 3-2 *2045 Horizon-Year Growth Projections* in Chapter 3, *Project Description*, of the DEIR.

The estimated increase in wastewater generation from 2020 to 2045 is shown on Table 5.17-3, *Wastewater Demand Increase: Proposed General Plan*, of the DEIR. The projected increase in wastewater discharge resulting from implementation of the proposed General Plan is estimated to be 3.31 megagallons per day (MGD). This increase would be distributed throughout the entire county such that the level of service would not substantially impact any individual wastewater collection provider or wastewater treatment plant. This projection also assumes that all new construction is connected to an existing or future sewer collection system, but some of the projected growth may be in rural areas where there is no available sewer connection, and the residences would be on individual Onsite Wastewater Treatment Systems (OTWS)s. However, the Land Use Element (Policy LU-P5.1) states that new development should be focused in areas where infrastructure and services, such as sewer collection and wastewater treatment, can be provided. Also, as shown in Table 5.17-2, *Wastewater Treatment Plants within Contra Costa County*, of the DEIR, the wastewater treatment facilities within the county have a residual capacity of 99.7 MGD and therefore would be able to accommodate the projected growth.

In addition, many of the wastewater treatment and wastewater collection providers have capital improvement programs that will be fully implemented by 2045. EBMUD has a \$2.8 billion, 5-year

capital improvement program, which includes upgrades to its wastewater treatment plant; replacement and rehabilitation of aging pipelines and sewage collections systems; rebuilding neighborhood reservoirs; and modernizing wastewater facilities.

Central Contra Costa Sanitary District's (CCCSD's) \$1.1 billion, 10-year capital improvement program includes improvements to its collection system, treatment plant, and expansion of recycled water facilities. Delta Diablo and the other wastewater collection and treatment providers have similar plans to expand wastewater treatment plant capacities and/or rehabilitate and replace aging sewer infrastructure.

In addition, all wastewater collection providers require new development projects to pay a sewer connection fee as well as monthly wastewater collection fees, which are used to continually upgrade components of the wastewater collection and treatment system through the capital improvement plan programs.

The proposed Land Use Element and Public Facilities and Services Element contain policies and actions that require local planning and development decisions to consider impacts to wastewater services. Policy LU-P5.1 states that development should only occur where community infrastructure can be provided. Policy PFS-P3.1 promotes cooperation between LAFCO and service providers to ensure that infrastructure and services can be provided. And Action PFS-A3.2 requires regular updates to development impact fees to ensure that new development pays its fair share of infrastructure and service costs.

Therefore, implementation of the proposed General Plan would not require the construction or expansion of wastewater treatment facilities within the county. Adherence to the County Ordinance Code requirements, continued water conservation efforts, and implementation of the proposed General Plan policies and actions would reduce wastewater generation rates over time, and therefore impacts associated with the sewer collection and wastewater treatment systems would be less than significant.

Proposed CAAP

The proposed CAAP provides estimates of GHG emissions in the water and wastewater sectors and accounts for the increase in emissions with implementation of the proposed General Plan. It also provides reduction strategies to minimize GHG emissions through water conservation, water-efficient retrofits, water-wise landscaping, and graywater and recycled water programs. Any reduction in indoor water demand would also result in a reduction in wastewater generation rates. Therefore, the proposed CAAP would not require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which would cause significant environmental effects, and impacts would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to new or expanded wastewater treatment facilities. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.17-2: Water supply and delivery systems are adequate to meet project requirements. [Thresholds U-3].

Proposed General Plan

Both EBMUD and CCWD, who are the largest water purveyors in the county, project population increases within the county that exceed the horizon-year projection of the proposed General Plan. In the EBMUD 2020 Urban Water Management Plan (UWMP), a population increase of 79,000 is projected within the county's service area between 2020 and 2040, and the CCWD 2020 UWMP projects a population increase of 236,110 within its service area between 2020 and 2045. These numbers are much greater than the projected horizon-year population increase of 65,600 from the proposed General Plan.

CCWD states in the 2020 UWMP that they have sufficient supplies to meet water demands as both a wholesale and retail water provider for normal, single-dry, and multiple-dry years through 2045. CCWD prepares an Annual Water Supply and Demand Assessment to identify potential shortages and recommend response actions, as appropriate. The District evaluates weather data, CVP allocation estimates, and demand projections to determine what demand management measures should be implemented. The 2020 UWMP also includes a Water Shortage Contingency Plan that would be implemented in the event of a drought and/or CVP water supply reductions.

CCWD is in the process of updating the 2015 Contra Costa Water District Treated Water Master Plan to evaluate its existing water distribution system as well as its pumping and storage capacity to address future needs. The updated report will also recommend and prioritize capital improvement programs to ensure that the system will meet future water demands. CCWD is evaluating an Industrial Recycled Water Project to deliver up to 3,400 acre-feet-year (AFY) to major industrial customers. CCWD is also investigating long-term water transfer options to meet multiple-dry year shortfalls. And CCWD continues to implement its water conservation and rebate programs.

The EBMUD 2020 UWMP shows that water supplies will exceed the demand through 2050 for both normal and single dry years. However, in the third year of a drought, the demand would exceed the supply. Under these conditions, various measures would be implemented to ensure that all of EBMUD's customers have a reliable water supply. EBMUD prepares a preliminary Water Supply Availability and Deficiency report by March 1 of each year, evaluating the adequacy of that year's water supply. These reports inform decisions by EBMUD regarding whether to declare a water shortage emergency and implement a drought management plan, institute mandatory water use restrictions, and/or obtain supplemental water supplies. EBMUD has a comprehensive Drought Management Plan that is implemented under extended drought conditions.

In addition, EBMUD is working on implementing a number of programs and projects to improve the reliability of its water supply, including:

- Bayside Groundwater Project
- Groundwater banking and exchange program with eastern San Joaquin County
- Water transfer program with Placer County Water Agency, Yuba County Water Agency, and Sycamore Mutual Water Company

- Expansion of surface water storage facilities
- Bay Area Regional Desalination Project
- Bay Area Regional Reliability Project
- Expansion of its recycling water network and supplies

The other cities and water purveyors within the county also have 2020 UWMPs and water master plans that describe the upgrades and expansions of their water distribution and treatment systems to address future increases in population and climate change impacts. Each UWMP also contains a water shortage contingency plan to address potential shortages in future water supplies and implement demand reduction strategies.

In addition, the water purveyors in the UWMPs have assumed increases in their service populations that are higher than the projected horizon-year increase from the proposed General Plan. The projected growth for the proposed General Plan will be distributed throughout the county and within various service areas of the 14 water purveyors. Because the horizon-year growth projection for the proposed General Plan is less than the projected growth in the service areas of the water purveyors, no new water treatment facilities or water distribution systems beyond what is described in the UWMPs would be necessary. Also, compliance with the County's requirements for new construction and water-efficient landscaping, combined with implementation of the proposed General Plan policies and actions listed above, would further reduce potential impacts, resulting in less than significant impacts with respect to the need for new and/or expanded water facilities.

Proposed CAAP

The proposed CAAP provides estimates of GHG emissions in the water and wastewater sectors and accounts for the increase in emissions with implementation of the proposed General Plan as both residential and employment populations increase. It also provides reduction strategies to minimize this increase in GHG emissions through water conservation, water-efficient retrofits, water-wise landscaping, and graywater and recycled water programs. The strategies and actions in the proposed CAAP include measures to reduce indoor and outdoor water use, ensure sustainable and diverse water supplies, and implement water use audits at County facilities. Implementation of the proposed CAAP would further reduce water demand as compared to the analysis provided above. Therefore, the proposed CAAP would not require or result in the construction of new water facilities or expansion of existing facilities, the construction of which would cause significant environmental effects, and impacts would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to water supplies and delivery systems available to serve the project and future development. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.17-3: The proposed project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. [Thresholds U-4]

Proposed General Plan

As shown in Table 3-2, *2045 Horizon-Year Growth Projection* in Chapter 3, *Project Description*, of the DEIR, the proposed General Plan would result in 7,100 new single-family residences and 16,100 new multi-family residences, as well as 1.2 million square feet of commercial and office space and 5.0 million square feet of industrial space. The projected increase in population is much less than the projected population increases in the EBMUD and CCWD 2020 UWMPs.

The increase in water demand with implementation of the proposed General Plan is provided in Table 5.17-5, *Net Increase in Water Demand with Proposed General Plan*, of the DEIR. The water demand for the single-family and multi-family residential units was based on an indoor water demand of 55 gallons per capita per day (gpcd), which is the current requirement in the California Water Code for water purveyors to meet by 2023. It was assumed that there would be 2.83 people per household and that outdoor water use would be 33 percent of the total water demand for single-family homes and 14 percent of the total water demand for multi-family homes. This results in a total water demand of 223 gpd/du for single-family residences and 181 gallons per day per dwelling unit (gpd/du) for multi-family residences. For the commercial/office and industrial land use categories, the water demand factors were taken from CCWD's 2015 Treated Water Master Plan.

The projected water demand increase with implementation of the proposed General Plan is estimated to be 5,118 AFY. In comparing the 2045 water supply to water demand from the various UWMPs, as shown in Table 5.17-4, *Water Providers serving Contra Costa County*, of the DEIR there is a surplus of available water of 22,218 AFY. Therefore, the water purveyors would be able to accommodate the projected increase in water demand with implementation of the proposed General Plan. In addition, the projected growth would occur gradually between 2020 and 2045. Also, the growth within the county would be dispersed among the various water purveyors' service areas and therefore impacts to each water purveyor's water supplies would be minor.

Additionally, future development pursuant to the proposed General Plan would be required to implement the water-efficient requirements specified in the CALGreen and California Plumbing Codes and the MWELO requirements for water-efficient landscaping. As specified in California Water Code Section 10910, future projects subject to CEQA that also meet the criteria under California Water Code Section 10912 would be required to prepare a WSA that demonstrates that project water demands would not exceed water supplies. In addition, residential, commercial, and industrial water usage can be expected to decrease in the future as a result of the implementation of water conservation practices. In the case of a water shortage, each water purveyor would implement their Water Shortage Contingency Plan, as described in the 2020 UWMPs. Also, the proposed General Plan policies and actions presented in Section 5.17.2.3, *Programs, Plans, and Policies*, of the DEIR would further reduce future water demands.

In summary, future development associated with the proposed General Plan would not result in a shortage of water supplies. In addition, compliance with the County's Code requirements for new

construction and adherence to the proposed General Plan policies and actions will reduce future water demands, and impacts associated with water supply would be less than significant.

Proposed CAAP

As discussed in Impact 5.15-2, of the DEIR, the proposed CAAP provides strategies to minimize increases in GHG emissions by implementing water conservation, water-efficient retrofits, water-wise landscaping, and graywater and recycled water programs. The strategies and actions also include measures to reduce indoor and outdoor water use, ensure sustainable and diverse water supplies, and implement water use audits at County facilities. Implementation of the proposed CAAP would further reduce water demand as compared to the analysis provided above. Therefore, the proposed CAAP would not adversely affect water supplies and impacts would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to adequate water supplies for future development in dry, dry, and multiple dry years. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.17-4: Existing and/or proposed storm drainage systems are adequate to serve the drainage requirements of the proposed project. [Threshold U-5]

Proposed General Plan

New development, redevelopment, and changes in land uses under the proposed General Plan would result in an increase in impervious surfaces, which in turn could result in an increase in stormwater runoff, higher peak discharges to drainage channels, and the potential to cause nuisance flooding in areas without adequate drainage facilities. However, municipalities within the county have storm drain master plans, green infrastructure plans, and capital improvement programs that account for future development and expansion of the storm drain system, as needed. Also, the CCCFCD has detailed Flood Control Zone and Drainage Area maps that are used to evaluate future development plans within each zone or area and determine if the existing storm drainage infrastructure is adequate to accommodate the proposed project. The schedule and costs for the construction of new drainage projects and maintenance of existing storm drain infrastructure is described in the Capital Improvement Plan (CIP) and is funded by property taxes and development impact fees in each Flood Control Zone or Drainage Area.

In addition, all future development that involves the disturbance of one acre or more of land would be subject to NPDES construction permit requirements, including preparation of a SWPPP, which includes BMPs to limit the discharge of sediment and non-stormwater discharges from the project site. Also, all regulated projects that create or replace 5,000 square feet or more of impervious surface would be required to implement site design, source control, and stormwater treatment and runoff measures using specific numeric sizing criteria based on the volume and flow rate of stormwater that is generated. Each project undergoes review by County personnel to ensure that the regulatory requirements for temporary on-site stormwater runoff retention have been met. New projects are also subject to storm drainage impact fees, which are used to fund new storm drain infrastructure within the county.

With the implementation of these provisions for future development, there would not be significant increases in stormwater runoff that would exceed the existing and planned future capacity of the storm drain infrastructure beyond what is already accounted for in the CIPs of the municipalities within the county and the FCD. The construction of new stormwater facilities through the CIP and storm drain impact fees, implementation of BMPs and on-site stormwater control measures, and preparation of the required documents and review by the County would serve to minimize any potential impacts associated with stormwater.

Also, as described above, the Public Facilities and Services Element of the proposed General Plan contains policies and actions that consider impacts to storm drain infrastructure and would minimize potential adverse impacts on stormwater discharge. Compliance with and implementation of these proposed General Plan policies and actions that ensure adequate infrastructure, combined with the regulatory provisions in the MS4 permit that limit runoff from new development, would further ensure that the implementation of the proposed General Plan would not result in significant increases in runoff and would therefore not contribute to the construction of new storm drain facilities or expansion of existing facilities that would cause significant environmental impacts. In addition, the County would continue to repair, rehabilitate, and upgrade the storm drain system through implementation of the CIP program funded through the property taxes and developer impact fees. Therefore, impacts with respect to stormwater infrastructure would be less than significant.

Proposed CAAP

The proposed CAAP is a strategic plan focused on GHG emissions reduction, including through strategies and actions that reduce emissions in the water and wastewater sectors. However, there are no sections in the proposed CAAP that specifically address stormwater other than strategies to increase park space, tree plantings, and vegetation, which would reduce the volume of stormwater runoff. Therefore, implementation of the proposed CAAP, would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which would cause significant environmental effects and impacts would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to adequacy of current storm drainage systems. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.17-5: Existing and/or proposed facilities would be able to accommodate project-generated solid waste. [Threshold U-6]

Proposed General Plan

With implementation of the proposed General Plan, the population is anticipated to increase by 65,600 residents and approximately 9,400 jobs are projected to be generated. As shown in Table 5.17-8, *Increase in Solid Waste Generation Rates*, of the DEIR, this projected growth would result in an increase in solid waste of approximately 127 tons/day or 46,355 tons/year. These numbers are conservative because with continued recycling and waste reduction programs implemented by the County, cities, and Joint Power Authorities (JPAs), the waste generation rates would be reduced over time.

Conservatively assuming that all of the solid waste generated in the county is transported to Keller Canyon Landfill, an increase of 127 tons/day with the implementation of the proposed General Plan would be about 14 percent of the current residual capacity of the landfill. In addition, the landfill is in the process of increasing its permitted daily disposal capacity to 4,900 tons/day. Even without the increase in capacity, the solid waste generated from the proposed General Plan would be easily accommodated by this landfill. This estimate also assumes that all of the generated waste is landfilled, whereas the majority of the waste generated in the county is diverted from landfill disposal by recycling and composting. The results in Table 5.17-8 show that the proposed General Plan would not generate solid waste in excess of the capacity of the landfills that serve the county.

In addition, all new development pursuant to the proposed General Plan would require compliance with Division 4.4 of the 2022 CALGreen Building Code, which requires that at least 65 percent of nonhazardous construction and demolition waste from residential and nonresidential construction operations be recycled and/or salvaged for reuse. New development and redevelopment would also need to comply with the requirements of AB 341 that mandate recycling for commercial and multi-family residential land uses. Therefore, solid waste facilities would be able to accommodate project-generated solid waste, and impacts would be less than significant. Also, the Public Services and Facilities Element of the proposed General Plan, as listed above, contains policies and actions that are intended to reduce solid waste generation and increase recycling efforts, which in turn would minimize potential impacts on the solid waste infrastructure and landfill capacities.

With continued compliance with the applicable regulations, leading to increased recycling and waste diversion, and adherence to the proposed General Plan policies and actions, anticipated rates of solid waste disposal would be less than significant with respect to permitted landfill capacity. In addition, the County, as well as the cities and JPAs within the county boundaries, are well below the CalRecycle target disposal rates and meet the regulatory requirements of AB 939. Therefore, implementation of the proposed General Plan would not generate solid waste in excess of the capacity of the landfills, or otherwise impair the attainment of solid waste reduction goals, and the impact is less than significant.

Proposed CAAP

The proposed CAAP focuses on GHG emissions reduction, including by reducing waste generation, increasing composting, and expanding community waste minimization programs. This also includes reducing the amount of packaging used in food service and retail projects. Additional strategies to achieve waste reduction goals and increase recycling and organic waste collections are provided in the proposed CAAP. Therefore, implementation of the proposed CAAP would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals, and impacts would be less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to existing facilities being able to accommodate project generated solid waste. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.17-6: The proposed project would comply with federal, State, and local statutes and regulations related to solid waste. [Threshold U-7].

Proposed General Plan

All of the solid waste collection and transport franchises within the county comply with all State requirements to reduce the volume of solid waste through recycling and organic waste diversion. Unincorporated Contra Costa County's per capita disposal rates of 2.2 pounds per day (ppd) per resident and 11.7 ppd per employee are well below CalRecycle targets of 3.9 ppd for residents and 20.1 ppd for employees. In addition, all potential future development pursuant to the proposed General Plan would comply with Division 4.4, *Material Conservation and Resource Efficiency*, of the CALGreen Building Code, which requires that at least 65 percent of nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

Potential future development would also comply with AB 341, which mandates recycling for commercial and multi-family residential land uses as well as schools and school districts. Additionally, potential future businesses pursuant to the proposed General Plan that generate organic waste in amounts over a certain threshold would be mandated to recycle organic matter in accordance with AB 1826. Therefore, the County and its solid waste collection providers would comply with all applicable federal, State, and local solid waste regulations, and impacts would be less than significant.

Proposed CAAP

As described under Impact Discussion 5.17-5, the proposed CAAP provides many strategies to achieve waste reduction goals and increase recycling and organic waste collection. Therefore, the proposed project would comply with federal, State, and local statutes and regulations related to solid waste, and implementation of the proposed CAAP would have less than significant impacts.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to the compliance with federal, state, and local laws regarding solid waste. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.17-7: Existing telecommunication facilities are adequate to meet project requirements. [Threshold U-8].

Proposed General Plan

As discussed in Section 5.17.5.1, *Environmental Setting*, of the DEIR, there are multiple telecommunication providers in Contra Costa County, including internet services, wireless services, cable television, and satellite television. All new franchises and existing franchises that are up for renewal will be required to follow the regulations and procedures specified by the CPUC and the Contra Costa County Ordinance Code for cable systems, video systems, and wireless telecommunications systems. Also, the Contra Costa County Ordinance Code requires the undergrounding of communication and cable television lines within any residential or commercial subdivision to minimize potential aesthetic and visual impacts.

Each telecommunication provider also prepares long-range plans to accommodate projected growth in their service areas. Future expansion or construction projects would be required to comply with the requirements of the FCC, CPUC, and Contra Costa County Ordinance Code prior to approvals. Therefore, with adherence to the policies of the proposed General Plan and the federal, State, and local regulatory requirements, the proposed General Plan is not expected to require or result in new or expanded telecommunication facilities beyond those already planned, and the impact is less than significant.

Proposed CAAP

Because the proposed CAAP focuses on the reduction of GHG emissions and telecommunication systems are not associated with these emissions, there are no specific provisions in the proposed CAAP regarding telecommunication facilities. However, the implementation of the proposed CAAP would not have an adverse impact on telecommunications systems and therefore the impact is less than significant.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to adequacy of existing communication facilities able to meet project requirements. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

17. Wildfire

Impact 5.18-1: Development under the proposed project in or near SRAs or lands classified as Very High FHSZs and a single access roadway or in an Evacuation-Constrained Area could substantially impair an adopted emergency response plan or emergency evacuation plan. [Threshold W-1]

Proposed General Plan

Any potential development under the proposed General Plan would be required to integrate the County Emergency Operations Plan (EOP) as necessary to continue its facilitation in evacuation for the people in wildfire prone areas. Development under the proposed project would not result in substantial changes to the circulation patterns or emergency access routes in the county that would conflict with or require changes to the EOP. Additionally, future development within the Sate Responsibility Area (SRA), Wildland Urban Interface (WUI), or Very High Fire Hazard Severity Zones (FHSZs) would be required to comply with the SRA and Very High FHSZ Fire Safe Regulations, the California Building Code, the California Fire Code, and the Contra Costa County Ordinance Code, which have maximum requirements for lengths of single access roads, minimum widths of roadways, and vegetation fuel management around roadways. Furthermore, to ensure emergency services in the county are not impaired by future development, all future development projects would be reviewed and approved by the applicable fire protection district prior to project approval. In addition, several proposed General Plan policies and actions promote or require enforcement of the Fire Safety Code requirements, including Policy HS-P7.4, which would require projects in High or Very FHSZs to implement a site-specific fire protection plan.

Additionally, Policy HS-P7.3, which requires new development within a Very High Fire Hazard Severity Zone in the LRA or SRA or in areas that may be designated as the WUI, and on a residential parcel with evacuation constraints, to prepare a traffic control plan to ensure that construction equipment or activities do not block roadways or interfere with evacuation plans during the construction period, would ensure that temporary roadway impairments or evacuation plan impacts are addressed within traffic control plans. Policy HS-P7.1 also directs the County to deny entitlements for projects creating additional residential units in a Very High Fire Hazard Severity Zone in the LRA or SRA in addition to discouraging such projects in High Fire Hazard Severity within the SRA and LRA unless adequate fire protection services are provided. With the implementation of these policies, impacts would be less than significant.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies to reduce greenhouse gas (GHG) emissions and improve climate resiliency and adaptation. As such, all strategies and actions within the proposed CAAP inherently support the implementation of emergency responder and evacuation plans, while some directly address County efforts for emergency planning. For example, Strategy NI-3 and its accompanying actions direct the County to establish and maintain community resilience hubs with microgrids, education, training opportunities, and other community-focused resources, in line with the policies and actions included under proposed Health and Safety Element Goal HS-12. The proposed CAAP also includes Strategy NI-2, which specifically addresses adaptation efforts for wildfire events and reflects the policies and actions included under Goal HS-7. The proposed CAAP directly supports and directs compliance with adopted emergency response and evacuation plans, and therefore would have no impact.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to emergency response plans. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.18-3: Development under the proposed project in or near SRAs or lands classified as Very High FHSZs could require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities), but it would not exacerbate fire risk or result in temporary or ongoing impacts to the environment. [Threshold W-3]

Proposed General Plan

Development under the proposed General Plan would result in additional infrastructure, such as roadways, transmission lines, and other utilities, in order to serve new residential development. Fuel breaks and emergency water sources would also be required to comply with State and local development regulations. These types of improvements would involve temporary construction and result in changes to the existing built environment. The installation and operation of new above-ground power transmission lines would create a higher risk of exacerbating wildfire risks compared to other infrastructure. However, the CPUC requires maintenance of vegetation around power lines, strict wire-to-wire clearances, annual inspections of above-ground power lines, and the preparation of fire prevent

plans for above-ground power lines in high fire-threat districts. These measures would reduce the wildfire risks associated with the installation and maintenance of power lines.

Any residential development in the wildfire-prone parts of the EIR Study Area would also be required to comply with building and design standards in the CBC and California Fire Code, which include provisions for fire-resistant building materials, the clearance of debris, and fire safety requirements during demolition and construction activities. Public Resources Code Section 4291 also requires that vegetation around buildings or structures maintain defensible space within 100 feet of a structure and an ember resistant zone within five feet of a structure. Additionally, SRA and Very High FHSZ Fire Safe Regulations would prevent structures from being placed within 30 feet of a roadway, reducing the potential for new roadways to exacerbate wildfire risks. These measures, along with policies and actions in the proposed General Plan Health and Safety Element and Public Facilities and Services Element limiting residential development unless adequate fire protection services are provided, requiring fire-resistant materials and landscaping with irrigated or fire-resistant materials, and requiring review by fire protection agencies for adequate water supplies, road design, and building design, would minimize wildfire risks associated with the installation and maintenance of infrastructure.

Such infrastructure and maintenance activities would also be required to comply with the adopted State regulations, County Ordinance Code standards, and the proposed General Plan policies and actions to mitigate the impact of infrastructure on the environment. Therefore, impacts would be less than significant.

Proposed CAAP

As noted in the discussions of Impacts 5.18-1 and 5.18-2, the proposed CAAP is a policy document that among other efforts, contains strategies aimed at improving wildfire safety and resilience in the EIR Study Area. This includes an action under Strategy NI-2 that directs the County to coordinate with energy service providers to underground power lines, especially in the WUI and FHSZs, similar to Policy HS-P7.8 in the proposed Health and Safety Element. While the proposed CAAP would not directly result in new development that could exacerbate fire risk, strategies and actions included in the proposed CAAP could result in the construction of physical improvements and infrastructure in the county designed to help meet the emissions targets in the CAAP. However, under Policy HS-P7.7 of the proposed Health and Safety Element, construction of critical facilities in high fire risk areas would be discouraged. Additionally, all future construction associated with the proposed CAAP would be subject to the applicable federal, State, and local regulations outlined above.

Overall, adoption of the proposed CAAP would primarily result in beneficial impacts with regard to wildlife risks from proposed infrastructure. Therefore, the proposed CAAP would have less than significant impacts.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to infrastructure maintenance/installation that could exacerbate fire risk. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

Impact 5.18-4: The project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. [Threshold W-4]

Proposed General Plan

Wildfires on hillsides can create secondary hazards in the form of flooding and landslides. Wildfires on steep slopes can burn the vegetation that stabilizes the slope and create hydrophobic conditions that prevent the ground from absorbing water. This can lead to landslides, debris flows, and flooding.

As discussed in Chapter 5.10, *Hydrology and Water Quality*, of the DEIR, Contra Costa County contains lands within the 100-year and 500-year floodplain. As shown in Figure 5.10-3, *Existing and Potential Beneficial Uses in Groundwater Basins in Contra Costa County*, of the DEIR, floodplains are primarily located along creeks, canals, shorelines, and low-lying lands in the Sacramento-San Joaquin Delta. Many flood-prone areas are not, however, located within High or Very High FHSZs or WUI areas.

As discussed in Chapter 5.7, *Geology and Soils*, of the DEIR, landslide-prone areas are located throughout the county, with many of the moderate to high landslide potential areas coinciding with High or Very High FHSZs. Many of the high landslide potential areas are located on the steep slopes of the Diablo Mountain Range, creating overlapping landslide-prone areas in the steep mountain ranges. This overlap may cause areas outside of a landslide susceptible zone to be affected by runoff, post-fire slope instability, or drainage changes following a wildfire.

Potential future development under the proposed General Plan could contribute to post-fire slope instability or drainage changes upstream. However, as discussed above, proposed Health and Safety Element Policy HS-P7.1 would require denial of entitlements for projects creating additional residential units (i.e., units not allowed by-right) in Very High FHSZs and Policy HS-P4.3 discourages locating below market-rate housing development inside of mapped hazard zones as identified in the Health and Safety Element; however, this does not prevent other types of residential development from being located in mapped hazard zones. Additionally, all new development in the county is required to comply with State and local regulations, such as the CBC, California Fire Code, and County Ordinance Code, which have provisions to reduce downslope or downstream landslides and flooding. For example, Section 1803 of the CBC requires a geotechnical investigation that must assess existing landslide susceptibility on a project site. Contra Costa County Ordinance Code, Title 7, Article 716, *Grading*, requires a grading permit issued by a building inspector to control excavating, grading, and earthwork construction, including fills or embankments and related work, ultimately minimizing slope instability. Furthermore, as discussed in Impact 5.18-2 in the DEIR, all potential future development within wildfire-prone areas in the EIR Study Area would be required to comply with SRA and Very High FHSZ Fire Safe Regulations, Public Resources Code Section 4291, and the California Fire Code. These regulations would ensure fire-resilient structures and properties, and therefore would reduce the potential for post-wildfire flooding or landslides downstream or downslope.

New development complying with State and local regulations would not expose people or structures to downslope landslides or downstream flooding due to post-fire hazards. Furthermore, as identified in Impact Discussions 5.18-1 and 5.18-2 in the DEIR, development under the proposed project must also comply with the County EOP, LHMP, and CWPP. All future development, regardless of the location, is required to comply with adopted local, regional, and State plans and regulations addressing

wildfire prevention, which would minimize risks of post-fire hazards. As such, compliance with these policies and regulatory requirements would ensure impacts from post-fire instability would be less than significant.

Proposed CAAP

As discussed above, the proposed CAAP is a policy document that provides strategies to reduce GHG emissions and improve climate resiliency and adaptation. The intent of proposed CAAP is therefore to reduce risks associated with climate change and is not expected to result in significant impacts with regard to landslide and flooding impacts associated with post-fire instability. The proposed CAAP contains several strategies and actions that align with the guidance of the proposed General Plan and other applicable State and local regulations, including Strategy NI-6, which provides actions to reduce impacts from other climate-related hazards, including drought, flooding, landslides, and severe weather. The proposed CAAP would therefore result in no impact.

Finding. The proposed project would have a less than significant direct, indirect, and cumulative impact related to exposing people or structures to significant post-fire slope instability risks. Accordingly, no changes or alterations to the proposed project were required to avoid or substantially lessen any significant environmental impacts under those thresholds.

C. Findings on Significant Environmental Impacts That Can Be Mitigated to Less Than Significant

The following summary describes impacts of the proposed project that, without mitigation, would result in significant adverse impacts. Upon implementation of the mitigation measures provided of the DEIR, these impacts, from Chapter 5, would be considered less than significant.

1. Air Quality

Impact 5.3-4: Construction activities associated with the proposed project could expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-3]

Proposed General Plan

Construction Community Risk and Hazards

Future construction under the proposed General Plan would temporarily elevate concentrations of TACs and DPM in the vicinity of sensitive land uses during construction activities. Since the details regarding future construction activities are not known at this time due to this analysis being conducted at a program level—including phasing of future individual projects, construction duration and phasing, and preliminary construction equipment—construction emissions are evaluated qualitatively in accordance with BAAQMD’s plan-level guidance. Subsequent environmental review of future development projects would be required to assess potential impacts under BAAQMD’s project-level thresholds. However, construction emissions associated with the proposed General Plan could exceed BAAQMD’s project level and cumulative significance thresholds for community risk and hazards. Therefore, construction-related health risk impacts associated with the proposed General Plan are considered potentially significant.

Proposed CAAP

As discussed under Impact 5.3-2, of the DEIR, implementation of the proposed CAAP would not involve any land use changes that would result in indirect growth or change in building density or intensity; therefore, its implementation would not directly result in the generation of TAC and DPM emissions. In addition, as stated under Impact 5.3-3, of the DEIR, implementation of the CAAP could result in beneficial long-term air quality impacts from the increase in energy efficiency, usage of clean energy, and reduction in VMT. Therefore, implementation of the proposed CAAP would not expose sensitive receptors to substantial pollutant concentrations of TACs, and impacts would be less than significant.

Mitigation Measures

AQ-3 Prior to discretionary approval by the County for development projects subject to CEQA (California Environmental Quality Act) review (i.e., nonexempt projects), future development involving construction on 1 acre or more and within 1,000 feet of residential and other sensitive land uses (e.g., hospitals, nursing homes, schools, and day care centers) in the unincorporated county¹, shall submit a health risk assessment (HRA) to the County Department of Conservation and Development for review and approval. The HRA shall be prepared in accordance with policies and procedures of the Office of Environmental Health Hazard Assessment (OEHHA) and the Bay Area Air Quality Management District (BAAQMD). The latest OEHHA guidelines shall be used for the analysis, including age sensitivity factors, breathing rates, and body weights appropriate for children ages 0 to 16 years. If the HRA shows that the incremental cancer risk exceeds the respective threshold established by the BAAQMD—project-level risk of six in one million in Impacted Communities, BAAQMD's Overburdened Communities, and within 1,000 feet of a BAAQMD Overburdened Community; ten in a million in all other areas; PM_{2.5} emissions that exceed 0.3 µg/m³; or the appropriate noncancer hazard index exceeds 1.0—the applicant will be required to identify and demonstrate that mitigation measures are capable of reducing potential cancer and non-cancer risks below the respective threshold, including appropriate enforcement mechanisms. Measures to reduce risk may include, but are not limited to:

- Use of construction equipment rated as US EPA Tier 4 Interim or higher for equipment of 50 horsepower or more.
- Use of construction equipment fitted with Level 3 Diesel Particulate Filters for all equipment of 50 horsepower or more.

Measures identified in the HRA shall be included in the environmental document and/or incorporated into the site development plan as a component of the proposed project. Prior to issuance of any construction permit, the construction contractor

¹ As measured from the property line of the project site to the property line of the source/edge of the nearest travel lane.

shall ensure that all construction plans submitted to the Department of Conservation and Development clearly show incorporation of all applicable mitigation measures.

Finding:

Changes or alterations have been required in, or incorporated into, the proposed project that avoid or substantially lessen the significant environmental effect as identified in the DEIR. These changes are identified in the form of the mitigation measure above. The Contra Costa County Board of Supervisors hereby finds that implementation of the mitigation measure is feasible, and the measure is therefore adopted.

Rationale for Finding:

Mitigation Measure AQ-3 would ensure that future construction within 1,000 feet of sensitive receptors submit a health risk assessment showing that the document has been prepared in accordance with policies and procedures of the OEHHA and BAAQMD, and requires mitigation be provided if the health risk assessment shows that the incremental cancer risk exceeds ten in one million (10E-06), PM_{2.5} concentrations exceed 0.3 µg/m³, or the appropriate noncancer hazard index exceeds 1.0. Therefore, Mitigation Measure AQ-3 would reduce impacts to air quality less than significant.

2. Biological Resources

Impact 5.4-4: Implementation of the proposed project could interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. [Threshold B-4].

Proposed General Plan

Implementation of the proposed General Plan could potentially interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites in the EIR Study Area.

The definition of “wildlife corridor,” along with an explanation of critical linkages, natural landscape blocks, and essential connectivity areas that occur in the county, are provided in the Existing Conditions Report (Appendix 5.4-1, Figure 3-5 of the DEIR). Two linkages that are crucial to maintaining connectivity for wildlife between large landscape blocks within and adjacent to the nine-county Bay Area, as well as overlapping Contra Costa County, are the East Bay Hills: Diablo Range linkage and the Mount Diablo: Diablo Range linkage. Natural landscape blocks and essential connectivity areas overlap the Diablo Range in the county. Furthermore, the East Contra Costa County HCP/NCCP identifies four potential movement routes (i.e., Round Valley, Briones Valley, Deer Valley, and Horse and Lone Tree Valleys) between the Los Vaqueros Watershed and Black Diamond Mines Regional Preserve.

Regarding movement within natural communities, the baylands west of the EIR Study Area’s western boundary and the Baylands along the EIR Study Area’s northern boundary serve as a migratory corridor for anadromous fish, including green sturgeon and steelhead. The riparian woodland community also provides movement corridors for fish and wildlife species. The grassland natural

community is an important movement corridor for species such as American badger, Alameda whipsnake, and San Joaquin kit fox. Grasslands in the eastern county connect to grassland communities in counties to the south, including Alameda County and San Joaquin County, providing a movement corridor to greater habitat patches and facilitating a genetic exchange with other populations of San Joaquin kit fox and American badger. Aquatic habitats such as streams and ponds provide breeding habitat for California red-legged frog and California tiger salamander, while the matrix of upland grassland habitats between the aquatic habitats and riparian corridors provide dispersal habitat.

Development under the proposed General Plan could restrict local or regional movement of native wildlife and fish species by fragmenting intact habitat areas. Development in natural or open space areas serves to fragment habitat areas, which reduces the number of special-status species within these areas. This reduction in habitat, including movement corridors or wildlife nursery areas, affects the ability of special-status species to increase in number and increases the probability that such species will be affected by other environmental factors (e.g., disease, catastrophic weather, and predation). However, given that most development under the proposed General Plan is anticipated to occur within the ULL, specific impacts may be lessened through implementation of the goals, policies, and actions of the proposed General Plan.

The Conservation, Open Space, and Working Lands Element of proposed General Plan includes policies and actions that would mitigate potential impacts associated with the movement of native resident or migratory fish or wildlife species, or established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. This includes policies and actions that are associated with goals that aim to preserve open space for environmental protection (Goal COS-1); preserve and enhance ecological resources and wildlife habitat (Goal COS-4), including Action COS-A4.3 which directs the County to work with conservation agencies to identify appropriate locations and methods for incorporating wildlife crossings into future road projects; protect and restore natural watercourses, riparian corridors, and wetland areas (Goal COS-5); preserve and enhance native upland habitat (Goal COS-6); and protect, preserve, and enhance natural resources of the San Francisco Bay/Sacramento-San Joaquin Delta estuary system and shoreline (Goal COS-9).

As detailed in Section 5.4.1.1 of the DEIR, a number of federal and State regulations are in place to protect wildlife movement, wildlife corridors, and nursery sites within Contra Costa County. However, even with implementation of the proposed General Plan goals, policies, and actions, the regulations would not fully reduce potential impacts associated with the movement of wildlife species, migratory wildlife corridors, or native wildlife nursery sites. Additional project-specific analysis would be required to ensure that development does not impede wildlife movement in the identified areas. Therefore, this is considered a potentially significant impact.

Proposed CAAP

The proposed CAAP is a policy document that does not include specific projects. However, projects that would implement the proposed CAAP strategies and actions could result in the construction of physical improvements and infrastructure in the county that is designed to help meet the emissions targets in the CAAP, which could potentially impact wildlife species, migratory wildlife corridors, or native wildlife nursery sites. Projects that would implement the proposed CAAP strategies and actions would be required to be consistent with the proposed General Plan, as well as a number of federal and State regulations that are in place to protect wildlife movement, wildlife corridors, and nursery sites, as

detailed in Section 5.4.1.1 of the DEIR. However, even with implementation of the proposed General Plan goals, policies, and actions, the regulations would not fully reduce potential impacts of the proposed CAAP associated with the movement of wildlife species, migratory wildlife corridors, or native wildlife nursery sites. Therefore, this is considered a potentially significant impact.

Mitigation Measures

BIO-1 Prior to the issuance of a building permit for projects not exempt from the California Environmental Quality Act, the County shall require a habitat connectivity/wildlife corridor evaluation for future development that may impact existing connectivity areas and wildlife linkages. The evaluation shall identify project design features that would reduce potential impacts and maintain habitat and wildlife movement. To this end, the County shall incorporate the following measures, to the extent practicable, for projects impacting wildlife movement corridors:

- Encourage clustering of development
- Avoid known sensitive biological resources
- Provide shielded lighting adjacent to sensitive habitat areas
- Encourage development plans that maximize wildlife movement
- Provide buffers between development and wetland/riparian areas
- Protect wetland/riparian areas through regulatory agency permitting process
- Encourage wildlife-passable fence designs (e.g., three-strand barbless wire fence) on property boundaries.
- Encourage preservation of native habitat on developed parcels
- Minimize road/roadway development to help prevent loss of habitat due to roadkill and habitat loss
- Use native, drought-resistant plant species in landscape design
- Encourage participation in local/regional recreational trail design efforts

Finding:

Changes or alterations have been required in, or incorporated into, the proposed project that avoid or substantially lessen the significant environmental effect as identified in the DEIR. These changes are identified in the form of the mitigation measure above. The Contra Costa County Board of Supervisors hereby finds that implementation of the mitigation measure is feasible, and the measure is therefore adopted.

Rationale for Finding:

Implementation of Mitigation Measure BIO-1 would require projects that may impact wildlife migration corridors to conduct an evaluation that identifies potential impacts and project design features that can be feasibly implemented to reduce impacts. This would ensure that impacts to wildlife migration corridors are identified and reduced to the extent possible under project-level review. As such, impacts would be less than significant.

3. Cultural and Tribal Cultural Resources

Impact 5.5-2: Implementation of the proposed project could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines, Section 15064.5. [Thresholds C-2]

Proposed General Plan

Archaeological resources are known to be present in the EIR Study Area. Implementation of the proposed General Plan could potentially result in direct or indirect impacts on both prehistoric and historic archaeological resources in the EIR Study Area. If archaeological resources are present in the areas where development is planned, they could be damaged by earth-disturbing construction activities, such as those associated with excavating foundations, placing fill, trenching for utility systems, or grading the site for roads and staging areas. In particular, construction activities may disturb resources by exposing them to potential vandalism or causing them to be displaced from the original context. This could result in a significant impact on archaeological resources.

As detailed in Section 5.5.1.1 of the DEIR, there are a number of federal and State regulations in place to protect archaeological resources within the EIR Study Area. Compliance with the State and federal regulations is intended to ensure that development would not result in adverse impacts to identified archaeological resources. In addition, the proposed General Plan policies take a comprehensive approach to the protection of archaeological resources. The proposed Conservation, Open Space, and Working Lands Element includes policies and actions that would mitigate potential impacts on archaeological resources, including through the policies and actions under Goal COS-10, which aims to identify and preserve archaeological resources. For example, Policy COS-P10.1 encourages the preservation of sites and areas having identifiable archaeological significance. Policy COS-P10.5 requires applicants to engage a qualified consultant to prepare an evaluation of archaeological resources that may be present on a project site when warranted through the CEQA process. Policy COS-P10.6 requires that upon discovery of a significant archaeological artifact during construction, ground disturbing activities must halt within a 50-foot radius of the find until its significance can be determined by a qualified archeologist and appropriate protection and preservation measures developed. Policy COS-P10.7 requires significant archaeological resources to be either preserved onsite or adequately documented as a condition of removal (any documentation of historic resources shall be conducted in accordance with Historic American Building Survey Level III standards, as defined by the US Secretary of the Interior), COS-A10.1 through COS-A10.4 support these policies, ensuring that surveys of existing and as-yet unknown resources are performed and updated regularly, and that planning tools, such as ordinances, design guidelines, context statements, and management plans are put in place to support implementation of the policies.

The proposed General Plan would not substantially alter any policies regarding the significance of impacts on archaeological resources. In addition, the proposed General Plan would not alter the significance of impacts on archaeological resources compared to the existing General Plan. Furthermore, the proposed General Plan would not modify the procedures or policies regarding how archaeological resources are identified or evaluated for historical significance, nor would it change how impacts on archaeological resources are assessed or mitigated under the General Plan.

As noted previously, the proposed General Plan includes multiple policies that attempt to mitigate impacts on archaeological resources through preservation and evaluation. The proposed General Plan also includes policies and actions that attempt to provide better documentation and improve the review of archaeological resources to protect known and as yet unknown historic resources. Overall, the goals, policies, and actions in the proposed General Plan, in combination with existing federal and State regulations in place to protect archaeological resources within the EIR Study Area, would help to avoid adverse impacts to archaeological resources; however, they do not prevent ground-disturbing activities from occurring that could potentially impact archaeological resources. Therefore, this is considered a potentially significant impact.

Proposed CAAP

The proposed CAAP is a policy document that does not include specific projects. However, projects that would implement the proposed CAAP strategies and actions could result in the construction of physical improvements and infrastructure in the county that is designed to help meet the emissions targets in the CAAP, which could potentially impact archaeological resources in the EIR Study Area. Projects that would implement the proposed CAAP strategies and actions would be required to be consistent with the proposed General Plan as well as federal and State regulations in place to protect archaeological resources within the EIR Study Area. However, even with implementation of the proposed General Plan goals, policies, and actions, the regulations would not fully reduce potential impacts of the proposed CAAP on archaeological resources. Therefore, this is considered a potentially significant impact.

Mitigation Measures

CUL-1 Prior to initiation of construction activities for discretionary projects that are not exempt from CEQA and would involve ground-disturbing activities on previously undisturbed sites or alteration of potentially significant built environment resources, or as otherwise directed by the County, the project applicant shall be required to retain a cultural resources consultant with staff that meets the Secretary of the Interior's Professionally Qualified Standards to conduct a cultural records search and complete the following steps as relevant.

The cultural resources consultant shall:

- Conduct a records search with the California Historical Resources Information System.
- If the record search shows a pedestrian survey has been conducted within the last 10 years and the survey results were negative, the project applicant shall provide those results to the County for summary in environmental analysis.

- If no survey has been performed, or if cultural resources are present, the project applicant shall direct the cultural resources consultant to:
 - Conduct a pedestrian survey (if none has been completed).
 - Update the records for known resources.
 - Record new built environment and archaeological resources.
 - Determine if the resources have been previously evaluated for the California Register of Historical Resources.
 - If the resources were previously determined ineligible for listing, the cultural resources consultant shall describe those results for use in the County's environmental analysis.
 - If the resources have not been evaluated, the cultural resources consultant shall evaluate the resources for listing on the California Register of Historical Resources, and local registers.
 - If the resources were previously determined eligible or are proposed to be register-eligible, the cultural resources consultant shall determine if the project would result in a "substantial adverse change in the resource" as defined in CEQA Guidelines Section 15064.5(b)(1).
 - If a substantial adverse change would occur, the cultural resources consultant shall support the County in identifying feasible mitigation approaches.

Finding:

Changes or alterations have been required in, or incorporated into, the proposed project that avoid or substantially lessen the significant environmental effect as identified in the DEIR. These changes are identified in the form of the mitigation measure above. The Contra Costa County Board of Supervisors hereby finds that implementation of the mitigation measure is feasible, and the measure is therefore adopted.

Rationale for Finding:

Development under the proposed project could impact undiscovered archaeological resources during ground disturbing activities. Mitigation Measure CUL-1 requires project applicants to retain a cultural resources consultant with staff that meets the Secretary of the Interior's Professionally Qualified Standards to conduct a cultural records search, conduct appropriate surveys, and identify mitigation for any substantial adverse changes in a resource. This would ensure that potential resources are identified and protected. With implementation of Mitigation Measure CUL-1, Impact 5.5-2 would be less than significant.

Impact 5.5-4: Implementation of the proposed project could cause a substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources or a local register of historical resources, as defined in Public Resources Code Section 5020.1(k),

Proposed General Plan

TCRs are known to be present in the EIR Study Area. Ground-disturbing activities could occur on sites that may have sensitive TCRs. Grading and construction activities of undeveloped areas or redevelopment that requires more intensive soil excavation than needed for the existing development could potentially cause disturbance to TCRs by potentially unearthing previously unknown or unrecorded TCRs. Accordingly, implementation of the proposed General Plan could potentially cause a substantial adverse change in the significance of TCRs in the EIR Study Area.

In compliance with the tribal consultation requirements discussed, invitations for consultation were sent to representatives of the Native American tribes provided by the NAHC on January 15, 2021, and to the County's AB 52 Tribal Consultation List on October 5, 2023. The Confederated Villages of Lisjan Nation Tribe requested consultation and consulted with the County in November 2021 regarding the draft goals, policies, and actions of the General Plan Update. During this process, the Lisjan Tribe provided comments and edits for the General Plan that have been incorporated as new and modified policies and actions. Additionally, the tribe provided mitigation measures that have been incorporated as Mitigation Measures TCR-1 and TCR-2 and within Mitigation Measure CUL-1. No further consultation was requested from the Lisjan Tribe. The tribe also responded on October 25, 2023, to the updated consultation invitation, requesting information about the proposed project that was sent to the tribe. No additional consultation was requested.

As detailed in Section 5.5.1.1 of the DEIR, there are a number of federal and State regulations in place to protect TCRs within the EIR Study Area. Compliance with the State and federal regulations is intended to ensure that development would not result in adverse impacts to TCRs. In addition, the proposed General Plan policies and actions take a comprehensive approach to the protection of TCRs. The proposed Conservation, Open Space, and Working Lands Element includes policies and actions that would mitigate potential impacts on TCRs, including policies and actions under Goal COS-11, which aims to preserve, restore, and enhance TCRs. For example, Policy COS-P11.1 encourages respecting and protecting TCRs. Policies COS-P11.2, COS-P11.3, COS-P11.4, COS-P11.5, and COS-P11.8 promote establishing and maintaining collaborative relationships with local Native American tribal representatives as well as consulting with culturally affiliated tribes to identify and protect TCRs. In addition, Policies COS-P11.9 and COS-P11.10 require avoiding impacts of development on Native American TCRs whenever possible and consulting with culturally affiliated tribes when developing mitigation measures (e.g., cultural resources treatment agreement between a developer and the appropriate tribe[s] that address tribal monitoring during earth-disturbing activities).

The goals, policies, and actions in the proposed General Plan and mitigation measures requested by the Lisjan Tribe, in combination with existing federal and State regulations in place to protect TCRs within the EIR Study Area, would reduce impacts to a less-than-significant level. Without mitigation, though, impacts would be potentially significant.

Proposed CAAP

The proposed CAAP is a policy document that does not include specific projects. However, projects that would implement the proposed CAAP strategies and actions could result in the construction of physical improvements and infrastructure in the county that is designed to help meet the emissions targets in the CAAP, which could potentially impact TCRs in the EIR Study Area. Projects that would implement the proposed CAAP strategies and actions would be required to be consistent with the proposed General Plan, applicable provisions of the Contra Costa County Ordinance Code, and SB 18 and AB 52. Compliance with the aforementioned policies and regulations and Mitigation Measures would reduce potential impacts of the proposed CAAP on TCRs to a less-than-significant level, though impacts would be potentially significant before mitigation.

Mitigation Measures

- TCR-1 Prior to initiation of construction activities for discretionary projects that are not exempt from CEQA and would involve ground-disturbing activities on previously undisturbed sites, or as otherwise directed by the County, the project applicant may be required to enter into a cultural resources treatment agreement with the culturally affiliated tribe. If required, the agreement would address the treatment and disposition of cultural resources and human remains that may be impacted as a result of the development as well as provisions for tribal monitors. If an agreement is required, the applicant must provide a copy of the cultural resources treatment agreement to the County prior to issuance of a grading or building permit. Regardless of whether an agreement is required, if cultural resources are discovered during project construction, all work in the area shall cease and a qualified archaeologist and representatives of the culturally affiliated tribe shall be retained by the project sponsor to investigate the find and make recommendations as to treatment and mitigation.
- TCR-2 Tribal monitors from the culturally affiliated tribe shall be allowed to monitor all grading, excavation, and ground-breaking activities, including archaeological surveys, testing, and studies for discretionary projects that are not exempt from CEQA and that would involve ground-disturbing activities on previously undisturbed sites, or as otherwise directed by the County.

Finding:

Changes or alterations have been required in, or incorporated into, the proposed project that avoid or substantially lessen the significant environmental effect as identified in the DEIR. These changes are identified in the form of the mitigation measure above. The Contra Costa County Board of Supervisors hereby finds that implementation of the mitigation measure is feasible, and the measure is therefore adopted.

Rationale for Finding:

Mitigation Measures TCR-1 through TCR-2 would ensure that tribal cultural resources would be properly handled if identified during development under the proposed project. Compliance with these measures would reduce impacts to tribal cultural resources to less than significant.

4. Geology and Soils

Impact 5.7-5: Development under the proposed project could directly or indirectly destroy a unique paleontological resource or unique geologic feature. [Threshold G-6].

Proposed General Plan

Unique Geologic Features

The most notable geological feature in the county is Mount Diablo, located between Clayton and Danville. At almost 4,000 feet tall, the mountain dominates the landscape in Contra Costa County and is a popular attraction for hiking in the region. Mount Diablo is also a State Park and there are varied types of protected lands on and around Mount Diablo that total more than 90,000 acres. The mountain has historically been an important landmark for navigation because of its presence and visibility throughout the Bay Area and beyond. While this geologic resource is already protected as a State Park, the proposed General Plan supports this protection by designating it Parks and Recreation and including Policy COS-P13.4, which requires applications for new or expanded quarrying operations adjacent to Mount Diablo State Park to include an analysis of potential impacts to the park's natural features.

Furthermore, any future development under the proposed project would need to follow the County's Ordinance Code. Section 814-2.1004, Environmental Design, of the County Code mandates that grading must consider the land's environmental characteristics, such as geological features, stream beds, and tree cover, and employ the best engineering practices to minimize erosion, slides, or flooding, ensuring minimal impact on the environment. Therefore, impacts would be less than significant.

Paleontological Resources

Contra Costa County is underlain by a number of distinct geologic rock units (i.e., formations) with varying paleontological sensitivities. According to the U.S. Geological Survey (USGS), 24 percent of the county is underlain by quaternary alluvium and marine deposits of the Pleistocene to Holocene eras, which generally have lower paleontological sensitivity due to their young age. Additionally, 18 percent of the county is underlain by Pleo-Pleistocene and Pliocene loosely consolidated deposits, 15 percent by Miocene marine rocks, and 14 percent by upper cretaceous marine rocks. These geologic units typically have higher paleontological sensitivity based on their rock type, which is primarily sandstone and shale.

Development under the proposed General Plan would occur in areas of varying levels of paleontological sensitivity and would require site-specific investigations by a professional archaeologist/paleontologist to determine the potential of such resources to be present on site. Excavations could occur in association with development of these sites that could affect paleontological resources buried at greater depths. Therefore, it is possible that project-related ground-disturbing activities associated with development allowed under the proposed General Plan could uncover previously unknown paleontological resources. Unanticipated discoveries during project implementation have the potential to affect significant paleontological resources. The proposed General Plan includes Policy COS-P10.7, which requires that significant paleontological resources be either preserved on-site or adequately documented as a condition of removal. In addition, Policy COS-P10.6 states that upon discovery of any significant fossils during project construction, ground-

disturbing activities must halt within a 50-foot radius of the find until its significance can be determined by a qualified paleontologist and appropriate protection and preservation measures are developed. While adherence to these proposed policies would preserve or document a resource in the event of its discovery, it does not prevent ground-disturbing activities from occurring that could potentially impact paleontological resources. Therefore, this paleontological resource impact is potentially significant.

Proposed CAAP

The proposed CAAP aims to reduce GHG emissions from activities within the county. Although the proposed CAAP is a policy document that does not include specific projects, projects could be facilitated by proposed CAAP actions that include construction activity and ground disturbance, which could uncover and impact previously unknown paleontological resources, resulting in a potentially significant impact.

Mitigation Measures

GEO-1 Prior to initiation of construction activities for discretionary projects that are not exempt from CEQA and would involve ground-disturbing activities on previously undisturbed sites, or as otherwise directed by the County, the project applicant shall be required to retain a Qualified Professional Paleontologist to determine the project's potential to significantly impact paleontological resources according to Society of Vertebrate Paleontology standards. If necessary, the Qualified Professional Paleontologist shall recommend mitigation measures to reduce potential impacts to paleontological resources to a less-than-significant level.

Finding:

Changes or alterations have been required in, or incorporated into, the proposed project that avoid or substantially lessen the significant environmental effect as identified in the DEIR. These changes are identified in the form of the mitigation measure above. The Contra Costa County Board of Supervisors hereby finds that implementation of the mitigation measure is feasible, and the measure is therefore adopted.

Rationale for Finding:

Mitigation Measure GEO-1 would require non-ministerial projects not exempt from CEQA that involve ground-disturbing activities on previously undisturbed sites to consult with a Qualified Professional Paleontologist to assess potential impacts on paleontological resources, and if necessary, recommend mitigation measures to minimize these impacts to a less-than-significant level. Therefore, impacts to paleontological resources would be reduced to less than significant.

5. Noise

Impact 5.13-3: Individual construction developments for future housing may expose sensitive uses to excessive levels of groundborne vibration. [Threshold N-2]

Proposed General Plan

Construction Vibration Impacts

Construction activity from projects within the EIR Study Area would generate varying degrees of ground vibration, depending on the construction procedures and equipment. Operation of construction equipment generates vibrations that spread through the ground and diminish with distance from the source. The effect on buildings in the vicinity of the construction site varies depending on soil type, ground strata, and receptor-building construction. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Vibration from construction activities rarely reaches the levels that can damage structures but can achieve the audible and perceptible ranges in buildings close to the construction site. Table 5.13-13, *Vibration Levels for Construction Equipment*, from the DEIR lists reference vibration levels for construction equipment.

As shown in Table 5.13-13 of the DEIR, vibration generated by construction equipment has the potential to be substantial, since it has the potential to exceed the FTA criteria for architectural damage (i.e., 0.12 inches per second [in/sec] PPV for fragile or historical resources, 0.2 in/sec PPV for nonengineered timber and masonry buildings, and 0.3 in/sec PPV for engineered concrete and masonry). Construction details and equipment for future project-level developments under the proposed General Plan are not known at this time but may cause vibration impacts. As such, this would be a potentially significant impact.

Operational Vibration Impacts

Operational vibration is typically associated with commercial and industrial uses, which can generate varying levels of groundborne vibration, depending on operational procedures and equipment. Other sources of groundborne vibration include rail traffic and subways. The proposed General Plan would allow for the future development of commercial and industrial land uses, which could generate significant levels of operational vibration. Therefore, impacts would be potentially significant.

Rail Vibration Impacts

Placement of new receptors near existing or future rail right-of-way could expose people to substantial vibration levels, depending on the proximity to rail alignments and depending on the type of rail and daily frequency of service. Regarding rail vibration, it is extremely rare for operations to cause substantial or even minor cosmetic damage to buildings. Proposed General Plan Policy HS-P14.11 provides guidance for evaluating new vibration-sensitive uses near an existing railroad or BART line. This policy directs the County to use Table HS-4 in the proposed General Plan to evaluate whether the sensitive uses could be exposed to excessive groundborne vibration. Projects with sensitive uses within the screening distances identified in the table would require preparation of a groundborne vibration and noise evaluation that is consistent with FTA-approved methodologies. However, due to the programmatic nature of this analysis, specific distances from transit types to future sensitive land

uses cannot be determined at this time because project-specific details are unknown. Therefore, this impact would be potentially significant.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions. While the proposed CAAP would not directly result in any new development, the implementation of its actions, which may indirectly result in new development (such as wind farms or battery storage projects), would be subject to the same County standards that apply to development under the proposed General Plan, as applicable. The 2024 CAAP does not include any strategies or actions that would otherwise result in new sources of vibration, so impacts would be less than significant.

Mitigation Measures:

- N-2 Prior to issuance of a grading or building permit for a project requiring pile driving during construction within 135 feet of fragile structures, such as historical resources, 100 feet of non-engineered timber and masonry buildings (e.g., most residential buildings), or within 75 feet of engineered concrete and masonry (no plaster); or a vibratory roller within 25 feet of any structure, the project applicant shall prepare a noise and vibration analysis to assess and mitigate potential noise and vibration impacts related to these activities. This noise and vibration analysis shall be conducted by a qualified and experienced acoustical consultant or engineer. The vibration levels shall not exceed FTA architectural damage thresholds (i.e., 0.12 inches per second [in/sec] peak particle velocity [PPV] for fragile or historical resources, 0.2 in/sec PPV for non-engineered timber and masonry buildings, and 0.3 in/sec PPV for engineered concrete and masonry). If vibration levels would exceed this threshold, alternative uses such as drilling piles as opposed to pile driving and static rollers as opposed to vibratory rollers shall be used. If necessary, construction vibration monitoring shall be conducted to ensure vibration thresholds are not exceeded.
- N-3 During the project-level CEQA process for industrial development projects or other projects that could generate substantial vibration levels near sensitive uses, such as residential uses, a noise and vibration analysis shall be conducted to assess and mitigate potential noise and vibration impacts related to the operations of that individual development. This noise and vibration analysis shall be conducted by a qualified and experienced acoustical consultant or engineer and shall follow the latest CEQA guidelines, practices, and precedents.

Finding:

Changes or alterations have been required in, or incorporated into, the proposed project that avoid or substantially lessen the significant environmental effect as identified in the DEIR. These changes are identified in the form of the mitigation measure above. The Contra Costa County Board of Supervisors hereby finds that implementation of the mitigation measure is feasible, and the measure is therefore adopted.

Rationale for Finding:

With implementation of Mitigation Measures N-2 and N-3, coupled with adherence to associated performance standards, Impact 5.13-3 would be reduced to less-than-significant levels. Specifically, Mitigation Measure N-2 would reduce potential vibration impacts during construction below the pertinent thresholds, and Mitigation Measure N-3 (operations-related vibration) would reduce potential vibration impacts from proposed sensitive uses near existing railroads and facilities to less-than-significant levels. No significant and unavoidable vibration impacts would remain.

D. Significant and Unavoidable Impacts that Cannot Be Mitigated to Below the Level of Significance

The following describes the unavoidable adverse impacts of the proposed project where either mitigation measures were found to be infeasible, or the mitigation measures are under the control of another lead agency. The following impact would remain significant and unavoidable:

1. Agriculture and Forestry Resources

Impact 5.2-1: The proposed project could convert approximately 13,816 acres of Important Farmland to nonagricultural use. . [Threshold AG-1]

Proposed General Plan

Figure 5.2-2, *Farmland Classifications within Contra Costa County*, of the DEIR, shows that farmland is primarily located in the eastern portion of the county outside the ULL. Under the proposed General Plan land use map, the County would designate 11,904 acres of land as Agricultural Core (AC), 96,721 acres of land as Agricultural Lands (AL), and 59,180 acres of land as Resource Conservation (RC), as shown in Figure 3-3, *Proposed General Plan Land Use Map*, in Chapter 3, *Project Description*, of the DEIR. These designations allow for agricultural (AC and AL) and grazing (RC) uses of these lands and place limitations on urban development. However, approximately 13,816 acres of land in the EIR Study Area that are classified as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance are designated for a use other than AC, AL, or RC in the proposed General Plan, as shown in Figure 5.2-4, *Potential Farmland Conversions*, of the DEIR. Of this land, 3,447 acres are within the ULL, while the remaining 10,369 acres are outside of the ULL. The acreages of the land with nonagricultural designations that overlie Important Farmland are shown in Table 5.2-3, *Nonagricultural General Plan Designations that Intersect with Important Farmland*, in the DEIR.

According to this analysis, the proposed General Plan could result in the conversion of 13,816 acres to nonagricultural uses in the EIR Study Area. However, this analysis is conservative and does not consider site-specific and other factors that could affect the potential conservation of agricultural land. For example, development of land outside the ULL is restricted to non-urban uses by the County's ULL, which would help to prevent conversion of the majority (75 percent) of the total potential 13,816 acres. Additionally, the FMMP data used in this analysis may not accurately represent current conditions on the land. For example, the proposed General Plan land use designation of Water is only applied to areas that are inundated by water (based on County staff knowledge of sites and satellite imagery); therefore, the 22.5 acres of land identified as an area of potential agricultural conversion are inundated and not suitable for farmland.

The analysis may also overstate the proposed General Plan's influence on potential agricultural land conversion. Some areas identified in Table 5.2-3 of the DEIR are already designated for urban use, so the proposed General Plan would not change the potential for conversion from what is currently allowed. Furthermore, as shown in Table 5.2-3, 96 percent of the acreage of potential conversion identified by this analysis is designated as Parks and Recreation and Public/Semi-Public; these areas are owned by public agencies such as the Department of Water Resources, East Bay Regional Park District, the East Contra Costa Habitat Conservancy, and Ironhouse Sanitary District. This land will very likely be preserved for non-urban uses. Furthermore, as public agencies that are independent from the County and may be subject to limited or no County land use authority, these agencies would be required to perform their own analysis of the environmental impacts of converting this land should they decide to do so.

Moreover, the intent of the proposed General Plan is to preserve this land. For example, Policy COS-P2.2 directs the County to preserve and protect productive agricultural land from urban conversion, particularly land designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland on the Important Farmland Map, land with Class 1 or Class 2 soils, and land designated Agricultural Core. This policy, along with others in the Land Use Element and Conservation, Open Space Open Space, and Working Lands Element, would help to preserve agricultural lands from future urban development.

Policy LU-P2.1 continues implementing the 65/35 Land Preservation Standard, using the County ULL to focus future development in the county's established urban and suburban communities while preserving agricultural land, rangeland, natural habitats, watersheds, and open space. Policy LU-P2.2 limits the development outside the ULL to non-urban uses, such as agriculture, mineral extraction, wind and solar energy production, natural carbon sequestration, other resource-based uses, and essential infrastructure. Policy LU-P2.3 prohibits the major subdivisions outside the ULL as well as successive minor subdivisions of lots outside the ULL that were created through previous subdivisions. Policy LU-P2.8 discourages the extension of water and sanitary sewer lines into areas outside the ULL, except to serve public and semi-public uses that are not growth inducing, or when such extension is necessary to address a declared public health emergency. When lines are extended outside the ULL, they should be designed to service the intended use only, and not allow for additional future service connections. Policy COS-P2.2 preserves and protect productive agricultural land from conversion to urban uses, especially land designated as Prime Farmland of Statewide Importance, or Unique Farmland on the Important Farmland Map prepared by the California Department of Conservation; land containing Class 1 or Class 2 soils; and land designated Agricultural Core.

Although the proposed General Plan includes policies that would minimize the conversion of farmland, the proposed land use plan designates approximately 13,816 acres of Important Farmland in the EIR Study Area for nonagricultural uses. As discussed previously, the majority of this land is not intended for urban development and will likely be preserved for agricultural use, but this analysis conservatively determines that farmland could be converted as a result of the proposed General Plan, resulting in a potentially significant impact.

Proposed CAAP

Projects facilitated by the proposed CAAP Strategy NI-4 could conserve agriculture lands or implement regenerative agricultural practices, which would result in a beneficial effect on Important

Farmland. For example, actions under Strategy NI-4 include establishing pilot programs for carbon sequestration on agricultural land and promoting restorative agricultural and landscaping techniques.

On the other hand, projects facilitated by proposed CAAP actions that involve ground disturbance could result in the conversion of farmland to nonagricultural use. In particular, public uses such as solar and wind farms could occur in areas outside the ULL. As stated in the proposed General Plan Policy LU-P2.3, wind and solar energy production, other resource-based uses, and essential infrastructure would be allowed outside the ULL, and although these projects would support agricultural infrastructure and limit urban development, they could still result in farmland conversion. Therefore, the proposed CAAP would result in a potentially significant farmland conversion impact.

Mitigation Measures

The criterion for mitigation under CEQA is feasible mitigation that lessens a project's impacts. Agricultural conservation easements are a possible mitigation measure under CEQA. Programs that establish agricultural conservation easements and in-lieu fees for mitigation banking are most effective when determined concurrent with project approval. However, the effectiveness and extent to which future projects would opt-in to agricultural conservation easements as mitigation measures cannot be determined in this analysis; therefore, this impact would remain significant and unavoidable.

Finding:

The County finds that there are no mitigation measures that are feasible, taking into consideration specific economic, legal, social, technological, or other factors, that would substantially lessen or mitigate this impact to a less-than-significant level, and further, that specific economic, legal, social, technological, or other considerations, make infeasible the alternatives identified in the EIR (Public Resources Code §§ 21081(a)(1), (3); Guidelines §§ 15091(a)(1), (3)).

As described in the Statement of Overriding Considerations, the County has determined that this impact is acceptable because specific overriding economic, legal, social, technological, or other benefits, including regionwide and statewide environmental benefits, of the proposed project outweigh its significant effects on the environment.

Impact 5.2-4: The proposed project would result in the loss of forest land or conversion of forest land to non-forest use. [Threshold AG-4]

Proposed General Plan

As shown in Table 5.2-2, *Forestland Acreages in Contra Costa County*, of the DEIR, there is a total of 63,806 acres of forestland within Contra Costa County. The proposed General Plan could result in the conversion of forested areas and other upland habitats for future development.

The proposed Conservation, Open Space, and Working Lands Element includes policies that aim to preserve forested areas:

- **Policy COS-P6.1:** Preserve natural woodlands and significant trees, particularly mature native species, intact coastal scrub and chaparral, and grasslands, especially those with native grass and wildflower populations.

- **Policy COS-P6.2:** Encourage planting and propagation of California native trees and habitat-supporting native shrubs, forbs, and grasses throughout the county to enhance the natural landscape, provide shade (especially in riparian areas), sustain wildlife, absorb stormwater, and sequester carbon.
- **Policy COS-P6.3:** Support protection of native trees, especially oaks, in foothill woodlands and agricultural areas by encouraging voluntary installation of fencing around individuals or clusters of trees to prevent grazing and promoting replanting of native species.
- **Policy COS-P6.5:** Encourage revegetation with local or regional ecotypes of native species in areas that were previously converted for agriculture but are no longer in production.

In addition to these policies, Chapter 816-6, *Tree Protection and Preservation*, of the County Ordinance Code enhances protection of specified protected trees and establishes requirements for tree removal. As stated in Section 816-6.8002, *Permit Requirement*, individuals must apply for a tree permit prior to any disturbance of a protected trees. The County sets factors that must be considered for approval of a tree permit, such as if the arborist report indicates the tree is in poor health, in danger of falling, damaging existing private improvements, or determined to be a fire hazard. Therefore, although future development could result in the loss of forest land or conversion of forest land to non-forest use, there are regulations in place that would consider an array of factors before the removal or alternation of these habitats.

Regardless, even applying a combination of these policies by the proposed General Plan and implementation of the tree protection provisions of the County Ordinance Code, woodland habitat will likely be impacted by future development. Therefore, impacts to forest land under the proposed General Plan would be potentially significant.

Proposed CAAP

Projects facilitated by the proposed CAAP would not likely be proposed on forest land because the characteristics of forest land make it unsuitable for the types of projects that would be facilitated by the CAAP. However, as mentioned above, a certain amount of woodland habitat will likely be impacted by future development. The resulting impacts would be potentially significant.

Mitigation Measures

There are no feasible mitigation measures applicable to Impact 5.2-4. Although policies in the proposed General Plan would help to minimize impacts to loss of woodland and other habitat types and result in the planting of new trees, the proposed project could potentially convert forested areas to non-forested uses to accommodate future demand. Therefore, this impact is significant and unavoidable.

Finding:

The County finds that there are no mitigation measures that are feasible, taking into consideration specific economic, legal, social, technological, or other factors, that would substantially lessen or mitigate this impact to a less-than-significant level, and further, that specific economic, legal, social, technological, or other considerations, make infeasible the alternatives identified in the EIR (Public Resources Code §§ 21081(a)(1), (3); Guidelines §§ 15091(a)(1), (3)).

As described in the Statement of Overriding Considerations, the County has determined that this impact is acceptable because specific overriding economic, legal, social, technological, or other benefits, including regionwide and statewide environmental benefits, of the proposed project outweigh its significant effects on the environment.

2. Air Quality

Impact 5.3-2: Short-term construction activities associated with the proposed project would result in a cumulatively considerable net increase of criteria pollutants for which the project region is in non-attainment under applicable federal or State ambient air quality standards. [Threshold AQ-2].

Proposed General Plan

Construction

Construction activities would temporarily increase criteria air pollutant emissions within the SFBAAB. The primary source of NO_x emissions is the operation of construction equipment. The primary sources of particulate matter (PM₁₀ and PM_{2.5}) emissions are activities that disturb the soil, such as grading and excavation, road construction, and building demolition and construction. The primary sources of volatile organic compounds (VOC) emissions are the application of architectural coating and off-gas emissions associated with asphalt paving. A discussion of health impacts associated with air pollutant emissions generated by construction activities is included under “Air Pollutants of Concern” in Section 5.3.2.1 of the DEIR.

Construction activities associated with the proposed General Plan would occur over the forecast year, causing short-term emissions of criteria air pollutants. Information regarding specific development projects, soil types, and the locations of receptors would be needed in order to quantify the level of impact associated with construction activity. Due to the scale of development activity associated with the proposed General Plan, emissions would likely exceed the BAAQMD regional significance thresholds. In accordance with the BAAQMD methodology, emissions that exceed the regional significance thresholds would cumulatively contribute to the nonattainment designations of the SFBAAB. Emissions of VOC and NO_x are precursors to the formation of O₃. In addition, NO_x is a precursor to the formation of particulate matter (PM₁₀ and PM_{2.5}). Therefore, the proposed General Plan would cumulatively contribute to the nonattainment designations of the SFBAAB for O₃ and particulate matter (PM₁₀ and PM_{2.5}).

Future development under the proposed General Plan would be subject to separate environmental review pursuant to CEQA in order to identify and mitigate potential air quality impacts. Subsequent environmental review of development projects would be required to assess potential impacts under BAAQMD’s project-level thresholds based on site-specific construction phasing and buildout characteristics. For the proposed General Plan, which is a broad-based policy plan, it is not possible to determine whether the scale and phasing of individual projects would exceed the BAAQMD’s short-term regional or localized construction emissions thresholds. As a result, construction activities associated with implementation of the proposed General Plan could potentially violate an air quality standard or contribute substantially to an existing or projected air quality violation.

Existing federal, State, and local regulations and the policies and programs of the proposed General Plan described throughout this section protect local and regional air quality. Continued compliance with these regulations would reduce construction-related impacts and proposed policies would help to reduce construction emissions even further. The following proposed General Plan policies and actions would serve to minimize potential adverse impacts related to particulate matter air pollution:

- **Policy HS-P1.5:** Require new sources of air pollution that will generate significant new air quality impacts or expose sensitive receptors to substantial increases in harmful emissions of TACs to prepare a Health Risk Assessment that identifies appropriate mitigation consistent with BAAQMD California Environmental Quality Act (CEQA) Air Quality Guidelines, based on the findings of the Health Risk Assessment.
- **Policy HS-P1.7:** Require construction activities that involve large grading operations to implement additional construction measures identified in BAAQMD's CEQA Guidelines to reduce air pollutant emissions.
- **Policy HS-P1.9:** Prohibit nonessential diesel engine idling countywide and nonessential idling of all vehicles within 100 feet of sensitive receptors.
- **Action HS-A1.4:** Consult with BAAQMD and community stakeholders and amend County Ordinance Code Title 7 – Building Regulations to include a clean construction ordinance that requires projects to implement extra measures to reduce emissions at construction sites in or near places that are already overburdened by air pollution, such as Impacted Communities.
- **Policy HS-P2.1:** When evaluating health risk impacts of projects in Impacted Communities, use an excess cancer risk of 6.0 per million and a non-cancer (acute and chronic) hazard index greater than 1.0 as thresholds for finding that the project could cause a cumulatively considerable contribution and a significant impact.

While these existing and proposed regulations, policies, and programs have the potential to reduce emissions, potential future development projects accommodated under the proposed General Plan (individually or cumulatively) could still exceed the BAAQMD significance thresholds for construction. Therefore, implementation of the proposed General Plan could result in potentially significant construction-related regional air impacts.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions. Since implementation of the proposed CAAP would not involve any land use changes that would result in indirect growth or change in building density or intensity, its implementation would not directly result in the generation of construction-related criteria air pollutant emissions. Furthermore, the proposed CAAP would be subject to the same County standards that apply to development under the proposed General Plan, such as the 2017 *Clean Air Plan*. The 2017 *Clean Air Plan* includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as particulate matter, ozone, and TACs. It also includes control measures to reduce emissions of methane and other GHGs that are

potent climate pollutants in the near-term and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

Therefore, the proposed CAAP would contribute to reducing construction-phase criteria air pollutant emissions and result in beneficial air quality impacts. Implementation of the proposed CAAP would not result in a cumulatively considerable net increase of a criteria pollutant for which the project region is in nonattainment under applicable federal or State ambient air quality standard, and impacts would be less than significant.

Mitigation Measure

AQ-1 Prior to discretionary approval by the County for development projects subject to CEQA (California Environmental Quality Act) review (i.e., nonexempt projects), future development involving construction on 1 acre or more shall prepare and submit a technical assessment evaluating potential project construction-related air quality impacts to the County Department of Conservation and Development for review and approval. The evaluation shall be prepared in conformance with the Bay Area Air Quality Management District (BAAQMD) methodology for assessing air quality impacts identified in their CEQA Air Quality Guidelines. If construction-related criteria air pollutants are determined to have the potential to exceed the BAAQMD-adopted construction screening criteria and thresholds of significance, the Department of Conservation and Development shall require feasible mitigation measures to reduce air quality emissions. Potential measures may include:

Require implementation of the BAAQMD Best Management Practices for fugitive dust control, such as:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, grading areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.

- Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel.
- Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

Measures shall be incorporated into appropriate construction documents (e.g., construction management plans) submitted to the County and shall be verified by the Department of Conservation and Development.

Finding:

Changes or alterations have been required in, or incorporated into, the proposed project that reduces the significant environmental effect as identified in the DEIR. These changes are identified in the form of the mitigation measure above. The County hereby finds that implementation of the mitigation measure is feasible, and the measure is therefore adopted.

The County finds that there are no other mitigation measures that are feasible, taking into consideration specific economic, legal, social, technological, or other factors, that would substantially lessen or mitigate this impact to a less-than-significant level, and further, that specific economic, legal, social, technological, or other considerations, infeasible the alternatives identified in the EIR (Public Resources Code §§ 21081(a)(1), (3); Guidelines §§ 15091(a)(1), (3)).

As described in the Statement of Overriding Considerations, the County has determined that this impact is acceptable because specific overriding economic, legal, social, technological, or other benefits, including regionwide and statewide environmental benefits, of the proposed project outweigh its significant effects on the environment.

Impact 5.3-3: Development under the proposed project would result in a cumulatively considerable net increase of criteria pollutants for which the project region is in non-attainment under applicable federal or State AAQS. [Thresholds AQ-2].

Proposed General Plan

Operation

BAAQMD has identified thresholds of significance for criteria pollutant emissions and criteria air pollutant precursors, including VOC, NO, PM₁₀ and PM_{2.5}. Development projects below the significance thresholds are not expected to generate sufficient criteria pollutant emissions to violate any air quality standard or contribute substantially to an existing or projected air quality violation. According to BAAQMD's CEQA Guidelines, long-range plans, such as the proposed General Plan, present unique challenges for assessing impacts. Due to the SFBAAB's nonattainment status for ozone

and PM and the cumulative impacts of growth on air quality, these plans almost always have significant, unavoidable adverse air quality impacts.

Implementation and adoption of the proposed General Plan would result in an increase in development intensity in the county. Development under the proposed General Plan would result in direct and indirect criteria air pollutant emissions from transportation, energy (e.g., natural gas use), and area sources (e.g., aerosols and landscaping equipment). Mobile-source criteria air pollutant emissions are based on the traffic analysis conducted by Fehr and Peers (see Appendix 5.16-1, *Transportation Data*, of the DEIR). The emissions forecast for the county under the proposed General Plan compared to existing conditions is shown in Table 5.3-10, *Scenario 1: Criteria Air Pollutant Emissions Forecast Compared to Existing Conditions*, of the DEIR, and Table 5.3-11, *Scenario 2: Criteria Air Pollutant Emissions Forecast Compared to the Future No Project Conditions*, of the DEIR. As shown in these tables, implementation of the proposed General Plan would result in an increase in criteria air pollutant emissions from existing conditions and the future no project conditions, respectively. As stated previously, Scenario 2 isolates the effects of the proposed General Plan because both the future with no project and future with project conditions include emissions reductions from federal and State regulations.

As shown in these tables, development under the proposed General Plan would generate an increase in criteria air pollutant emission from both existing conditions (Scenario 1) as well as the future no project conditions (Scenario 2). Compliance with applicable policies and programs would contribute towards minimizing long-term emissions. However, implementation of the proposed General Plan would still exceed the BAAQMD significance threshold (no net increase) for operation. Therefore, implementation of the proposed General Plan could result in potentially significant long-term regional air quality impacts.

Proposed CAAP

As discussed under Impact 5.3-2 of the DEIR, implementation of the proposed CAAP would not involve any land use changes that would result in indirect growth or change in building density or intensity; therefore, its implementation would not directly result in the generation of operation-related criteria air pollutant emissions. Furthermore, as discussed under Impact 5.3-2 of the DEIR, the proposed CAAP would be subject to the same County standards that apply to development under the proposed General Plan, including the 2017 *Clean Air Plan*, which includes a wide range of control measures designed to decrease emissions of air pollutants, potent climate pollutants, and carbon dioxide by reducing fossil fuel combustion.

Additionally, the proposed CAAP would have co-benefits with regard to operation-related criteria air pollutant emissions. Building energy efficiency improvements (e.g., proposed CAAP Strategies BE-1 through BE-3) would promote sustainable building practices and would result in a decrease in natural gas use and associated criteria air pollutants (i.e., VOC, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}). Likewise, transportation strategies that reduce VMT (e.g., Strategy TR-1) would result in a reduction in criteria air pollutants from the transportation sector.

Therefore, the proposed CAAP would contribute to reducing operation-phase criteria air pollutant emissions and result in beneficial air quality impacts. Implementation of the proposed CAAP would not result in a cumulatively considerable net increase of a criteria pollutant for which the project region

is in nonattainment under applicable federal or State ambient air quality standard, and impacts would be less than significant.

Mitigation Measures

AQ-2 Prior to discretionary approval by the County for development projects subject to CEQA (California Environmental Quality Act) review (i.e., nonexempt projects), future project applicants shall prepare and submit a technical assessment evaluating potential project operation-phase-related air quality impacts to the Department of Conservation and Development for review and approval. The evaluation shall be prepared in conformance with Bay Area Air Quality Management District (BAAQMD) methodology in assessing air quality impacts identified in their *CEQA Air Quality Guidelines*. If operation-related air pollutants are determined to have the potential to exceed the BAAQMD-adopted operational screening criteria and thresholds of significance, the Department of Conservation and Development shall require that applicants for new development projects incorporate mitigation measures to reduce air pollutant emissions during operational activities. The identified measures shall be included as part of the conditions of approval. Possible mitigation measures to reduce long-term emissions could include, but are not limited to the following:

- Implementing commute trip reduction programs.
- Unbundling residential parking costs from property costs.
- Expanding bikeway networks.
- Expanding transit network coverage or hours.
- Using cleaner-fueled vehicles.
- Exceeding the current Title 24 Building Envelope Energy Efficiency Standards.
- Establishing on-site renewable energy generation systems.
- Requiring all-electric buildings.
- Replacing gas-powered landscaping equipment with zero-emission alternatives.
- Expanding urban tree planting.

Finding:

Changes or alterations have been required in, or incorporated into, the proposed project that reduce the significant environmental effect as identified in the DEIR. These changes are identified in the form of the mitigation measure above. The County hereby finds that implementation of the mitigation measure is feasible, and the measure is therefore adopted.

The County finds that there are no other mitigation measures that are feasible, taking into consideration specific economic, legal, social, technological, or other factors, that would substantially lessen or mitigate this impact to a less-than-significant level, and further, that specific economic, legal, social,

technological, or other considerations, make infeasible the alternatives identified in the EIR (Public Resources Code §§ 21081(a)(1), (3); Guidelines §§ 15091(a)(1), (3)).

As described in the Statement of Overriding Considerations, the County has determined that this impact is acceptable because specific overriding economic, legal, social, technological, or other benefits, including regionwide or statewide environmental benefits, of the proposed project outweigh its significant effects on the environment.

Impact 5.3-5: Operational-phase emissions associated with the proposed project could expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-3]

Proposed General Plan

CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO, called hotspots. These pockets have the potential to exceed the State 1-hour standard of 20 ppm or the 8-hour standard of 9.0 ppm. Since CO is produced in the greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to AAQS is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds.

The CCTA Congestion Management Program (CMP) must be consistent with the ABAG/MTC's Plan Bay Area, which is updated periodically. An overarching goal of the Plan Bay Area 2050 is to concentrate development in areas where there are existing services and infrastructure rather than allocate new growth in outlying areas where substantial transportation investments would be necessary to achieve the per capita passenger vehicle VMT and associated GHG emissions reductions.

The proposed General Plan would be consistent with the overall goals of the Plan Bay Area 2050. Additionally, the proposed General Plan would not hinder the capital improvements outlined in the CMP. Thus, the proposed General Plan would not conflict with the CCTA CMP. Furthermore, under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection to more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited—in order to generate a significant CO impact. The proposed General Plan would not increase traffic volumes at affected intersections to more than BAAQMD screening criteria of 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited. Therefore, overall, the proposed General Plan would not have the potential to substantially increase CO hotspots at intersections in the county and vicinity. Overall, these components of the proposed General Plan would contribute to reducing congestion and associated emissions. Localized air quality impacts related to mobile-source emissions would therefore be less than significant.

Stationary (Permitted) Sources

Various industrial and commercial processes (e.g., manufacturing and dry cleaning) allowed under the proposed General Plan would be expected to release TACs. TAC emissions generated by stationary and point sources of emissions within the Air Basin are regulated and controlled by BAAQMD. Land

uses that would require a permit from BAAQMD for emissions of TACs include chemical processing facilities, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. Emissions of TACs from stationary sources would be controlled by BAAQMD through permitting and would be subject to further study and health risk assessment prior to the issuance of any necessary air quality permits under Regulation 2, *New Source Review*, as well as Regulation 11, Rule 18, *Reduction of Risk from Air Toxic Emissions at Existing Facilities*.

Review under New Source Review ensures that stationary source emissions (permitted sources) would be reduced or mitigated below BAAQMD community risk and hazards thresholds. Though these sources would incrementally contribute to emissions in the unincorporated county individually, they would be mitigated to BAAQMD standards.

The following proposed General Plan policies and actions would serve to minimize potential adverse impacts on air quality by increasing standards and promoting cooperation with outside agencies:

- **Policy HS-P1.4.** Require new industrial development to locate significant pollution sources at the maximum distance possible from sensitive receptors.
- **Action HS-A1.3.** Consult with BAAQMD and community stakeholders and amend County Ordinance Code Title 8 – Zoning to include an Industrial-Sensitive Receptor Interface Overlay Zone applied to areas where residential land uses and other sensitive receptors interface or directly abut heavy industrial land uses. In the overlay zone, require industrial uses to reduce pollution and employ strategies to mitigate air quality, noise, vibration, odor, light, visual, and safety impacts on nearby sensitive receptors. In addition, require new sensitive receptors to install enhanced ventilation systems and implement other strategies, paid for by neighboring sources of pollution to the extent possible, to protect residents from health and quality of life impacts.
- **Action HS-A2.4.** Coordinate with BAAQMD to determine where to focus a targeted permit inspection program in Impacted Communities to help ensure enforcement of air quality permits.

The policies and actions listed above would minimize potential health risk impacts to sensitive receptors. Though the proposed General Plan includes policies to reduce exposure of sensitive receptors to pollution, and BAAQMD would ensure that on a project-by-project basis emission achieve their permit thresholds, emissions cannot be determined or modeled until specific development projects are proposed. Therefore, implementation of the proposed General Plan may result in projects that emit TACs and PM_{2.5} throughout the unincorporated county and result in potentially significant localized air quality impacts.

Nonpermitted Sources

TACs and PM_{2.5} from mobile sources when operating at a property (e.g., truck idling) are regulated by statewide rules and regulations, not by BAAQMD, and have the potential to generate substantial concentrations of air pollutants. The primary mobile source of TACs within the unincorporated county includes truck idling and use of off-road equipment.

New warehousing operations could generate substantial DPM and PM_{2.5} emissions from off-road cargo-handling equipment use and truck idling. In addition, some warehousing and industrial facilities may include use of TRUs for cold storage. New land uses in the unincorporated county that would be

permitted under the proposed General Plan that use trucks, including trucks with TRUs, could generate an increase in DPM that would contribute to cancer and noncancer health risk in the Air Basin. Additionally, these types of facilities could also generate particulate matter (PM₁₀ and PM_{2.5}) that may cause an exceedance or contribute to the continuing exceedance of the federal and State AAQS. These new land uses could be near existing sensitive receptors. In addition, trucks would travel on regional transportation routes through the Bay Area, contributing to near-roadway DPM concentrations.

The proposed General Plan would potentially result in an increase of 5 million square feet of industrial land uses. The areas intended for industrial uses would be primarily associated with existing planned and/or permitted industrial development. Additionally, existing residences are close to existing and planned Industrial designations, and overlap with many of the Overburdened and Impacted Communities. As identified in the Figure 3-3, *Proposed General Plan Land Use Map*, in the DEIR, industrial areas are proximate to residential areas in several areas of the unincorporated county. These areas are proximate to sensitive receptors. Until specific future development projects are proposed, the associated emissions and concentrations cannot be determined or modeled.

The County will require project applicants to prepare project-specific analyses of qualifying projects and incorporate project-specific mitigation measures to reduce TACs, per the following policies:

- **Policy HS-P1.5.** Require new sources of air pollution that will generate significant new air quality impacts or expose sensitive receptors to substantial increases in harmful emissions of TACs to prepare a Health Risk Assessment that identifies appropriate mitigation consistent with BAAQMD California Environmental Quality Act (CEQA) Air Quality Guidelines, based on the findings of the Health Risk Assessment.
- **Policy HS-P2.1.** When evaluating health risk impacts of projects in Impacted Communities, use an excess cancer risk of 6.0 per million and a non-cancer (acute and chronic) hazard index greater than 1.0 as thresholds for finding that the project could cause a cumulatively considerable contribution and a significant impact.

If the results show that the incremental cancer risk exceeds ten in one million (or the risk thresholds in effect at the time a project is considered) or six in one million in Impacted Communities, the appropriate noncancer hazard index exceeds 1.0, or 0.3 µ/m³ of PM_{2.5}, or the thresholds as determined by the BAAQMD at the time a project is considered, the applicant is required to mitigate the potential cancer and noncancer risks to an acceptable level.

The following policy in the proposed General Plan would reduce the exposure of sensitive receptors in Impacted Communities and Overburdened Communities to TACs and PM_{2.5}:

- **Policy HS-P1.8.** Require new or expanded commercial and industrial projects resulting in 25,000 square feet or more of gross habitable floor area, such as warehouses and other large enclosed buildings, to be near zero-emission operations, including the facilities themselves and the associated fleets. Require all necessary measures, such as the following, to achieve near zero emissions:
 - (a) Reduce on-site energy consumption and increase on-site energy generation and energy storage.

- (b) Provide adequate on-site zero-emission vehicle parking for all anticipated truck traffic to prevent idling and off-site queuing.
- (c) Provide electrified loading docks with receptacles allowing plug-in of refrigerated trailers.
- (d) Use heavy-duty trucks that are model year 2014 or later and expedite a transition to zero-emission trucks by establishing a clear timeline for electrification of trucks as they become commercially available. Ensure contracts with motor carriers include air quality incentives or requirements, such as providing incentives to fleets that meet United States Environmental Protection Agency (EPA) SmartWay standards or requiring use of zero-emission or near-zero-emission trucks.
- (e) Use a “clean fleet” of delivery vehicles as they become commercially available, but no later than 2025.
- (f) Use zero-emission yard equipment, such as forklifts, pallet trucks and jacks, and stackers.
- (g) Implement practices to control and remove fugitive dust and other contaminants from paved areas.

Uses with fewer than five vehicles domiciled on-site are exempt from this policy.

The policies listed above aim to reduce pollution from industrial development to nearby sensitive receptors and would require more project-specific mitigation measures to reduce TACs, especially in Impacted Communities. Policy HS-P1.8 also pushes to reduce truck idling, promotes the replacement of older heavy-duty trucks, and supports near zero emissions operations.

Though the proposed General Plan includes policies and actions to reduce air pollutant emissions exposure within Impacted Communities, the proposed General Plan could result in specific development projects that could emit TACs and PM_{2.5}. The emissions associated with these facilities cannot be determined or modeled until specific development projects are proposed. Therefore, implementation of the proposed General Plan may result in projects that emit TACs and PM_{2.5} in the vicinity of Impacted Communities and sensitive receptors and result in potentially significant localized air quality impacts.

Therefore, without project-specific analysis health risk impacts from nonpermitted sources associated with development of industrial and commercial land uses are considered potentially significant.

Proposed CAAP

As discussed under Impact 5.3-2, implementation of the proposed CAAP would not involve any land use changes that would result in indirect growth or change in building density or intensity; therefore, its implementation would not directly result in the generation of operation-related criteria air pollutants, TAC and PM_{2.5} emissions, or generation of vehicle trips to produce CO hotspots. In addition, as stated under Impact 5.3-3, implementation of the CAAP could result in beneficial long-term air quality impacts from the increase in energy efficiency, usage of clean energy, and reduction in VMT. A reduction in vehicle trips would contribute to further minimizing the potential creation of CO hotspots. Therefore, implementation of the proposed CAAP would not expose sensitive receptors to substantial pollutant concentrations of TACs, and impacts would be less than significant.

Mitigation Measures

AQ-4 Prior to discretionary approval by the County, project applicants for new industrial or warehousing development projects that 1) have the potential to generate 100 or more diesel truck trips per day or have 40 or more trucks with operating diesel-powered transport refrigeration units, and 2) are within 1,000 feet of a sensitive land use (e.g., residential, schools, hospitals, nursing homes) or Impacted Community, as measured from the property line of the project to the property line of the nearest sensitive use, shall submit a health risk assessment (HRA) to the Department of Conservation and Development for review and approval. The HRA shall be prepared in accordance with policies and procedures of the State Office of Environmental Health Hazard Assessment (OEHHA) and the Bay Area Air Quality Management District (BAAQMD). The latest OEHHA guidelines shall be used for the analysis, including age sensitivity factors, breathing rates, and body weights appropriate for children ages 0 to 16 years. If the HRA shows that the cumulative and project-level incremental cancer risk, noncancer hazard index, and/or PM_{2.5} exceeds the respective threshold, as established by BAAQMD (all areas of the unincorporated county) and project-level risk of six in one million in Impacted Communities, BAAQMD's Overburdened Communities, and within 1,000 feet of a BAAQMD Overburdened Community; ten in a million in all other areas; PM_{2.5} emissions that exceed 0.3 µg/m³; or the appropriate noncancer hazard index exceeds 1.0, the project applicant will be required to identify best available control technologies for toxics (T-BACTs) and appropriate enforcement mechanisms, and demonstrate that they are capable of reducing potential cancer, noncancer risks, and PM_{2.5} to an acceptable level. T-BACTs may include but are not limited to:

- Restricting idling on-site beyond Air Toxic Control Measures idling restrictions
- Electrifying warehousing docks
- Requiring use of newer equipment
- Requiring near-zero or zero-emission trucks for a portion of the vehicle fleet based on opening year
- Truck Electric Vehicle (EV) Capable trailer spaces
- Restricting off-site truck travel through the creation of truck routes
- T-BACTs identified in the HRA shall be identified as mitigation measures in the environmental document and/or incorporated into the site plan.

Finding:

Changes or alterations have been required in, or incorporated into, the proposed project that reduce the significant environmental effect as identified in the DEIR. These changes are identified in the form of the mitigation measure above. The County hereby finds that implementation of the mitigation measure is feasible, and the measure is therefore adopted.

The County finds that there are no other mitigation measures that are feasible, taking into consideration specific economic, legal, social, technological, or other factors, that would substantially lessen or mitigate this impact to a less-than-significant level, and further, that specific economic, legal, social, technological, or other considerations, make infeasible the alternatives identified in the EIR (Public Resources Code §§ 21081(a)(1), (3); Guidelines §§ 15091(a)(1), (3)).

As described in the Statement of Overriding Considerations, the County has determined that this impact is acceptable because specific overriding economic, legal, social, technological, or other benefits, including regionwide or statewide environmental benefits, of the proposed project outweigh its significant effects on the environment.

3. Cultural and Tribal Cultural Resources

Impact 5.5-1: Implementation of the proposed project could cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines, Section 15064.5. [Threshold C-1].

Proposed General Plan

Section 15064.5 (b)(1) of the CEQA Guidelines defines a substantial adverse change in the significance of a historic resource to be the “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.” Implementation of the proposed General Plan could potentially result in impacts on historical resources in the EIR Study Area. Specifically, direct impacts could occur if buildings determined to be historic are demolished or significantly altered as a result of implementation of the proposed General Plan.

As detailed in Section 5.5.1.1 of the DEIR, there are a number of federal and State regulations in place to protect historical resources within the EIR Study Area. Currently known or future historic sites or resources listed in the National or California Registers or the Contra Costa County Historic Resources Inventory (HRI) would be protected through State and federal regulations restricting alteration, relocation, and demolition of historical resources. Compliance with the State and federal regulations is intended to ensure that development would not result in adverse impacts to identified historic and cultural resources. Historical resources are protected under the regulations of the Nation Historic Preservation Act (NHPA) when projects involve federal agencies. In addition, the proposed General Plan policies take a comprehensive approach to the protection of historical resources. The Conservation, Open Space, and Working Lands Element of the proposed General Plan includes policies and actions that would mitigate potential impacts on historical resources, including through the policies and actions under Goal COS-10, which aims to identify and preserve historic resources. For example, Policies COS-P10.1 and COS-P10.2 encourage the preservation and adaptive reuse of historic resources. This includes using the Secretary of the Interior’s Standards for the Treatment of Historic Properties, where possible. Policy COS-P10.11 seeks to incentivize preservation and adaptive reuse by establishing programs and funding mechanisms that support the preservation, restoration, and enhancement of cultural, historic, and archaeological sites. Policy COS-P10.5 requires applicants to engage a qualified consultant to prepare an evaluation of historic resources that may be present on a project site when a project involves a resource listed on the County’s HRI or as otherwise necessitated through the CEQA process. Policy COS-P10.7 requires significant historic resources to be either

preserved onsite or adequately documented as a condition of removal. Any documentation of historic resources shall be conducted in accordance with Historic American Building Survey (HABS) Level III standards, as defined by the US Secretary of the Interior. Actions COS-A10.1 through COS-A10.4 support these policies, ensuring that surveys of existing and as-yet unknown resources are performed and updated regularly, and that planning tools, such as ordinances, design guidelines, context statements, and management plans are put in place to support implementation of the policies.

The proposed General Plan would not substantially alter any policies regarding the significance of impacts on historical resources. In addition, the proposed General Plan would not alter the significance of impacts on historical resources compared to existing conditions. Furthermore, the proposed General Plan would not modify the procedures or policies regarding how historical resources are identified or evaluated for historical significance, nor would it change how impacts on historical resources are assessed or mitigated under the General Plan.

The goals, policies, and actions in the proposed General Plan, in combination with existing federal and State regulations in place to protect historical resources within the EIR Study Area, are intended to ensure that development would not result in adverse impacts to identified historic and cultural resources; however, it is always a potential. Under CEQA, conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties would normally mitigate impacts to a less-than-significant level. Because the proposed project is a program-level effort, it is not possible to determine whether individual future projects would be able to conform with the Secretary of Interior's Standards. However, CEQA would require that future projects with the potential to significantly impact historic resources be subject to project-level CEQA review wherein the project's potential to affect the significance of a surrounding historic resource would be evaluated and mitigated to the extent feasible. The requirement for subsequent CEQA review would minimize the potential for new development to indirectly affect the significance of historic resources to the maximum extent practicable.

Even with implementation of the proposed General Plan goals, policies, and actions, the regulations would not fully reduce potential impacts on historic resources at the programmatic level. Therefore, this is considered a potentially significant impact.

Proposed CAAP

The proposed CAAP is a policy document that does not include specific projects. However, projects that would implement the proposed CAAP strategies and actions could result in the construction of physical improvements and infrastructure in the county that is designed to help meet the emissions targets in the CAAP, which could adversely impact historic resources in the EIR Study Area through changes to accommodate adaptive use, removal, or reconstruction. Projects that would implement the proposed CAAP strategies and actions would be required to be consistent with the proposed General Plan as well as federal and State regulations in place to protect historical resources within the EIR Study Area. However, even with implementation of the proposed General Plan goals, policies, and actions, the regulations would not fully reduce potential impacts of the proposed CAAP on historic resources. Therefore, this is considered a potentially significant impact.

Mitigation Measures

No feasible mitigation measures are available. Policies and actions in the proposed General Plan, including Policy COS-P10.5 requiring evaluation of historic resources for projects that may impact a

resource listed in the County's Historic Resources Inventory, and Policy COS-P10.7 requiring significant historic resources to be either preserved on-site or adequately documented as a condition of removal (any documentation of historic resources shall be conducted in accordance with Historic American Building Survey Level III standards, as defined by the US Secretary of the Interior), in addition to federal and State regulations, would reduce impacts to the extent possible and additional project-specific mitigation measures would be incorporated pursuant to future project-specific review.

Finding:

The County finds that there are no mitigation measures that are feasible, taking into consideration specific economic, legal, social, technological, or other factors, that would substantially lessen or mitigate this impact to a less-than-significant level, and further, that specific economic, legal, social, technological, or other considerations, make infeasible the alternatives identified in the EIR (Public Resources Code §§ 21081(a)(1), (3); Guidelines §§ 15091(a)(1), (3)).

As described in the Statement of Overriding Considerations, the County has determined that this impact is acceptable because specific overriding economic, legal, social, technological, or other benefits, including regionwide or statewide environmental benefits, of the proposed project outweigh its significant effects on the environment.

4. Mineral Resources

Impact 5.12-1: Implementation of the proposed project could result in the loss of availability of a known mineral resource. [Thresholds M-1 and M-2].

Proposed General Plan

As shown in Figure 5.12-1, *County-Designated Mineral Resource Areas*, in the DEIR, the county's critical mineral resources are near Mount Zion and Clayton for diabase and Mount Diablo and Byron for domengine sandstone. As shown in Figure 5.12-3, *Operating Mines in the Unincorporated County*, in the DEIR, there are no other active mining operations in the EIR Study Area outside of these two mineral resource areas. However, per the latest available data from the DOC, several additional areas in the EIR Study Area overlie significant or potentially significant mineral resource areas designated by Surface Mining and Reclamation Act (SMARA), as shown in Figure 5.12-2, *Mineral Resource Zones and Resource Sectors*, in the DEIR. Under the proposed General Plan, development of non-mineral extraction uses would be allowed on land that overlies mapped MRZ-2 and MRZ-3 areas, including those in the communities of Rodeo, Vine Hill, and Bay Point. MRZ-2 designated areas are areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence. MRZ-3 designated areas are assumed to contain mineral deposits, the significance of which cannot be evaluated.

Development projects under the proposed General Plan would be required to comply with Chapter 88-11 of the County Ordinance Code, which implements SMARA. This chapter aims to protect significant mineral resources from the intrusion of incompatible land uses. However, because the General Plan would allow incompatible development in designated MRZ-2 and MRZ-3 areas, impacts would be potentially significant.

As shown in Figure 5.12-4, *Oil and Gas Resources*, in the DEIR, the county also contains gas and oil deposits that underlie portions of the EIR Study Area. Chapter 8-14 of the County Ordinance Code allows oil and gas drilling in specific agricultural zones and places restrictions on drilling within proximity to urban development. Proposed General Plan Action COS-A14.1 would further restrict oil and gas drilling operations from being established in sensitive ecological areas, areas subject to flooding and sea-level rise, and areas within 3,200 feet of sensitive receptors or urban land use designations. This action would also limit oil and gas drilling operations to agricultural zones and require a land use permit, reclamation plan, and performance standards related to surface water and groundwater quality and quantity, air quality, odors, noise, and aesthetics. Since the proposed land use plan would allow incompatible development in areas that overlie these resources and the proposed General Plan intends to limit new extraction uses, impacts would be potentially significant.

Proposed CAAP

As a policy document that aims to reduce greenhouse gas (GHG) emissions and adapt to changing climate conditions, the proposed CAAP is not expected to result in any impacts with regard to loss of aggregate mineral resources. In addition, while the intent of the CAAP is to provide a pathway for the county to achieve reductions in GHG emissions, which includes prioritizing the use of renewable energy sources, the CAAP does not include strategies and actions that prohibit the continuation of oil and gas extraction in the county, and the impact is less than significant.

Mitigation Measures

There are no feasible mitigation measures. The provisions of SMARA would reduce impacts to aggregate mineral resources to the extent possible by requiring site-specific evaluations to discover the presence of mineral resources. Subsequent review under CEQA for applicable projects would require the incorporation of measures that would reduce impacts as feasible.

Mineral and resource extraction could face reduced output due to development of incompatible uses on or near mineral resource areas. Aggregate mineral resource areas are in established communities, including Rodeo, Vine Hill, and Bay Point, all of which are Impacted Communities where the County finds it appropriate to promote community investment and development in support of environmental justice. Extraction of oil and gas deposits can pose health risks to nearby sensitive receptors and hazards to nearby sensitive ecological areas, so the General Plan includes an action directing the County to further regulate drilling operations near sensitive receptors and ecological areas that will have the effect of potentially reducing the ability to extract mineral resources. These are important policy objectives of the proposed project, and impacts are significant unavoidable.

Finding:

The County finds that there are no mitigation measures that are feasible, taking into consideration specific economic, legal, social, technological, or other factors, that would substantially lessen or mitigate this impact to a less-than-significant level, and further, that specific economic, legal, social, technological, or other considerations, make infeasible the alternatives identified in the EIR (Public Resources Code §§ 21081(a)(1), (3); Guidelines §§ 15091(a)(1), (3)).

As described in the Statement of Overriding Considerations, the County has determined that this impact is acceptable because specific overriding economic, legal, social, technological, or other benefits,

including regionwide or statewide environmental benefits, of the proposed project outweigh its significant effects on the environment.

5. Noise

Impact 5.13-1: Construction activities would result in temporary noise increases in the vicinity of the proposed project. [Threshold N-1].

Proposed General Plan

As part of implementing the proposed project, various individual future development projects would generate temporary noise level increases on and adjacent to construction sites in the EIR Study Area. Construction within the EIR Study Area would be limited to weekdays and non-holidays to the hours set forth in the proposed General Plan Policy HS-P14.7. The hours would be from 7:30 a.m. to 5:00 p.m. when construction occurs within 1,000 feet of a noise sensitive receptor; and 7:00 a.m. to 6:00 p.m. when construction occurs at distances greater than 1,000 feet from the nearest noise-sensitive receptor. Construction is performed in distinct steps, each of which has its own mix of equipment, and, consequently, its own noise characteristics. Table 5.13-9, *Reference Construction Equipment Noise Levels*, in the DEIR, lists typical construction equipment noise levels recommended for noise-impact assessments based on a distance of 50 feet between the equipment and noise receptor.

As shown, construction equipment generates high levels of noise, with maximums ranging from 76 to 101 dBA at a distance of 50 feet. Construction of individual development projects associated with implementation of the proposed project would temporarily increase the ambient noise environment and would have the potential to affect noise-sensitive land uses in the vicinity of an individual project.

Construction noise levels are highly variable and dependent upon the specific locations, site plans, construction details, and presence or absence of any natural or human-made barriers with potential acoustic dampening effects (e.g., the presence of vegetation, berms, walls, or buildings). Significant noise impacts may occur from operation of heavy earth-moving equipment and truck-haul operations that would occur with construction of individual development projects, which have not yet been developed, particularly if construction techniques, such as impact or vibratory pile driving, are proposed. The time of day that construction activity is conducted would also determine the significance of each project, particularly during the more sensitive nighttime hours. However, construction would be localized and would occur intermittently for varying periods of time.

Because specific project-level information is inherently not available at this time, it is not possible nor appropriate to quantify the construction noise impacts at specific sensitive receptors. In most cases, construction of individual development projects associated with implementation of the proposed project would temporarily increase the ambient noise environment in the vicinity of each individual project, potentially affecting existing and future nearby sensitive uses. Proposed General Plan Policy HS-P14.6 would help to mitigate County projects by requiring them to minimize short-term noise impacts on sensitive receptors by following best practices to minimize short-term impacts from construction noise. However, because construction activities associated with any individual development may occur near noise-sensitive receptors and because, depending on the project type, equipment list, time of day, phasing, and overall construction durations, noise disturbances may occur

for prolonged periods of time or during the more sensitive nighttime hours, construction noise impacts associated with implementation of the proposed project are considered potentially significant.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing greenhouse gas (GHG) emissions and adapting to changing climate conditions. While the proposed CAAP would not directly result in any new development, the implementation of its actions may indirectly result in construction activity. Similar to construction activity under the proposed General Plan, such activity could occur near noise-sensitive receptors. Depending on the project type, equipment list, time of day, phasing, and overall construction durations, noise disturbances may occur for prolonged periods of time or during the more sensitive nighttime hours. Therefore, construction noise impacts associated with implementation of the proposed project are considered potentially significant.

Mitigation Measures

N-1 Require construction contractors to implement the following measures for construction activities. Demolition, grading, and construction plans submitted to the County shall identify these measures and the County Department of Conservation and Development shall verify that the submitted plans include these notations prior to issuance of demolition, grading, and/or construction permits:

- During the entire active construction period, equipment and trucks used for project construction shall use the best-available noise control techniques (e.g., improved mufflers, equipment re-design, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) available.
- Impact tools (e.g., jack hammers and breakers) shall be hydraulically or electrically powered wherever possible. Where the use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used along with external noise jackets on the tools.
- Stationary equipment, such as generators and air compressors, shall be as far as feasible from nearby noise-sensitive uses.
- Stockpiling shall be as far as feasible from nearby noise-sensitive receptors.
- Construction traffic shall be limited, to the extent feasible, to approved haul routes approved by the County Conservation and Development and Public Works Departments.
- At least 10 days prior to the start of construction activities, a sign shall be posted at the entrance(s) to the job site, clearly visible to the public, that includes permitted construction days and hours, as well as the telephone numbers of the County's and contractor's authorized representatives that are assigned to respond in the event of a noise or vibration complaint. If the authorized contractor's representative receives a complaint, they shall investigate, take appropriate corrective action, and report the action to the County.

- Signs shall be posted at the job site entrance(s), within the on-site construction zones, and along queueing lanes (if any) to reinforce the prohibition of unnecessary engine idling. All other equipment shall be turned off if not in use for more than 5 minutes.
- During the entire active construction period and to the extent feasible, the use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only. The construction manager shall use smart back-up alarms, which automatically adjust the alarm level based on the background noise level or switch off back-up alarms and replace with human spotters in compliance with all safety requirements and laws.
- Erect temporary noise barriers (at least as high as the exhaust of equipment and breaking line-of-sight between noise sources and sensitive receptors), as necessary and feasible, to maintain construction noise levels at or below the performance standard of 80 dBA Leq. Barriers shall be constructed with a solid material that has a density of at least 4 pounds per square foot with no gaps from the ground to the top of the barrier.

Finding:

Changes or alterations have been required in, or incorporated into, the proposed project that reduce the significant environmental effect as identified in the DEIR. These changes are identified in the form of the mitigation measure above. The County hereby finds that implementation of the mitigation measure is feasible, and the measure is therefore adopted.

The County finds that there are no other mitigation measures that are feasible, taking into consideration specific economic, legal, social, technological, or other factors, that would substantially lessen or mitigate this impact to a less-than-significant level, and further, that specific economic, legal, social, technological, or other considerations, make infeasible the alternatives identified in the EIR (Public Resources Code §§ 21081(a)(1), (3); Guidelines §§ 15091(a)(1), (3)).

As described in the Statement of Overriding Considerations, the County has determined that this impact is acceptable because specific overriding economic, legal, social, technological, or other benefits, including regionwide or statewide environmental benefits, of the proposed project outweigh its significant effects on the environment.

Impact 5.13-2 Project implementation would generate a substantial traffic noise increase on local roadways and could locate sensitive receptors near rail in areas that exceed established noise standards. [Threshold N-1].

Proposed General Plan

Transportation Noise

Land use development that results in traffic increases can also result in long-term traffic noise increases on roadways and freeways in the county. New development and associated traffic noise increases could

result in exposure of existing receptors or future planned development to substantial permanent noise increases. Depending on the proximity of future projects to other land use types and existing major freeways and roadways, traffic noise increases could expose sensitive receptors to substantial traffic noise levels that would exceed applicable noise standards. Future CNEL noise levels at 50 feet along local roadways for existing and future conditions provided by Illingworth & Rodkin are shown below in Table 5.13-10, *Existing and Future Modeled Noise Levels Along Surrounding Roadways*, of the DEIR.

As shown in Table 5.13-10, significant traffic noise increases are estimated along numerous study roadway segments from implementation of the proposed project when analyzed using FAA thresholds, which are identified in the proposed General Plan Policy HS-P14.5. The traffic noise increase is the difference between the projected future noise level and the existing noise level. The modeling also shows that along several roadway segments, a decrease in traffic noise levels is anticipated from implementation of the proposed project. Implementation of proposed General Policies HS-P14.5, HS-P14.6, and HS-P14.9 would help reduce impacts by utilizing best practices and requiring mitigation as feasible for roadways that exceed the thresholds in Policy HS-P14.5 in order to reduce long-term (traffic) impacts to adjacent noise sensitive land uses. However, traffic noise increases would still be potentially significant.

Table 5.13-11, *Proposed General Plan Traffic Noise Contour Distances*, of the DEIR, presents the future distances from the 60, 65, and 70 dBA CNEL contours along the local roadways. With the implementation of proposed General Plan Policies HS-P14.1 and HS-P14.2, noise-sensitive land uses would either be located in areas where existing noise levels are normally acceptable for the specific land use (as shown in Table HS-3 of the proposed General Plan), or a detailed acoustical analysis would be required to identify appropriate mitigation to meet the noise compatibility standards. In addition, future noise-sensitive land use projects that are exposed to a DNL of 60 dB or greater are required to provide a detailed acoustical analysis demonstrating how the project would provide an interior DNL of 45 dB or less.

Rail and Airport Noise

Table 5.13-12, *Future Railroad Noise Levels*, of the DEIR, contains the calculated distances to the 65 dBA L_{dn} /CNEL contours from future railroad noise. The same methodology that was used to estimate existing railroad noise contours was used for future railroad activity. Though implementation of the proposed project would not cause a direct increase in rail activity, future residential development could be placed located within distances to rail that could expose them to noise levels that exceed the applicable noise standard for the respective land use type.

In addition, future noise-sensitive land uses could be in areas that exceed the “Normally Acceptable” noise standards due to airport operations (see Figure 5.13-7, *Buchanan Field Airport Noise Contours* and 5.13-8, *Byron Airport Noise Contours*, of the DEIR). Implementation of proposed General Plan Policy HS-P14.4 would require that new residential development in areas exposed to a DNL in excess of 65 dB due to single events, such as train operation (which can also extend to airport activity), provide an acoustical analysis describing how indoor noise levels from these single events will not exceed a maximum A-weighted noise level of 35 dB in bedrooms and 55 dB in other habitable rooms. In areas exposed to a DNL in excess of 65 dB, an indoor residential noise-level threshold of 45 dB CNEL is required. However, impacts would still be potentially significant.

Proposed CAAP

The proposed CAAP is a policy document that provides strategies for reducing GHG emissions and adapting to changing climate conditions. While the proposed CAAP would not directly result in any new development, the implementation of its actions, which may indirectly result in new development, would be subject to the same County standards that apply to development under the proposed General Plan, as applicable. The proposed CAAP does not include any strategies or actions that would otherwise result in permanent noise increases (e.g., rail, or traffic noise) and other items such as power windmills would be subject to County noise standards, so impacts would be less than significant.

Mitigation Measures Considered

The following measures were considered for mitigating or avoiding Impact 5.13-2.

Special Roadway Paving

Notable reductions in tire noise have been achieved via the implementation of special paving materials, such as rubberized asphalt or open-grade asphalt concrete overlays. For example, the California Department of Transportation conducted a study of pavement noise along Interstate 80 in Davis and found an average improvement of 6 to 7 dBA compared to conventional asphalt overlay.

Although this amount of noise reduction from rubberized/special asphalt materials would be sufficient to avoid the predicted noise increase due to traffic in some cases, the potential up-front and ongoing maintenance costs are such that the cost versus benefits ratio² may not be feasible and reasonable and would not mitigate noise to a level of less than significant in all cases. In addition, the study found that noise levels increased over time due to pavement raveling, with the chance of noise-level increases higher after a 10-year period.

Sound Barrier Walls

Some, if not most, residences in the EIR Study Area have direct access via driveways to the associated impacted roadways. Barrier walls would prevent access to individual properties and would be infeasible. Further, these impacted homes are on private property outside of the control of future project developers, so there may be limited admittance onto these properties to construct such walls. Lastly, the costs versus benefits ratio in relation to the number of benefitted households may not be feasible and reasonable in all cases.

Sound Insulation of Existing Residences and Sensitive Receptors

Exterior-to-interior noise reductions depend on the materials used, the design of the homes, and their conditions. To determine what upgrades would be needed, a noise study would be required for each house to measure exterior-to-interior noise reduction. Sound insulation may require upgraded windows, upgraded doors, and a means of mechanical ventilation to allow for a “windows closed” condition. There are no funding mechanisms and procedures that would guarantee that the implementation of sound insulation features at each affected home would offset the increase in traffic

² Cost versus benefit considerations are in terms of the number of households benefitted, per the general methodology employed by Caltrans in the evaluation of highway sound walls.

noise to interior areas and ensure that the State's 45 dBA CNEL standard for multiple-family residences would be achieved.

Finding:

The County finds that there are no mitigation measures that are feasible, taking into consideration specific economic, legal, social, technological, or other factors, that would substantially lessen or mitigate this impact to a less-than-significant level, and further, that specific economic, legal, social, technological, or other considerations, infeasible the alternatives identified in the EIR (Public Resources Code §§ 21081 (a)(1), (3); Guidelines §§ 15091(a)(1), (3)).

As described in the Statement of Overriding Considerations, the County has determined that this impact is acceptable because specific overriding economic, legal, social, technological, or other benefits, including regionwide or statewide environmental benefits, of the proposed project outweigh its significant effects on the environment.

6. Transportation

Impact 5.16-2: Implementation of the proposed project would conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b). [Threshold T-2]

Proposed General Plan

CEQA Guidelines Section 15064.3(b) states that a land use project would have a less-than-significant impact if the VMT in the project area are expected to be less than that of existing conditions. As discussed under Section 5.16.2.1, *Contra Costa County Thresholds*, of the DEIR, VMT can be measured in different ways. For the purpose of this analysis, the metric of total VMT per service population was determined to be the most appropriate, as it captures all trip purposes from all types of development. This approach aligns with the guidance provided by OPR and follows the methodology described in the County's Transportation Analysis Guidelines.

VMT Assessment

As described in Section 5.16.1.1 and Section 5.16.2.1 of the DEIR, the County has adopted VMT thresholds for land use development projects. For the purposes of this evaluation, and based on the VMT thresholds described above, the impact would be significant if the implementation of the project would generate total VMT per service population that is higher than 85 percent of the Contra Costa countywide average total VMT per service population. It is important to note that, while the OPR guidance recommends that project-level impacts be evaluated against baseline conditions, for this analysis the total VMT per service population of the proposed project is being evaluated under both baseline (2020) and future (2045) conditions, as described in Section 5.16.2.1 of the DEIR. This is because a General Plan is a long-range, large-scale planning document that will be implemented over many years, so a comparison to both baseline and future conditions can provide relevant and meaningful information to project reviewers.

A summary of the two CCTA model scenarios (baseline and cumulative) are shown in Table 5.16-1, *Summary of VMT Results*, of the DEIR.

This analysis shows that VMT rates in the EIR Study Area are projected to decline between the 2020 Baseline and the 2045 Cumulative Plus Project scenario with implementation of the proposed General Plan, from 33.2 in the baseline to 29.6 in the cumulative scenario. This Cumulative Plus Project scenario VMT per service population is slightly higher than the countywide average VMT per service population of 29.5 in the 2020 Baseline; it is also higher than the countywide average of 28.3 in the Cumulative Plus Project scenario. These results indicate that, despite the projected per capita VMT reduction in the EIR Study Area between the 2020 baseline and the future 2045 scenario, implementation of the proposed project would result in VMT per service population that exceeds the 85-percent threshold values of 25.1 (baseline) and 24.1 (cumulative).

Figures 5.16-5a, *VMT Map 2020 Baseline*, and 5.16-5b, *VMT Map 2045 Cumulative Plus Project*, of the DEIR show the areas of the EIR Study Area that have relatively higher and lower values of VMT. Areas of relatively lower VMT tend to be areas with higher density residential development, good proximity to high-quality transit, and a mix of land uses so that residents need to travel shorter distances to visit shops, essential businesses, and places of employment, for both modeled scenarios.

Policy Considerations

As future development projects proceed under the proposed General Plan, those projects that do not screen out from a VMT impact analysis will be required to provide a quantitative VMT analysis consistent with the methods outlined in the County Guidelines, with modifications if appropriate based on future changes to County practices. Projects that result in a significant impact may be required to implement TDM strategies and other specific project design strategies to reduce VMT.

The County's TDM Ordinance and guidelines encourage project developers to use creative and effective ways to reduce motor vehicle trips and their associated impacts. The Ordinance requires that all residential projects containing 13 or more dwelling units provide information to the residents about public transit, ridesharing, and active transportation options available in the vicinity of the project. Both residential and non-residential project developers are required to consult with the local transit provider about any needed infrastructure to connect the project with nearby transit services. Further, the guidelines present a range of potential TDM measures that project developers can consider, ranging from physical improvements that would be incorporated into the project's design (such as bike racks, traveler information kiosks, or pedestrian facilities linking the project site to a nearby transit stop) to operational programs that would be implemented once the project is occupied (such as providing transit or rideshare incentives).

Other strategies that may be implemented on a project-level to reduce VMT, consistent with the California Air Pollution Control Officers Association's (CAPCOA) Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity, are as follows:

- Increase building density.
- Integrate a higher number of affordable and below-market rate housing units.
- Increase the mix of uses by adding retail or services within a residential site or within convenient walking distance.
- Reduce the number of parking spaces provided.

- Unbundle parking costs (i.e., sell or lease parking separately from the housing unit or the commercial enterprise).
- Provide car-sharing, bike-sharing, or scooter-sharing programs.
- Subsidize transit passes, with particular emphasis on transit passes for residents of affordable housing that is located in proximity to high-quality transit services.
- Consider participation in a future VMT mitigation program, such as a fee program, bank, or exchange, to provide funding for actions that operate at a scale larger than an individual development site, such as constructing bicycle facilities, operating shuttle services around employment centers, or increasing the frequency of existing transit services. No local or regional VMT mitigation program currently exists; however, should such a program be implemented, development projects could participate in the program to purchase mitigation credits to achieve needed VMT mitigation instead of, or in addition to, on-site TDM measures.

The potential effectiveness of each strategy should be evaluated based on the calculation steps, recommendations, and limitations described in the CAPCOA Handbook.

In addition to VMT-reducing strategies that can be implemented on a project level, the proposed General Plan includes numerous policies that target the reduction of VMT through County planning efforts, including prioritizing the construction of active transportation infrastructure and safety improvements to existing infrastructure (i.e., Policy TR-P1.2, Action TR-A3.1, Action TR-A2.2, all policies and actions under Goal TR-2, TR-4, and TR-5); expanding transit access (i.e., Policies TR-P1.8, TR-P1.9, TR-P1.10, TR-P1.11, and TR-P4.2 and Actions TR-A1.5, TR-A1.6, TR-A1.7, TR-A1.8, TR-A1.9); encouraging high-density, infill, and mixed-use development where feasible (i.e., Policies LU-P2.1, LU-P2.5, LU-P2.6, LU-P3.3); encouraging efforts to put jobs near housing and housing near transit (i.e., Policies LU-P3.1, LU-P3.2, LU-P5.2, LU-P7.2, and LU-P7.5); evaluating reductions to parking minimums (i.e., Action LU-A5.1); and the requirement for all projects to support these VMT-reducing efforts (i.e., Policy LU-P3.4). Many of these policies and actions overlap with the CAPCOA handbook strategies listed above.

Summary

The proposed General Plan will guide long-range development over a broad geographic area; therefore, it is not possible to predict with precision which strategies may be implemented at specific locations and at specific times. Further, the CCTA Model does not readily account for many of these measures, particularly those related to site-specific physical improvements, pedestrian and bicycle facilities, and ongoing operational or incentive programs. For those reasons, the potential effects of the TDM and VMT reduction strategies outlined in this discussion are not included in the VMT estimates presented in this analysis.

Since there is considerable uncertainty about the feasibility of any particular TDM measure for any specific future development project, as well as uncertainty about the timing of implementation and about whether a program to fund off-site mitigation options might be implemented at some point in the future, it would not be possible to conclude that adding the strategies listed above would definitely bring the future EIR Study Area VMT down to the 15 percent threshold level. Because the proposed project would exceed the countywide average total VMT per service population under both the baseline and cumulative scenarios, impacts are considered significant and unavoidable.

Proposed CAAP

The proposed CAAP is a policy document that aims to reduce GHG emissions in the unincorporated county and provide guidance to the County for adapting to changing climate conditions; therefore, it is consistent with the intent of CEQA Guidelines Section 15064.3(b) to reduce VMT. As shown in Table 4, *Proportion of GHG Emissions, 2005 to 2019*, of the proposed CAAP, transportation-related emissions have accounted for the highest share of emissions across all sectors and all years in the unincorporated county. To address this, the proposed CAAP includes the “Clean Transportation Network” group of strategies, which includes Strategy TR-1 that provides actions for reducing VMT. As discussed under Impact Discussion 5.16-1 in the DEIR, this strategy supports the County’s existing plans to ensure accessibility and safety for alternative transportation options, in addition to a suite of other actions that reflect OPR and CAPCOA guidance. These also include actions consistent with proposed General Plan policies and actions like establishing a micro-mobility program per Policy TR-P5.10, maximizing jobs and housing near transit similar to Policies LU-P3.3 and LU-P7.2, and encouraging “last mile” connections for transit per Policy TR-P1.9.

Mitigation Measures

No feasible mitigation measures are available. As discussed above, the proposed project is a programmatic General Plan and CAAP and considerable uncertainty exists with regard to the implementation and feasibility of mitigation for individual development projects. A combination of the County’s TDM program, proposed General Plan policies and actions, proposed CAAP strategies and actions, as well as additional mitigation strategies may mitigate impacts to less than significant for future development projects under the proposed project. However, while such measures are likely to result in less-than-significant VMT impacts when considered at an individual project level, they cannot be guaranteed and are not possible to fully quantify or mitigate at a countywide level as part of this programmatic analysis, particularly given the reduction needed to reach the applied significance threshold. As a result, the VMT impacts associated with the proposed project would be considered significant and unavoidable.

Finding:

The County finds that there are no mitigation measures that are feasible, taking into consideration specific economic, legal, social, technological, or other factors, that would substantially lessen or mitigate this impact to a less-than-significant level, and further, that specific economic, legal, social, technological, or other considerations, make infeasible the alternatives identified in the EIR (Public Resources Code §§ 21081 (a)(1), (3); Guidelines §§ 15091(a)(1), (3)).

As described in the Statement of Overriding Considerations, the County has determined that this impact is acceptable because specific overriding economic, legal, social, technological, or other benefits, including regionwide or statewide environmental benefits, of the proposed project outweigh its significant effects on the environment.

7. Wildfire

Impact 5.18-2: Development under the proposed project in or near SRAs or lands classified as Very High FHSZs could exacerbate wildfire risks due to slope, prevailing winds, and other factors, and thereby expose project occupants to pollutant

**concentrations from a wildfire or the uncontrolled spread of wildfire.
[Threshold W-2]**

Proposed General Plan

As discussed in Section 5.18.1.2, *Existing Conditions*, of the DEIR, Contra Costa County is prone to Diablo Winds that are erratic in movement and have high speeds. These winds are often accompanied by low humidity and can shift suddenly due to temperature changes and interactions with steep slopes. This creates dangerous conditions by drying out vegetation and enabling wildfire to spread more quickly. Implementation of the proposed General Plan would not change or affect wind patterns in the county, but wildfires and wildfire smoke hazards could be spread by prevailing or Diablo Winds.

Section 5.18.1.1, *Regulatory Background*, of the DEIR describes plans, policies, regulations, and procedures that help to reduce wildfire risks. The 2018 Strategic Fire Plan for California, 2021 California Wildfire and Forest Resilience Action Plan, Fire Risk Reduction Community designation for EBRPD and EBMUD, Contra Costa County LHMP, and Contra Costa County CWPP, in addition to the proposed General Plan, are intended to reduce wildfire hazards and respond to these hazards on a statewide and regional scale. In addition, the Bay Area Air Quality Management District provides air quality alerts, advisories, and provides resources for an interactive online map to view current air quality conditions in the region. However, future development under the proposed General Plan in wildfire prone areas could exacerbate wildfire risks by adding more residents to wildfire prone areas, thereby exposing people in the county and surrounding jurisdictions to pollutant concentrations from a wildfire. A wildfire combined with Diablo Winds could expose residents in the county to the uncontrolled spread of wildfire.

Slope Impacts

As discussed in Section 5.18.1.2 of the DEIR, the topography in the EIR Study Area varies between steeply sloped mountains to flat valleys and shorelines. Construction of future development projects may require grading and site preparation activities that could change the slope of a single parcel or site. Potential future development under the proposed General Plan could increase development density in both flat and steeper areas of the county. However, proposed Land Use Element Policy LU-P5.6 directs the County to allow for decreased residential density below the minimum density requirement in hazard-prone areas, including those with slopes that exceed 15 percent.

All potential future residential development within the EIR Study Area would be required to comply with the CBC, SRA and Very High FHSZ Fire Safe Regulations, and Contra Costa County Ordinance Code grading requirements, which include standards to minimize the ignition and spread of wildfire due to slopes. Furthermore, the proposed Health Safety Element includes several policies and actions that would address potentially significant impacts with regard to development within FHSZs. For example, Policy HS-P7.1 would require denial of entitlements for projects creating additional residential units (i.e., units not allowed by-right) in Very High FHSZs in the LRA or SRA, as well as to and discourage such projects in High FHSZs in the SRA and discourage them in the LRA unless adequate fire protection services are provided. Other potential housing types including below-market-rate housing are discouraged in the WUI and FHSZ areas per Policy HS-P4.3. All development in High and Very FHSZs in the LRA or SRA, or in areas that may be designated as the WUI must incorporate fire-safe design features that meet the State Fire Safe Regulations and Fire Hazard Reduction Around

Buildings and Structures Regulation for road ingress and egress, fire equipment access, and adequate water supply, as stated in Policy HS-P7.2. Policy HS-P7.4 outlines the requirements for fire protection plans that must be implemented for subdivisions and projects requiring a land use permit in High and Very High FHSZs. The proposed Health and Safety Element includes several other policies and actions under Goal HS-7, as shown in Section 5.18.3, *Proposed General Plan Goals, Policies and Actions*, of the DEIR that would improve fire safety in the county.

However, due to vegetation and slope, wildfires and associated smoke could potentially travel up a slope. Therefore, even with existing and proposed regulatory requirements, potential future development under the proposed General Plan could expose people to the uncontrolled spread of wildfire or pollutant concentrations due to slope.

Vegetation Impacts

Other factors, such as vegetation, have the potential to exacerbate wildfire risks. The grassland, brush, and woodland areas throughout the county are easily ignited, especially during summer and fall when temperatures are high, relative humidity is low, and wind speeds can be high. During these conditions, woodlands and brush vegetation can dry out, particularly in areas with unirrigated vegetation, becoming extremely flammable and increasing wildfire risks. As described in Section 5.18.1.1 of the DEIR, the Contra Costa County LHMP and CWPP contain several vegetation management and fuel reduction projects to reduce the uncontrolled spread of wildfire due to vegetation. Additionally, all potential future development within wildfire-prone areas in the EIR Study Area would be required to comply with SRA and Very High FHSZ Fire Safe Regulations, Public Resources Code Section 4291, and the California Fire Code. These regulations have specific requirements for new development to create defensible space and extensive fuel reduction within 100 feet of a structure, an ember resistant zone within five feet of a structure, and the overall maintenance of properties to reduce the risk of uncontrolled fires or the spread of fires to other properties. However, even with existing regulatory requirements, potential future development under the proposed General Plan could expose people to the uncontrolled spread of wildfire or pollutant concentrations due to other factors such as vegetation.

With adherence to the above building practices and wildfire management requirements, development associated with the proposed project would reduce the potential for exacerbating wildfire risks. However, due to the programmatic nature of this analysis, the unknown details and potential impacts of specific future potential development projects under the proposed project, and the possibility of potential future development being located in wildfire prone areas, impacts would be potentially significant.

Proposed CAAP

As previously noted, the proposed CAAP would primarily result in beneficial impacts with regard to climate change-related hazards, including wildfire risk and exposure. In addition to including a suite of strategies that would reduce GHG emissions and thereby potentially reduce wildfire impacts related to increasing temperatures and changing climate patterns, the proposed CAAP's Chapter 5, *Climate Adaptation Strategy*, specifically addresses and outlines strategies related to improving the resiliency of the county's population and resources and protecting future development from wildfire hazards. Many of these strategies and actions reiterate policies and actions included within the proposed Health and Safety Element, including the actions under Strategy NI-2, like denying new entitlements for projects

creating additional residential units in Very High FHSZs, discouraging such projects in High FHSZs, and requiring fire-safe designs and materials in addition to preparing, maintaining, and regularly implementing a fire protection plan for development in High and Very High FHSZs or areas that may be designated as the WUI. Therefore, the proposed CAAP would have no environmental impact on wildfire exposure.

Mitigation Measure:

There are no feasible mitigation measures. Existing federal, State, and local regulations, in addition to the policies, strategies, and actions in the proposed General Plan and proposed CAAP cover the best available wildfire hazards reduction measures for new development and redevelopment in the county. Adherence to these regulations and policies would reduce significant impacts associated with wildfire hazard exposure to the extent possible, outside of prohibiting all development in High to Very High FHSZs and WUI areas.

Finding:

The County finds that there are no mitigation measures that are feasible, taking into consideration specific economic, legal, social, technological, or other factors, that would substantially lessen or mitigate this impact to a less-than-significant level, and further, that specific economic, legal, social, technological, or other considerations, make infeasible the alternatives identified in the EIR (Public Resources Code §§ 21081 (a)(1), (3); Guidelines §§ 15091(a)(1), (3)).

As described in the Statement of Overriding Considerations, the County has determined that this impact is acceptable because specific overriding economic, legal, social, technological, or other benefits, including regionwide or statewide environmental benefits, of the proposed project outweigh its significant effects on the environment.

Impact 5.18-5: Development in designated High or Very FHSZs could expose structures and/or residences to fire danger. [Threshold H-7]

Proposed General Plan

As shown in Figure 5.18-1 in the DEIR, the EIR Study Area includes land mapped within High and Very FHSZs, which are concentrated in areas with high slopes. Including the Briones Hills and Diablo Range. While much of this land is outside of the County's ULL, limiting development potential, approximately 15,913 acres of land within the ULL are classified as a High FHSZ, and approximately 2,764 acres of land within the ULL are classified as a Very High FHSZ. However, approximately 7,420 acres of this land within the ULL that is in the High FHSZ or Very High FHSZ is designated as Public and Semi-Public, Parks and Recreation, and Resource Conservation under the proposed General Plan. This land is largely owned by public agencies who intend to conserve the land. Additionally, some of this land within FHSZs has already been developed under the existing General Plan that will be replaced by the proposed General Plan.

As discussed in Impact 5.18-2, the county is subject to strong easterly winds, also known as Diablo Winds, in the fall. These winds have high speeds and can shift suddenly, and they are often accompanied by low humidity. They create dangerous conditions for starting and spreading wildfires during the drier months of the year, and they also spread wildfire smoke hazards, as can prevailing

winds. Future development under the proposed General Plan could exacerbate wildfire risks by adding people to wildfire-prone areas in the EIR Study Area and exposing people to pollutant concentrations from a wildfire. A wildfire combined with Diablo Winds could expose residents in the area to the uncontrolled spread of wildfire. In addition, the topography in wildfire-prone areas of the county is steeply sloped. Construction of future development projects and activities under the proposed General Plan in these areas may require grading and site preparation activities that could change the slope of a single parcel or site. Other factors, such as vegetation, have the potential to exacerbate wildfire risks. The grassland and woodland areas of inland valleys in central Contra Costa are easily ignited, especially during late summer and fall when temperatures and winds are high and relative humidity is low. During these conditions, woodland vegetation can dry out, particularly in areas with unirrigated vegetation, becoming extremely flammable and increasing wildfire risks.

Though all urban development would occur within the ULL, outside the majority of the most wildfire-prone and inaccessible areas, the proposed General Plan land use map would continue to allow residential and commercial development in FHSZs where topography is steeper and evacuation access is limited per Figure 5.9-4 in the DEIR. However, the proposed Health and Safety Element includes several policies and actions that would address potentially significant impacts from development within FHSZs. For example, Policy HS-P7.1 would require denial of entitlements for projects creating additional residential units (i.e., units not allowed by-right) in Very High FHSZs in the LRA or SRA, as well as to discourage such projects in High FHSZs in the SRA and discourage them in the LRA unless adequate fire protection services are provided. Other potential housing types including below-market-rate housing are discouraged in the WUI and FHSZ areas per Policy HS-P4.3. All development in High and Very FHSZs in the LRA or SRA, or in areas that may be designated as the WUI, must incorporate fire-safe design features that meet the State Fire Safe Regulations and Fire Hazard Reduction Around Buildings and Structures Regulation for road ingress and egress, fire equipment access, and adequate water supply, as stated in Policy HS-P7.2. Policy HS-P7.4 outlines the requirements for fire protection plans that must be implemented for subdivisions and projects requiring a land use permit in High and Very High FHSZs. The proposed Health and Safety Element includes several other policies and actions under Goal HS-7 that would improve fire safety in the county.

Additionally, the proposed General Plan land use plan would reduce the capacity for residential development on agricultural lands, including land within FHSZs and the WUI, by requiring at least a 10-acre minimum lot size, an increase from the 5-acre minimum lot size required by the existing General Plan. This change would further reduce the number of people and structures that would be exposed to wildfire under the proposed General Plan when compared to the existing General Plan.

Even with existing regulatory requirements and proposed General Plan goals, policies, actions, and land use changes, implementation of the proposed project could increase population, buildings, and infrastructure in wildfire-prone areas beyond those that exist today. The introduction of additional humans (through new development and redevelopment) and human activities (including the use of construction equipment) to fire-prone areas inherently exacerbates existing fire hazards. Though proposed General Plan goals, policies, actions, and land use changes and mandatory State wildfire hazard reduction measures reduce risks in wildfire-prone areas, they would not reduce impacts to a less-than-significant level. Due to the programmatic nature of this analysis, the unknown details and potential impacts of specific future potential development projects under the proposed project, and

the potential for future development to be in wildfire-prone areas, out of an abundance of caution impacts are considered to be potentially significant.

Proposed CAAP

As previously noted, the proposed CAAP would primarily result in beneficial impacts with regard to climate change-related hazards, including wildfire risk and exposure. In addition to including a suite of strategies that would reduce GHG emissions and thereby potentially reduce wildfire impacts related to increasing temperature and changing climate patterns, the proposed CAAP's Chapter 5, *Climate Adaptation Strategy*, specifically addresses and outlines strategies related to improving the resiliency of the county's population and resources and protecting future development from wildfire hazards. Many of these strategies and actions reiterate and add detail to the policies and actions included within the proposed Health and Safety Element, including the actions under Strategy NI-2, like denying new entitlements for projects creating additional residential units in Very High FHSZs, discouraging such projects in High FHSZs, and requiring fire-safe designs and materials in addition to preparing, maintaining, and regularly implementing a fire protection plan for development in High and Very High FHSZs or areas that may be designated as the WUI. Therefore, the proposed CAAP would have no significant impact on wildfire exposure.

Mitigation Measures

There are no feasible mitigation measures. Existing federal, State, and local regulations, in addition to the policies, strategies, and actions in the proposed General Plan and proposed CAAP cover the best available wildfire hazards reduction measures for new development and redevelopment in the county. Adherence to these regulations and policies would reduce significant impacts associated with wildfire hazard exposure to the extent possible, outside of prohibiting all development in High to Very High FHSZs and WUI areas.

Finding:

The County finds that there are no mitigation measures that are feasible, taking into consideration specific economic, legal, social, technological, or other factors, that would substantially lessen or mitigate this impact to a less-than-significant level, and further, that specific economic, legal, social, technological, or other considerations, make infeasible the alternatives identified in the EIR (Public Resources Code §§ 21081 (a)(1), (3); Guidelines §§ 15091(a)(1), (3)).

As described in the Statement of Overriding Considerations, the County has determined that this impact is acceptable because specific overriding economic, legal, social, technological, or other benefits, including regionwide or statewide environmental benefits, of the proposed project outweigh its significant effects on the environment.

IV. ALTERNATIVES TO THE PROPOSED PROJECT

An EIR must briefly describe the rationale for selection and rejection of alternatives. The lead agency may make an initial determination as to which alternatives are feasible, and therefore, merit in-depth consideration, and which are infeasible.

A. Alternatives Considered and Rejected During the Scoping/Project Planning Process

The following is a discussion of the alternatives considered during the scoping and planning process and the reasons why they were not selected for detailed analysis in the DEIR.

1. Alternative Development Areas

CEQA requires that the discussion of alternatives focus on alternatives to the project or its location that can avoid or substantially lessen any significant effects of the project. The key question and first step in the analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR (CEQA Guidelines Section 15126[5][B][1]). Given the nature of the proposed project (adoption of a General Plan and CAAP for the entire unincorporated county), it is not possible to consider an offsite alternative. For this reason, an offsite alternative was considered infeasible pursuant to State CEQA Guidelines Section 15126.6(c) and was rejected as a feasible project alternative.

2. Reduced Density Alternative

A reduced density/intensity alternative that would result in development of fewer residences and less commercial and industrial square footage would theoretically reduce traffic and thereby reduce community impacts such as air quality, GHG emissions, traffic, noise, and demand for utilities and public services. However, such an alternative would not achieve or would only partially achieve the project objectives of accommodating growth in the county, including the objective to increase density within the existing community cores and provide more employment opportunities within the county. Additionally, because the proposed General Plan would implement the land use changes needed to meet the County's Regional Housing Needs Allocation (RHNA) for its 2023-2031 6th Cycle Housing Element, this alternative conflicts with the goals of the adopted Housing Element and State housing law. Moreover, the proposed General Plan provides additional housing capacity that can be used to meet future RHNAs for the County beyond the 6th Cycle. This Alternative could result in the need for the County to redesignate and rezone additional land to be able to meet future RHNAs. As a reduced development density conflicts with regional plans to increase housing, and would not meet the project objectives, this option was not evaluated in the EIR.

3. Reduction of Industrial Uses Near Impacted Communities Alternative

This alternative would prohibit warehousing uses with heavy-duty trucks (as discussed in Section 5.3, *Air Quality*, of the DEIR) within 1,000 feet of an Impacted Community.³ As discussed in Section 5.3, development allowed by the proposed project could result in new sources of TACs or PM_{2.5} near existing or planned sensitive receptors, resulting in significant and unavoidable impacts to cumulative health risk in the Bay Area. Under Mitigation Measure AQ-4, new industrial or warehousing development projects that either 1) have the potential to generate 100 or more diesel truck trips per day or have 40 or more trucks with operating diesel-powered transport refrigeration units, and 2) are within 1,000 feet of a sensitive land use or Impacted Community must submit a health risk assessment to the County for review and approval. However, since emissions associated with these facilities cannot be determined or modeled until specific development projects are proposed, the potential impacts cannot be determined.

As shown in Table 3-2, *2045 Horizon-Year Growth Projections*, in DEIR Chapter 3, *Project Description*, the proposed project could result in development of approximately 5 million square feet of new industrial uses within the proposed General Plan's horizon year of 2045. Of these 5 million square feet, approximately 4 million square feet are within 1,000 feet of Impacted Communities. Approximately 3 million square feet of this projected square footage would result from approved and pending projects, 1.8 million square feet of which are within 1,000 feet of Impacted Communities. Therefore, while this Alternative would result in a reduction of industrial uses within proximity to Impacted Communities, reducing the associated health risk impacts, it would not prevent the development of the projects that have been approved by the County or are pending approval. As such, warehousing uses with heavy-duty trucks could still be developed within 1,000 feet of Impacted Communities.

The proposed General Plan includes policy guidance that addresses impacts from heavy-duty trucks, including Policy HS-P1.8, which requires industrial projects resulting in 25,000 square feet or more of gross habitable floor area to be near zero-emission operations, including from the associated fleet, by providing zero-emission vehicle parking for all anticipated truck traffic to prevent idling and off-site queuing, providing electrified loading docks with receptacles allowing plug-in of refrigerated trucks, using heavy-duty trucks that are model year 2014 or later and expediting a transition to zero-emission trucks, and using a clean fleet of delivery vehicles. In addition, Policy SC-P1.6 directs the County to pursue community benefits agreements (CBAs) for projects with potential to negatively affect an Impacted Community. The CBAs would address the community's expressed needs, with the primary objective to mitigate project impacts to the greatest extent possible, including by exceeding the mitigation requirements of CEQA. This policy also directs the County to secure community benefits that exceed the inherent project benefits and support the community's objectives, especially as identified in the Community Profiles found in the Stronger Communities Element. Furthermore, future warehousing projects would be subject to the Bay Area Air Quality Management District's CEQA Air Quality Guidelines, which require an analysis of consistency of the proposed project with applicable Community Emission Reduction Plans (CERPs) and local Environmental Justice policies.

³ "Impacted Communities" refers to census tracts in the unincorporated county that are disproportionately burdened by pollution. As discussed further in Section 5.3, *Air Quality*, of the DEIR, this designation has been applied to census tracts that score at or above the 72nd percentile for various pollution and population indicators in the California Office of Environmental Health Hazard Assessment's CalEnviroScreen program.

In addition, the County established a moratorium on new or expanded warehousing uses in the North Richmond area, an Impacted Community, pursuant to Ordinance 2023-19, adopted in 2023.

Meanwhile, this Alternative would not meet an important objective of the project to locate jobs closer to Impacted Communities to support economic empowerment and reduced commute costs for Impacted Community members, while also reducing VMT. Given that a substantial amount of warehousing development would still be constructed near Impacted Communities and any proposed warehousing in this area would be subject to the health risk assessment and good neighbor policies described above, and because this Alternative would not meet a key project objective, this Alternative is rejected from further consideration.

B. Alternatives Selected for Further Analysis

Based on the criteria listed above, the following alternatives have been determined to represent a reasonable range of alternatives which have the potential to feasibly attain most of the basic objectives of the project but may avoid or substantially lessen any of the significant effects of the proposed project.

1. No Project/Existing Plans Alternative

The No Project Alternative is required to discuss the existing conditions at the time the notice of preparation is published and evaluate what would reasonably be expected to occur in the foreseeable future if the proposed project is not approved (CEQA Guidelines, Section 15126.6[e]). Pursuant to CEQA, this Alternative is also based on current plans and consistent with available infrastructure and community services. Therefore, the No Project/Existing Plans (Existing General Plan and CAAP) Alternative assumes that the proposed project would not be adopted, and the development intensity assumed in the existing General Plan would be followed. Additionally, all new goals, policies, strategies, and actions under the proposed General Plan and CAAP would not be adopted.

The proposed project would not significantly expand the footprint of development potential beyond the capacity identified in the No Project Alternative. Most changes under the proposed project involve increased density/intensity within community cores and as such, footprint-related impacts (e.g., biological resources and cultural resources) under this Alternative would be similar to the proposed project. The proposed project would result in an increase in population and housing units, as well as employment and commercial and industrial square footage; therefore, this Alternative would result in a reduction in intensity-related impacts. For example, this Alternative would generate fewer auto trips, traffic noise would be less, and impacts on services and utilities would be less.

Additionally, this Alternative would prevent adoption and implementation of the new policies, strategies, and actions under the proposed General Plan and CAAP that would reduce impacts associated with development in the county. For example, Policy HS-P7.1 in the proposed Health and Safety Element would deny entitlements for projects creating additional residential units (i.e., units not allowed by right) in Very High FHSZs in the LRA or SRA, which would reduce impacts associated with wildfire hazards when compared to the policy guidance under the existing General Plan. Policies and actions in the proposed Land Use and Transportation Elements, in addition to the strategies and actions provided in the proposed CAAP, incorporate numerous vehicle miles traveled (VMT) and GHG-reducing measures that would likely lead to increased use of alternative modes of transportation

and other types of reductions in VMT and GHGs. When compared to this Alternative, the proposed project would increase densities in community cores, resulting in further reductions in VMT.

This Alternative would result in increased impacts with respect to aesthetics, agriculture and forestry resources, biological resources, cultural and tribal cultural resources, energy, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, transportation, and wildfire. This Alternative would result in similar impacts to geology and soils, mineral resources, noise, population and housing, and utilities and service systems. This Alternative would result in decreased impacts to air quality and public services and recreation.

Finding:

This Alternative is rejected because it would not meet any of the proposed project's objectives such as increasing density for residential uses. This Alternative would not adopt the updated General Plan and CAAP and each plans' respective policies/actions and strategies that reduce impacts from development. Therefore, this Alternative is eliminated from further consideration.

2. Increased Density Near Transit Priority Areas

As discussed in DEIR Section 5.16, *Transportation*, the EIR Study Area includes two Transit Priority Areas (TPAs), as defined by California Public Resource Code, Section 21099, along a Bay Area Rapid Transit (BART) line. This includes one in Contra Costa Centre and one in Pittsburg/Bay Point. Senate Bill (SB) 743 (2013) (see Section 5.16) declared that aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a TPA shall not be considered significant impacts on the environment. SB 743 also provides streamlining opportunities for projects in TPAs under the assumption that development in these areas would result in less overall environmental impacts. This Alternative proposes a policy to increase the minimum allowed density of all new development and redevelopment within these two TPAs, which include all potential development sites within a half-mile of the BART stations in Contra Costa Centre and Bay Point. Under this Alternative, all projects within these boundaries would be required to achieve at least 90 percent of their sites' maximum allowed density.

As noted in Chapter 3, Section 3.7.5, *Estimate Buildout*, in the DEIR, the planning horizon projections developed for the proposed General Plan and analyzed in the EIR assume that 75 percent of the maximum allowed density will be built in the Residential Very-Low, Low, and Low-Medium Density designations. In the remaining residential designations, the EIR assumes that 80 percent of the maximum allowed density will be built. As such, this Alternative evaluates the potential impacts of requiring a higher minimum density in the TPAs that extends beyond the development potential assumed in the EIR.

As shown in Table 7-2, *Increased Density Near TPAs Alternative Comparison to Proposed Project*, in the DEIR, this Alternative would result in 23,400 new housing units, 1.2 million square feet of new commercial space, and 5 million square feet of new industrial space, overall contributing 66,300 new residents within the unincorporated county by 2045. When compared to the proposed project's development projections, this Alternative would result in 200 additional new housing units while commercial and industrial space would remain the same. These growth estimates are based on an assumption that sites that are currently vacant or underutilized would develop. Because many of the sites within the TPA

are already developed, the growth projection is relatively modest. While more redevelopment could occur and result in higher growth, such redevelopment is speculative and not included in the estimate.

This Alternative would result in increased impacts to population and housing, public services and recreation, and utilities and service systems. This Alternative would result in similar impacts to aesthetics, agriculture and forestry resources, biological resources, cultural and tribal cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, mineral resources, and wildfire. This Alternative would result in decreased impacts to air quality, energy, greenhouse gas emissions, land use and planning, noise, and transportation.

Finding:

This Alternative would meet all project objectives but would not reduce any identified significant and unavoidable impacts of the proposed project to less than significant. This Alternative is rejected because it would not considerably reduce impacts when compared to the proposed project. Therefore, this Alternative is eliminated from further consideration.

3. No Urban Development within High or Very High Fire Hazard Severity Zone Alternative

This Alternative would prohibit new urban development (i.e., housing, commercial, and industrial space) within High or Very High FHSZs, as designated by the Office of the State Fire Marshal and the California Department of Forestry and Fire Protection (CAL FIRE). As discussed in DEIR Section 5.18, *Wildfire*, the EIR Study Area contains 163,524 acres of land mapped within CAL FIRE's High or Very High FHSZs. Approximately 18,677 acres of this land is within the County's Urban Limit Line (ULL), although approximately 7,420 acres of this land is designated as Public and Semi-Public, Parks and Recreation, and Resource Conservation under the proposed General Plan, and largely owned by public agencies who intend to conserve the land. Nevertheless, urban development under the proposed General Plan could occur in FHSZs. These areas are subject to increased risk of wildfire hazards and as concluded in DEIR Section 5.18, impacts associated with wildfire hazard risk would be significant and unavoidable under the proposed project.

This Alternative would ensure that no urban development under the proposed General Plan would occur within High or Very High FHSZ, thereby reducing Impact 5.18-2 and Impact 5.18-5 to less than significant. However, it should be noted that the Office of the State Fire Marshal/CAL FIRE has adopted new FHSZ maps for the State Responsibility Areas which became effective on April 1, 2024, and is currently in the process of updating its FHSZ map for the Local Responsibility Areas. The map updates for Local Responsibility Areas are likely to be adopted by CAL FIRE within the planning horizon of the proposed project. These revisions may result in either expansion or contraction of the ability to build in order to remain consistent with State FHSZ mapping.

Other changes to project impacts associated with this Alternative would largely be associated with the reduction of available sites for urban development within the county. As shown in Table 7-4, *No Urban Development with a Fire Hazard Severity Zone Alternative Comparison to Proposed Project*, in the DEIR, this Alternative would result in 19,500 new housing units, 1.2 million square feet of new commercial space, and 4.8 million square feet of new industrial space, overall contributing 55,200 new residents within the unincorporated county by 2045. When compared to the proposed project's development

projections, this Alternative would result in 3,700 fewer new housing units, 6,400 fewer square feet of new commercial space, and 177,300 fewer new square feet of new industrial space.

This Alternative would result in similar impacts to land use and planning and decreased impacts to all other resources topics (aesthetics, agriculture and forestry resources, air quality, biological resources, cultural and tribal cultural resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, mineral resources, noise, population and housing, public services and recreation, transportation, utilities and service systems, and wildfire).

Finding:

This Alternative is rejected because it would limit opportunities for economic development within communities with large overlaps of High and Very High FHSZ lands, thereby meeting the project objectives to a lesser extent than the proposed project. Therefore, this Alternative is eliminated from further consideration.

4. Increased TPA Density and No Urban FHSZ Development Combined Alternative

This Alternative would combine the two proposed actions in the “Increased Density Near Transit Priority Areas” and “No Urban Development within a High or Very High FHSZ” Alternatives. As such, this Alternative would involve requiring residential development within the county’s two TPAs to achieve at least 90 percent of the sites’ maximum allowed density in addition to prohibiting new urban development within High and Very High FHSZs. This Alternative would have the benefit of increasing density near transit, thereby reducing VMT and related impacts, in addition to reducing wildfire impacts to less than significant.

As shown in Table 7-6, *Increased TPA Density and No Urban FHSZ Development Combined Alternative Comparison to Proposed Project*, in the DEIR, this Alternative would result in 19,700 new housing units, 1.2 million square feet of new commercial space, and 4.8 million square feet of new industrial space, overall contributing 55,800 new residents within the county by 2045. When compared to the proposed project’s development projections, this Alternative would result in 3,500 fewer new housing units, 6,400 fewer square feet of new commercial space, and 177,300 fewer new square feet of new industrial space.

This Alternative would result in increased impacts to land use and planning and decreased impacts to all other resource topics (aesthetics, agriculture and forestry resources, air quality, biological resources, cultural and tribal cultural resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, mineral resources, noise, population and housing, public services and recreation, transportation, utilities and service systems, and wildfire).

This Alternative would meet most of the objectives of the proposed project. It would focus more housing development within the community cores and would adopt the proposed General Plan and CAAP, like the proposed project, with the exceptions of density increases in the TPAs and prohibiting new urban development within High and Very High FHSZs. Like the FHSZ Alternative, this Alternative would however decrease the overall development capacity of the county, resulting in fewer economic opportunities for the communities affected by this prohibition of new urban development. This Alternative would reduce the most impacts and meets the most project objectives when compared

to the other alternatives. Therefore, this Alternative is considered the “environmentally superior alternative.”

Finding

This Alternative would reduce the most impacts and meets the most project objectives when compared to the other alternatives. Therefore, this Alternative is considered the “environmentally superior alternative.” However, this Alternative would not meet the project objectives to the extent of the proposed project. Therefore, this Alternative is rejected.

V. STATEMENT OF OVERRIDING CONSIDERATIONS

CEQA requires decision makers to balance the benefits of the proposed project against its unavoidable environmental risks when determining whether to approve the proposed project. If the benefits of the proposed project outweigh the unavoidable adverse effects, those effects may be considered “acceptable” (State CEQA Guidelines § 15093[a]). CEQA requires the agency to support, in writing, the specific reasons for considering a project acceptable when significant impacts are infeasible to mitigate. Such reasons must be based on substantial evidence in the Final EIR or elsewhere in the administrative record (State CEQA Guidelines § 15093[b]). The agency’s statement is referred to as a Statement of Overriding Considerations.

The following provides the justification for adopting a statement of overriding considerations.

A. Project Benefits in Support of the Statement of Overriding Considerations

The following section describes the benefits of the proposed project that outweigh the proposed project’s unavoidable adverse effects and provides specific reasons for considering the proposed project acceptable. Accordingly, the County has prepared this Statement of Overriding Considerations regarding potentially significant adverse environmental impacts resulting from the proposed project, as set forth below. Pursuant to CEQA Guidelines § 15093(c), the Statement of Overriding Considerations is included in the record of the project approval and will be noted in the Notice of Determination. Each of the benefits identified below provides a separate and independent basis for overriding the significant environmental effects of the proposed project.

Having reduced the potential effects of the proposed project through feasible mitigation measures as described previously herein, and balancing the benefits of the proposed project against its potential unavoidable adverse impacts on agricultural and forestry resources, air quality, cultural and tribal cultural resources, mineral resources, noise, transportation, and wildfire, the County finds that the legal requirements and benefits of the proposed project individually and collectively outweigh the potentially significant unavoidable adverse impacts for the following reasons:

1. Implements the Objectives Established for the Proposed Project

The proposed project would meet each of the objectives identified in Section II.F, above.

- 1) The proposed project would extend the planning horizon for the General Plan to 2045 and is in itself a General Plan and CAAP that meet State requirements.

- 2) The proposed General Plan includes updates to the County's land use map to align with existing uses and create more opportunities for mixed-use development and higher density housing within community cores, where infrastructure and services are available.
- 3) The proposed General Plan contains policy guidance for individual communities within the county to facilitate community-scale planning efforts.
- 4) The proposed General Plan includes policy guidance throughout all elements that supports environmental justice, community health, economic development, and sustainability, as demonstrated through Appendix A of the General Plan, which compiles the policies and actions for each of these themes. These themes are further supported in the CAAP.

2. Identifies and Provides Resources for Impacted Communities

The proposed General Plan promotes environmental justice within the county consistent with the goals of SB 1000. In particular, the proposed Stronger Communities Element provides goals, policies, and actions that aim to improve community health and safety in Impacted Communities, including by reducing exposure to pollution and other hazards and increasing access to healthy food, physical activities, healthcare, safe housing, and living wage jobs. It also addresses the specific disadvantages and burdens experienced by Impacted Communities in the county. For example, Policy SC-P1.1 supports transition from highly polluting industries to a net-zero emission economy based on renewable and sustainable industries, promoting living-wage jobs and reducing pollution; Policy SC-P1.3 promotes walkable districts offering retail and service uses, public amenities, and essential infrastructure for residents of Impacted Communities within walking distance of their homes; Policy SC-P3.1 would provide sufficient and equitable access to appropriate healthcare and behavioral health facilities and services for all communities; and Policy SC-P6.1 ensures that future improvements in Impacted Communities will not result in a net loss of affordable housing or significant preventable displacement of residents. In addition, the proposed Health and Safety Element includes policies and actions to improve air quality in Impacted Communities by requiring new or expanded industries to mitigate pollutants at the source (see Policy HS-P1.6) and locate sources of pollution far from vulnerable populations as possible (see Policy HS-P1.4).

3. Implements the Climate Action and Adaptation Plan

The proposed project includes an update to the County's Climate Action Plan, which is a comprehensive plan for the reduction of GHG emissions through a series of actions and strategies that would be undertaken by the County. The proposed CAAP identifies strategies and measures to meet the State's GHG reductions targets. CAAP strategies target reductions in a variety of sectors in the county. For example, Strategy BE-1 requires new buildings or additions built in unincorporated Contra Costa County to be low-carbon or carbon neutral; Strategy BE-2 focuses on retrofitting buildings and facilities to reduce energy use and transition to low-carbon or carbon-free fuels; Strategy TR-2 increases the use of zero-emission vehicles by transitioning to a zero-emission County fleet by 2035 and a community fleet that is at least 50 percent zero-emission by 2030; and Strategy NI-4 commits to sequester carbon on natural and working lands in the county.

4. Includes Sustainability Features

The proposed Land Use Element includes policies and actions that support sustainable development patterns by focusing on infill development, directing housing and jobs in close proximity, and encouraging high-density, mixed-use development near transit centers (see Goals LU-2 and LU-3 and associated policies and actions). In addition, the Transportation Element includes policy guidance to increase access to zero-emission vehicles, as well as to reduce dependence on personal vehicles by prioritizing investments in bicycle and pedestrian infrastructure and supporting the expansion of transit (see Goal TR-1 and associated policies and actions).

The proposed project also includes policies and strategies that would improve energy efficiency. For example, Strategy BE-3 would increase the amount of electricity used and generated from renewable sources in the county, Policy TR-P2.3 would provide or require new projects to install energy-efficient street lighting, and policies and actions under Goal COS-14 would increase generation of and reliance on renewable, sustainable, and carbon-free energy and reduce energy use.

In addition, the proposed Conservation, Open Space, and Working Lands Element includes policies and actions to preserve open spaces and agricultural lands and ensure the health and viability of natural and working lands is prioritized when there are potential conflicts with urban uses. The Land Use Element also includes policies that support the 65/35 Land Preservation Standard and Urban Limit Line (see Goal LU-2 and associated policies and actions), which limit urban development to no more than 35 percent of the land area of the county and define where such uses can occur.

5. Supports Regional Goals

Plan Bay Area 2050 (described in Section 5.11, *Land Use and Planning*, of the DEIR) provides guidance to local jurisdictions, including Contra Costa County, on how future development can be consistent with the State's GHG and VMT reduction goals, including by constructing more infill development in downtowns and centers near jobs and services. As discussed in Project Benefits 3 and 4 above, the Contra Costa County 2045 General Plan and CAAP share these goals and support them by implementing policies, actions, and strategies to support sustainable development patterns that reduce GHG emissions and VMT, and conserve open space and agricultural land.

6. Supports Job Growth and the Economy

The proposed 2045 General Plan includes policies and actions that work to sustain a resilient and diversified economy that will support existing businesses, attract new businesses, and encourage investment and innovation while fostering economic opportunities for all residents. In particular, policies and actions under Goal SC-9 would implement the Northern Waterfront Economic Development Initiative, a regional strategy to create 18,000 new jobs along the Northern Waterfront by 2035; policies and actions under this goal would also promote expansion of clean manufacturing and development of Priority Production Areas, areas that the County and regional agencies will prioritize for investments and protection from competing land uses. Numerous policies in the Stronger Communities and Land Use Elements support and encourage local businesses. The proposed 2045 General Plan further supports local workers and businesses through policy guidance under Goal SC-8 that helps to develop and enhance local workforce skills through schools, training programs, the Workforce Development Board, and other institutions.

B. Conclusion

The County has balanced the proposed project's benefits against the significant unavoidable impacts. The Board of Supervisors finds that the proposed project's benefits, which aim to meet the goals and policies of the 2045 General Plan and CAAP, outweigh the proposed project's significant and unavoidable impacts, and these impacts, therefore, are considered acceptable in the light of the proposed project's benefits. The County finds that each of the benefits described above is an overriding consideration, independent of the other benefits, that warrants approval of the proposed project notwithstanding the proposed project's significant unavoidable impact.

VI. FINDINGS ON RESPONSES TO COMMENTS ON THE DEIR AND REVISIONS TO THE FINAL EIR

The Final EIR contains responses to comments, revisions, clarifications, and corrections to the DEIR. The focus of the response to comments is on the disposition of significant environmental issues as raised in the comments, as specified by State CEQA Guidelines Sections 15088(a) and 15088(b). The County provided written responses to each comment made by a public agency, as set forth in Section 2 of the Final EIR, pursuant to State CEQA Guidelines Section 15088(b).

County staff has reviewed this material and determined that none of this material constitutes the type of significant added information that requires recirculation of the DEIR for further public comment under CEQA Guidelines Section 15088.5. None of this new material indicates that the proposed project will result in a significant new environmental impact not previously disclosed in the DEIR. Additionally, none of this material indicates that there would be a substantial increase in the severity of a previously identified environmental impact that will not be mitigated, or that there would be any of the other circumstances requiring recirculation described in Section 15088.5 of the CEQA Guidelines.

October 2024 | Mitigation Monitoring and Reporting Program
State Clearinghouse No. 2023090467

Contra Costa County 2045 General Plan and Climate Action and Adaptation Plan

Contra Costa County

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1. Introduction

1.1 PURPOSE OF MITIGATION MONITORING AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program (MMRP) has been developed to provide a record of monitoring mitigation measures outlined in the Draft Environmental Impact Report (DEIR) for the project. The MMRP has been prepared in conformance with Section 21081.6 of the Public Resources Code. Section 21081.6 states:

- (a) When making findings required by paragraph (1) of subdivision (a) of Section 21081 or when adopting a mitigated negative declaration pursuant to paragraph (2) of subdivision (c) of Section 21080, the following requirements shall apply:
 - (1) The public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation. For those changes which have been required or incorporated into the project at the request of a responsible agency or a public agency having jurisdiction by law over natural resources affected by the project, that agency shall, if so requested by the lead or responsible agency, prepare, and submit a proposed reporting or monitoring program.
 - (2) The lead agency shall specify the location and custodian of the documents or other material which constitute the record of proceedings upon which its decision is based.

1.2 EIR SUMMARY

1.2.1 PROJECT LOCATION

Contra Costa County is on the northeastern side of the San Francisco Bay, adjacent to Alameda County to the south, San Joaquin County to the east, Solano and Sacramento Counties to the north across Suisun Bay, and San Francisco County to the west. North to south regional access is provided by Interstate (I-) 80, I-680, and State Route (SR-) 242; east to west regional access is provided through I-580, SR-4, and SR-24.

The proposed project defines the project area as unincorporated Contra Costa County. The EIR focuses on the analysis of potential impacts on lands only in unincorporated Contra Costa County, including land in each municipality's sphere of influence (SOI), but not inside municipal limits.

1.2.2 PROJECT SUMMARY

Contra Costa County 2045 General Plan

The primary component of the project is an update of Contra Costa County's General Plan. The General Plan is a State-required legal document that provides guidance to decision-makers regarding allocation of resources and determining the future physical form and character of development within the unincorporated county. The proposed General Plan serves as the County's primary land use regulatory tool and serves as the basis for all planning-related decisions made by County staff, the Planning Commission, and Board of Supervisors. The proposed General Plan includes Stronger Communities; Land Use; Transportation; Conservation, Open Space, and Working Lands; Public Facilities and Services; Health and Safety; and Growth Management Elements. The Contra Costa County Housing Element, updated separately before the rest of the General Plan, was adopted on December 12, 2023.

Climate Action and Adaptation Plan

The Contra Costa County Climate Action and Adaptation Plan 2024 Update (CAAP) is a comprehensive plan for reduction of greenhouse gas (GHG) emissions through a series of actions and strategies that would be undertaken by the County to help meet the State's GHG reduction targets. The CAAP also includes an adaptation plan that recommends actions to reduce vulnerability to the anticipated impacts of climate change. The proposed CAAP does not include any development proposals and would not directly result in physical environmental effects related to construction or operation of facilities.

1.3 ENVIRONMENTAL IMPACTS

1.3.1 IMPACTS CONSIDERED LESS THAN SIGNIFICANT

The DEIR identified various thresholds from the CEQA Guidelines among several environmental topic areas that would not be significantly impacted by the proposed project and therefore have no mitigation measures to monitor. Impacts in the following topic areas were found to be less than significant:

- AESTHETICS
- ENERGY
- GREENHOUSE GAS EMISSIONS
- HAZARDS AND HAZARDOUS MATERIALS
- HYDROLOGY AND WATER QUALITY
- LAND USE AND PLANNING
- POPULATION AND HOUSING
- PUBLIC SERVICES AND RECREATION
- UTILITIES AND SERVICE SYSTEMS

1.3.2 POTENTIALLY SIGNIFICANT ADVERSE IMPACTS THAT CAN BE MITIGATED, AVOIDED, OR SUBSTANTIALLY LESSENERD

The DEIR identified various thresholds from the CEQA Guidelines among two environmental topic areas that could be reduced, avoided, or substantially lessened through the implementation of mitigation measures.

- **BIOLOGICAL RESOURCES**
- **GEOLOGY AND SOILS**

1.3.3 UNAVOIDABLE SIGNIFICANT ADVERSE IMPACTS

The following impacts would remain significant and unavoidable after implementation of the required mitigation, as identified in the DEIR:

- | | |
|---|----------------------------|
| ▪ AGRICULTURE AND FORESTRY RESOURCES | ▪ MINERAL RESOURCES |
| ▪ AIR QUALITY | ▪ NOISE |
| ▪ CULTURAL AND TRIBAL CULTURAL RESOURCES | ▪ TRANSPORTATION |
| | ▪ WILDFIRE |

2. *Mitigation Monitoring Process*

Overall MMRP management is the responsibility of the County. The County may engage technical consultants (CEQA consultant, archaeologist, paleontologist, etc.) to perform related monitoring tasks under the direction of County staff.

3. *Mitigation Monitoring Requirements*

As each discretionary project is proposed, County staff will review this MMRP to determine if one or more of the mitigation measures apply. The mitigation measures(s) will be included as appropriate in the development project conditions of approval. The County is responsible for implementation and monitoring of mitigation measures.

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Table 3-1 Mitigation Monitoring Requirements

| Mitigation Measure | Timing | Responsibility for Implementation & Monitoring | Monitor (Signature Required) (Date of Compliance) |
|---|---------------------------------|--|---|
| 5.3 Air Quality | | | |
| Mitigation Measure AQ-1 Prior to discretionary approval by the County for development projects subject to CEQA (California Environmental Quality Act) review (i.e., nonexempt projects), future development involving construction on 1 acre or more shall prepare and submit a technical assessment evaluating potential project construction-related air quality impacts to the County Department of Conservation and Development for review and approval. The evaluation shall be prepared in conformance with the Bay Area Air Quality Management District (BAAQMD) methodology for assessing air quality impacts identified in their CEQA Air Quality Guidelines. If construction-related criteria air pollutants are determined to have the potential to exceed the BAAQMD-adopted construction screening criteria and thresholds of significance, the Department of Conservation and Development shall require feasible mitigation measures to reduce air quality emissions. Potential measures may include: <ul style="list-style-type: none">Require implementation of the BAAQMD Best Management Practices for fugitive dust control, such as:All exposed surfaces (e.g., parking areas, staging areas, soil piles, grading areas, and unpaved access roads) shall be watered two times per day.All haul trucks transporting soil, sand, or other loose material off-site shall be covered.All visible mud or dirt track out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph). | Prior to discretionary approval | Contra Costa County Department of Conservation and Development | |

3. MITIGATION MONITORING REQUIREMENTS

| Mitigation Measure | Timing | Responsibility for Implementation & Monitoring | Monitor (Signature Required) (Date of Compliance) |
|---|---------------------------------|--|---|
| <ul style="list-style-type: none"> All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph. All trucks and equipment, including their tires, shall be washed off prior to leaving the site. Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel. Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations. <p>Measures shall be incorporated into appropriate construction documents (e.g., construction management plans) submitted to the County and shall be verified by the Department of Conservation and Development.</p> | | | |
| Mitigation Measure AQ-2 Prior to discretionary approval by the County for development projects subject to CEQA (California Environmental Quality Act) review (i.e., nonexempt projects), future project applicants shall prepare and submit a technical assessment evaluating potential project operation-phase-related air quality impacts to the Department of Conservation and Development for review and approval. The evaluation shall be prepared in conformance with Bay Area Air Quality Management District (BAAQMD) methodology in assessing air quality impacts identified in their CEQA Air Quality Guidelines. If operation-related air pollutants are determined to have the potential to exceed the BAAQMD-adopted operational screening criteria and thresholds of significance, the Department of Conservation and Development shall | Prior to discretionary approval | Contra Costa County Department of Conservation and Development | |

3. MITIGATION MONITORING REQUIREMENTS

| Mitigation Measure | Timing | Responsibility for Implementation & Monitoring | Monitor (Signature Required) (Date of Compliance) |
|---|---------------------------------|--|---|
| <p>require that applicants for new development projects incorporate mitigation measures to reduce air pollutant emissions during operational activities. The identified measures shall be included as part of the conditions of approval. Possible mitigation measures to reduce long-term emissions could include, but are not limited to the following:</p> <ul style="list-style-type: none"> ▪ Implementing commute trip reduction programs. ▪ Unbundling residential parking costs from property costs. ▪ Expanding bikeway networks. ▪ Expanding transit network coverage or hours. ▪ Using cleaner-fueled vehicles. ▪ Exceeding the current Title 24 Building Envelope Energy Efficiency Standards. ▪ Establishing on-site renewable energy generation systems. ▪ Requiring all-electric buildings. ▪ Replacing gas-powered landscaping equipment with zero-emission alternatives. ▪ Expanding urban tree planting | | | |
| <p>Mitigation Measure AQ-3 Prior to discretionary approval by the County for development projects subject to CEQA (California Environmental Quality Act) review (i.e., nonexempt projects), future development involving construction on 1 acre or more within 1,000 feet of residential and other sensitive land uses (e.g., hospitals, nursing homes, schools, and day care centers) in the unincorporated county, shall submit a health risk assessment (HRA) to the County Department of Conservation and Development for review and approval. The HRA shall be prepared in accordance with policies and procedures of the Office of Environmental Health Hazard Assessment (OEHHHA) and the Bay Area Air Quality Management District (BAAQMD). The latest OEHHHA guidelines shall be used for the analysis, including age sensitivity factors, breathing rates, and body weights appropriate for children ages 0 to 16 years. If the HRA shows that the incremental cancer risk exceeds the respective threshold established by the BAAQMD—project-</p> | Prior to discretionary approval | Contra Costa County Department of Conservation and Development | |

3. MITIGATION MONITORING REQUIREMENTS

| Mitigation Measure | Timing | Responsibility for Implementation & Monitoring | Monitor (Signature Required) (Date of Compliance) |
|---|--|---|---|
| <p>level risk of six in one million in Impacted Communities, BAAQMD's Overburdened Communities, and within 1,000 feet of a BAAQMD Overburdened Community; ten in a million in all other areas; PM2.5 emissions that exceed 0.3 µg/m3; or the appropriate noncancer hazard index exceeds 1.0—the applicant will be required to identify and demonstrate that mitigation measures are capable of reducing potential cancer and non-cancer risks below the respective threshold, including appropriate enforcement mechanisms. Measures to reduce risk may include, but are not limited to:</p> <ul style="list-style-type: none"> ■ Use of construction equipment rated as US EPA Tier 4 Interim for equipment of 50 horsepower or more. ■ Use of construction equipment fitted with Level 3 Diesel Particulate Filters for all equipment of 50 horsepower or more. <p>Measures identified in the HRA shall be included in the environmental document and/or incorporated into the site development plan as a component of the proposed project. Prior to issuance of any construction permit, the construction contractor shall ensure that all construction plans submitted to the Department of Conservation and Development clearly show incorporation of all applicable mitigation measures.</p> | | | |
| <p>Mitigation Measure AQ-4</p> <p>Prior to discretionary approval by the County, project applicants for new industrial or warehousing development projects that 1) have the potential to generate 100 or more diesel truck trips per day or have 40 or more trucks with operating diesel-powered transport refrigeration units, and 2) are within 1,000 feet of a sensitive land use (e.g., residential, schools, hospitals, nursing homes) or Impacted Community, as measured from the property line of the project to the property line of the nearest sensitive use, shall submit a health risk assessment (HRA) to the Department of Conservation and Development for review and approval. The HRA shall be prepared in accordance with policies and procedures of the State Office of Environmental Health Hazard Assessment (OEHHA) and the Bay Area Air Quality Management District (BAAQMD). The latest OEHHA guidelines shall be used for the analysis, including age sensitivity factors, breathing rates, and body weights appropriate for children ages 0 to 16 years. If the HRA shows that the cumulative and project-level incremental cancer risk,</p> | <p>Prior to discretionary approval</p> | <p>Contra Costa County Department of Conservation and Development</p> | |

3. MITIGATION MONITORING REQUIREMENTS

| Mitigation Measure | Timing | Responsibility for Implementation & Monitoring | Monitor (Signature Required) (Date of Compliance) |
|---|--------|--|---|
| <p>noncancer hazard index, and/or PM2.5 exceeds the respective threshold, as established by BAAQMD (all areas of the unincorporated county) and project-level risk of six in one million in Impacted Communities, BAAQMD's Overburdened Communities, and within 1,000 feet of a BAAQMD Overburdened Community; ten in a million in all other areas; PM2.5 emissions that exceed 0.3 µg/m3; or the appropriate noncancer hazard index exceeds 1.0, the project applicant will be required to identify best available control technologies for toxics (T BACTs) and appropriate enforcement mechanisms, and demonstrate that they are capable of reducing potential cancer, noncancer risks, and PM2.5 to an acceptable level. T-BACTs may include but are not limited to:</p> <ul style="list-style-type: none"> ▪ Restricting idling on-site beyond Air Toxic Control Measures idling restrictions. ▪ Electrifying warehousing docks. ▪ Requiring use of newer equipment. ▪ Requiring near-zero or zero-emission trucks for a portion of the vehicle fleet based on opening year. ▪ Truck Electric Vehicle (EV) Capable trailer spaces. ▪ Restricting off-site truck travel through the creation of truck routes. <p>T-BACTs identified in the HRA shall be identified as mitigation measures in the environmental document and/or incorporated into the site plan.</p> | | | |

3. MITIGATION MONITORING REQUIREMENTS

| Mitigation Measure | | Timing | Responsibility for Implementation & Monitoring | Monitor (Signature Required) (Date of Compliance) |
|---|--|---|--|---|
| 5.4 BIOLOGICAL RESOURCES | | | | |
| Mitigation Measures BIO-1 | <p>Prior to issuance of a building permit for projects not exempt from the California Environmental Quality Act, the County shall require a habitat connectivity/wildlife corridor evaluation for future development that may impact existing connectivity areas and wildlife linkages. The evaluation shall identify project design features that would reduce potential impacts and maintain habitat and wildlife movement. To this end, the County shall incorporate the following measures, to the extent practicable, for projects impacting wildlife movement corridors:</p> <ul style="list-style-type: none">▪ Encourage clustering of development.▪ Avoid known sensitive biological resources.▪ Provide shielded lighting adjacent to sensitive habitat areas.▪ Encourage development plans that maximize wildlife movement.▪ Provide buffers between development and wetland/riparian areas.▪ Protect wetland/riparian areas through regulatory agency permitting process.▪ Encourage wildlife-passable fence designs (e.g., three-strand barbed wire fence) on property boundaries.▪ Encourage preservation of native habitat on developed parcels.▪ Minimize road/roadway development to help prevent loss of habitat due to roadkill and habitat loss.▪ Use native, drought-resistant plant species in landscape design.▪ Encourage participation in local/regional recreational trail design efforts. | <p>Prior to issuance of a building permit</p> | <p>Contra Costa County Department of Conservation and Development</p> <p>Qualified Biologist</p> | |
| 5.5 CULTURAL AND TRIBAL CULTURAL RESOURCES | | | | |
| Mitigation Measure CUL-1 | <p>Prior to initiation of construction activities for discretionary projects that are not exempt from CEQA and would involve ground-disturbing activities on previously undisturbed sites or alteration of potentially significant built environment resources, or as otherwise directed by the County, the project applicant shall be required to retain a cultural resources consultant with staff that meets the Secretary of the Interior's Professionally Qualified</p> | <p>Prior to initiation of construction activities</p> | <p>Contra Costa County Department of Conservation and Development</p> | |

3. MITIGATION MONITORING REQUIREMENTS

| Mitigation Measure | Timing | Responsibility for Implementation & Monitoring | Monitor (Signature Required) (Date of Compliance) |
|--|--------|--|---|
| <p>Standards to conduct a cultural records search and complete the following steps as relevant.</p> <p>The cultural resources consultant shall:</p> <ul style="list-style-type: none">■ Conduct a records search with the California Historical Resources Information System.■ If the record search shows a pedestrian survey has been conducted within the last 10 years and the survey results were negative, the project applicant shall provide those results to the County for summary in environmental analysis.■ If no survey has been performed, or if cultural resources are present, the project applicant shall direct the cultural resources consultant to:<ul style="list-style-type: none">○ Conduct a pedestrian survey (if none has been completed).○ Update the records for known resources.○ Record new built environment and archaeological resources.○ Determine if the resources have been previously evaluated for the California Register of Historical Resources.○ If the resources were previously determined ineligible for listing, the cultural resources consultant shall describe those results for use in the County's environmental analysis.○ If the resources have not been evaluated, the cultural resources consultant shall evaluate the resources for listing on the California Register of Historical Resources, and local registers.○ If the resources were previously determined eligible or are proposed to be register-eligible, the cultural resources consultant shall determine if the project would result in a | | Qualified Cultural Resources Consultant | |

3. MITIGATION MONITORING REQUIREMENTS

| Mitigation Measure | | Timing | Responsibility for Implementation & Monitoring | Monitor (Signature Required) (Date of Compliance) |
|---|---|--|--|---|
| <p>“substantial adverse change in the resource” as defined in CEQA Guidelines Section 15064.5(b)(1).</p> <ul style="list-style-type: none"> If a substantial adverse change would occur, the cultural resources consultant shall support the County in identifying feasible mitigation approaches. | | | | |
| Mitigation Measure TCR-1 | <p>Prior to initiation of construction activities for discretionary projects that are not exempt from CEQA and would involve ground-disturbing activities on previously undisturbed sites, or as otherwise directed by the County, the project applicant may be required to enter into a cultural resources treatment agreement with the culturally affiliated tribe. If required, the agreement would address the treatment and disposition of cultural resources and human remains that may be impacted as a result of the development as well as provisions for tribal monitors. If an agreement is required, the applicant must provide a copy of the cultural resources treatment agreement to the County prior to issuance of a grading or building permit. Regardless of whether an agreement is required, if cultural resources are discovered during project construction, all work in the area shall cease and a qualified archaeologist and representatives of the culturally affiliated tribe shall be retained by the project sponsor to investigate the find and make recommendations as to treatment and mitigation.</p> | Prior to initiation of construction activities | <p>Contra Costa County Department of Conservation and Development</p> <p>Qualified Archaeologist, Culturally Affiliated Tribe Member</p> | |
| Mitigation Measure TCR-2 | <p>Tribal monitors from the culturally affiliated tribe shall be allowed to monitor all grading, excavation, and ground-breaking activities, including archaeological surveys, testing, and studies for discretionary projects that are not exempt from CEQA and that would involve ground-disturbing activities on previously undisturbed sites, or as otherwise directed by the County.</p> | During construction activities | <p>Contra Costa County Department of Conservation and Development</p> <p>Tribal Monitor</p> | |
| 5.7 GEOLOGY AND SOILS | | | | |
| Mitigation Measure GEO-1 | <p>Prior to initiation of construction activities for discretionary projects that are not exempt from CEQA and would involve ground-disturbing activities on previously undisturbed sites, or as otherwise directed by the County, the project applicant shall be required to retain a Qualified Professional Paleontologist to determine the project’s potential to significantly impact</p> | Prior to initiation of construction activities | <p>Contra Costa County Department of Conservation and Development</p> | |

3. MITIGATION MONITORING REQUIREMENTS

| Mitigation Measure | Timing | Responsibility for Implementation & Monitoring | Monitor (Signature Required) (Date of Compliance) |
|--|--|---|---|
| paleontological resources according to Society of Vertebrate Paleontology standards. If necessary, the Qualified Professional Paleontologist shall recommend mitigation measures to reduce potential impacts to paleontological resources to a less-than-significant level. | | Qualified Professional Paleontologist | |
| 5.13 NOISE | | | |
| <p>Mitigation Measure N-1 Require construction contractors to implement the following measures for construction activities. Demolition, grading, and construction plans submitted to the County shall identify these measures and the County Department of Conservation and Development shall verify that the submitted plans include these notations prior to issuance of demolition, grading, or construction permits:</p> <ul style="list-style-type: none"> During the entire active construction period, equipment and trucks used for project construction shall use the best-available noise control techniques (e.g., improved mufflers, equipment re-design, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) available. Impact tools (e.g., jack hammers and breakers) shall be hydraulically or electrically powered wherever possible. Where the use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used along with external noise jackets on the tools. Stationary equipment, such as generators and air compressors, shall be as far as feasible from nearby noise-sensitive uses. Stockpiling shall be as far as feasible from nearby noise-sensitive receptors. Construction traffic shall be limited, to the extent feasible, to approved haul routes approved by the County Conservation and Development and Public Works Departments. At least 10 days prior to the start of construction activities, a sign shall be posted at the entrance(s) to the job site, clearly visible to the public, that includes permitted construction days and hours, as | Prior to issuance of demolition, grading, or building permits and during construction activities | <p>Contra Costa County Department of Conservation and Development</p> <p>Construction Contractors</p> | |

3. MITIGATION MONITORING REQUIREMENTS

| Mitigation Measure | Timing | Responsibility for Implementation & Monitoring | Monitor (Signature Required) (Date of Compliance) |
|--|--|--|---|
| <p>well as the telephone numbers of the County's and contractor's authorized representatives that are assigned to respond in the event of a noise or vibration complaint. If the authorized contractor's representative receives a complaint, they shall investigate, take appropriate corrective action, and report the action to the County.</p> <ul style="list-style-type: none">■ Signs shall be posted at the job site entrance(s), within the on-site construction zones, and along queueing lanes (if any) to reinforce the prohibition of unnecessary engine idling. All other equipment shall be turned off if not in use for more than 5 minutes.■ During the entire active construction period and to the extent feasible, the use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only. The construction manager shall use smart back-up alarms, which automatically adjust the alarm level based on the background noise level or switch off back-up alarms and replace them with human spotters in compliance with all safety requirements and laws.■ Erect temporary noise barriers (at least as high as the exhaust of equipment and breaking line-of-sight between noise sources and sensitive receptors), as necessary and feasible, to maintain construction noise levels at or below the performance standard of 80 dBA Leq. Barriers shall be constructed with a solid material that has a density of at least 4 pounds per square foot with no gaps from the ground to the top of the barrier. | | | |
| Mitigation Measure N-2 | Prior to issuance of a building permit during construction within 135 feet of fragile structures, such as historical resources, 100 feet of non-engineered timber and masonry buildings (e.g., most residential buildings), or within 75 feet of engineered concrete and masonry (no plaster); or a vibratory roller within 25 feet of any structure, the project applicant shall prepare a noise and vibration analysis to assess and mitigate potential noise and vibration impacts related to these activities. This noise and vibration analysis shall be conducted by a qualified and | Prior to issuance of a building permit | Contra Costa County Department of Conservation and Development Acoustical Consultant or Engineer |

3. MITIGATION MONITORING REQUIREMENTS

| Mitigation Measure | Timing | Responsibility for Implementation & Monitoring | Monitor (Signature Required) (Date of Compliance) |
|--|----------------------------------|--|---|
| experienced acoustical consultant or engineer. The vibration levels shall not exceed FTA architectural damage thresholds (i.e., 0.12 inches per second [in/sec] peak particle velocity [PPV] for fragile or historical resources, 0.2 in/sec PPV for non-engineered timber and masonry buildings, and 0.3 in/sec PPV for engineered concrete and masonry). If vibration levels would exceed this threshold, alternative uses such as drilling piles as opposed to pile driving and static rollers as opposed to vibratory rollers shall be used. If necessary, construction vibration monitoring shall be conducted to ensure vibration thresholds are not exceeded. | | | |
| Mitigation Measure N-3 During the project-level CEQA process for industrial development projects or other projects that could generate substantial vibration levels near sensitive uses, such as residential uses, a noise and vibration analysis shall be conducted to assess and mitigate potential noise and vibration impacts related to the operations of that individual development. This noise and vibration analysis shall be conducted by a qualified and experienced acoustical consultant or engineer and shall follow the latest CEQA guidelines, practices, and precedents. | Prior to approval of the project | Contra Costa County Department of Conservation and Development Acoustical Consultant or Engineer | |

4. *Mitigation Monitoring Reports*

The County will keep a report of MMRP compliance with each development project file.

Monitoring reports are public documents and are available for review by the general public.